Digital DCE for OpenVMS VAX and OpenVMS Alpha

Installation and Configuration Guide

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Preface

This guide describes the installation procedure and the system configuration utility for the Digital Distributed Computing Environment (DCE) for OpenVMS VAX and OpenVMS Alpha Version 1.3, which consists of the following services:

- Remote Procedure Call (RPC) service provides connectivity between individual procedures in an application across heterogeneous systems in a transparent way.
- Interface Definition Language (IDL) compiler is required for developing distributed DCE applications.
- Threads service provides user-mode control and synchronization of multiple operations. Threads is packaged with the base operating system.
- Cell Directory Service (CDS) provides a location-independent method of identifying resources within a cell. A cell is the smallest group of DCE systems that share a common naming and security domain.
- DCE Security Service provides authentication and authorization within a cell and is based on MIT's Kerberos private key encryption system.
- Distributed Time Service (DTS) provides date and time synchronization within a cell.

Four kits are available: the Runtime Services Kit, the Application Developer's Kit, the CDS Server Kit, and the Security Server Kit. The following sections list the contents of each of the kits.

The Runtime Services Kit contains the following:

- Authenticated CDS Advertiser and Client Support
- CDS Browser
- CDS Control Program (CDSCP)
- Authenticated DCE RPC runtime support (supports DECnet, TCP/IP, and UDP)
- Resource Broker
- RTI (Remote Task Invocation) RPC for Digital's ACMSxp TP product
- Security Client Support
- Integrated Login
- A DCE_LOGIN tool for obtaining credentials
- A RGY_EDIT tool for registry maintenance functions
- KINIT, KLIST, and KDESTROY Kerberos tools
- An ACL_EDIT tool for access control lists (ACLs) for DCE objects
- RPC Control Program (RPCCP)
- Name Service Interface Daemon (nsid); also known as the PC Nameserver Proxy
- Native Kerberos
- XDS Directory Services
- XDS Object Managment

The Application Developer's Kit contains the following:

- The contents of the Runtime Services Kit
- Required DCE application development header files
- Interface Definition Language (IDL) compiler
- Object-Oriented RPC

- NIDL-to-IDL compiler (OpenVMS VAX only)
- Generic Security Service (GSSAPI)
- LSE Templates for IDL
- UUID Generator
- The .H (Include) files and .IDL files for application development
- Sample DCE applications

The CDS Server Kit contains the following:

- CDS server (cdsd)
- Global Directory Agent (GDA)

The Security Server Kit contains the following:

- Security server (secd)
- Tool used to create the security database (sec_create_db)
- Security server administrative tool (sec_admin)

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall Digital DCE.

Intended Audience

This guide is written for:

- Managers of distributed computing environments on one or more systems
- Installers of Version 1.3 of Digital DCE for OpenVMS VAX or OpenVMS Alpha Kit

Document Structure

This guide contains the following chapters and appendixes:

- Chapter 1 describes the requirements and procedures that you must complete before installing the software.
- Chapter 2 describes the installation process.
- Chapter 3 describes procedures that you must complete after the installation.
- Chapter 4 describes the system configuration utility, which sets up the DCE environment.
- Appendix A lists the directories and files created by the installation procedure and system configuration utility.
- Appendix B contains sample logs of the installation procedure.
- Appendix C contains sample logs of the configuration procedure.

Associated Documents

In addition to this guide, the documentation set includes the following manuals:

- *Digital DCE for OpenVMS VAX and OpenVMS Alpha Product Guide*
- *Digital DCE for OpenVMS VAX and OpenVMS Alpha Reference Guide*
- *Guide to the Resource Broker*
- *Understanding DCE*
- *Guide to Writing DCE Applications* (Application Developer's Kit only)
- *Distributing Applications Across DCE and Windows NT*
- *Introduction to OSF DCE*
- *OSF DCE Application Development Guide* (Application Developer's Kit only)
- *OSF DCE Application Development Reference* (Application Developer's Kit only)

- *OSF DCE Administration Guide — Introduction*
- *OSF DCE Administration Guide — Core Components*
- *OSF DCE Administration Guide — Extended Services*
- *OSF DCE Administration Reference*
- *DEC C/C++ Run-Time Components for OpenVMS VAX Reference and Installation Guide*

The online information includes the following:

- *Digital DCE for OpenVMS VAX and OpenVMS Alpha Release Notes* (SYS$HELP:DCE013.RELEASE_NOTES)
- *Resource Broker Release Notes* (SYS$HELP:RB010.RELEASE_NOTES)
- *DEC C/C++ Run-Time Components for OpenVMS VAX Version 6.0-1 Release Notes*

Please refer to the following OpenVMS manual if you need additional information about DECthreads:

- *Guide to DECthreads*

Please refer to the following manuals for more information about installation, configuration, and system management of DEC TCP/IP Services:

- *DEC TCP/IP Services for OpenVMS Installation and Configuration*
- *DEC TCP/IP Services for OpenVMS Management*

Conventions

The following conventions are used in this guide:

UPPERCASE	In text, indicates OpenVMS commands, qualifiers, system privileges, directory names, and filenames. You can enter OpenVMS commands in uppercase or lowercase.

bold	In interactive examples, indicates typed user input. In text, indicates the exact name of a command, option, partition, pathname, directory, or file.
italics	Italic words or characters represent variable values that you or the system must supply.
`constant width`	Indicates system output in interactive and code examples.
<**Ctrl/***x*>	Indicates that you must hold down the Control key and then press the key indicated by *x*.
<**Return**>	Indicates that you press the Return key.
Case-sensitivity	OpenVMS operating system commands do not differentiate between uppercase and lowercase. However, many DCE commands do make this distinction. In particular, the system configuration utility interprets names in a case-sensitive manner.

Chapter 1

Preparing for Installation

This chapter describes the preparations you must make before you install and configure the Digital Distributed Computing Environment (DCE) for OpenVMS VAX and OpenVMS Alpha software.

Digital DCE is an enabling software technology for the development of distributed applications. It provides a variety of common services needed for the development of distributed applications, such as name services and a standard remote procedure call interface.

1.1 Planning for Installation and Configuration

This section helps you plan for the installation and configuration of the Digital DCE. It presents a brief overview of some concepts that you need to understand before you install and configure Digital DCE software. This understanding can help you decide how to configure DCE. Refer to the book *Understanding DCE* for detailed explanations of DCE concepts.

The installation and configuration procedures set up the DCE environment so that you can use DCE services. Before you can use Digital DCE software, you must both install the software and configure DCE on your system.

1.1.1 What Is a Cell?

A cell is the basic DCE unit consisting of a group of nodes that share a directory service namespace and a security service registry under a common administration. Usually, the nodes in a cell are in the same geographic area, but cell boundaries are not limited by geography. Although a cell can contain from one to several thousand nodes, each node can belong only to one cell at a time.

The system configuration utility allows you to join an existing cell. The cell must provide a directory server and a security server. These servers may be resident on the same system or may be running on separate systems.

Note that if you rely on DCE time services for time synchronization, you need a minimum of three time servers to synchronize time in a cell. See the section on the DCE Distributed Time Service in the *OSF DCE Administration Guide* for more information.

1.1.2 Creating a Cell

See the chapter on initial cell configuration guidelines in *Understanding DCE* for information about creating a cell.

1.1.3 Joining a Cell

You need the following information to join a DCE cell:

- Full cell name
- Host name of the Security Server
- Security principal name and password authorized to perform cell administration operations
- Location of the cell's CDS server (on or not on the same LAN as you are)

When the client joining the cell is on the same LAN as the CDS directory master server, the CDS advertiser automatically determines the server's location by using IP (Internet Protocol) broadcast packets. If the CDS

master server is not on the LAN, then you need to provide the host name where the CDS master server is running.

1.2 Inspecting the Distribution Kit

The Software Bill of Materials (BOM) included with your distribution kit specifies the contents of your distribution kit. Carefully compare the items you received with the items listed in the BOM. If any components are missing or damaged, contact your Digital customer service representative before you continue with the installation.

The Read Before Installing letter listed on your BOM provides important information that you should be aware of before you install Digital DCE. Some of this information may not be included in either this guide or the release notes.

Digital DCE provides online release notes. Read the release notes before you install the product. They contain information about changes to the product. For example, the release notes contain important information on modifications you should make to UCX parameters before you begin the installation.

1.3 Troubleshooting

The *Digital DCE for OpenVMS VAX and OpenVMS Alpha Product Guide* includes a chapter on troubleshooting. Read this chapter if you are having installation or configuration problems. For example, the Troubleshooting chapter discusses problems you may encounter with time and time zones.

1.4 Installation Procedure Requirements

The following sections discuss the requirements for installing Digital DCE.

The length of time the installation takes to complete depends on the type of machine, the load on that machine, and the kit you choose to install.

1.4.1 Required Hardware

To perform the installation, you need the following hardware:

- A processor running OpenVMS VAX Version 5.5-2 or higher or OpenVMS Alpha Version 1.5 or Version 6.1 or higher.
- A software distribution device, if you are installing the software from media. You need a distribution device that corresponds with the software distribution media. For example, if you have a TK50 software kit, you need a TK50 or TK70 tape drive. You must know how to load the media provided with the software distribution kit on the appropriate drive. The documentation for the tape that you are using explains how to load the media.

Note: Systems running OpenVMS Alpha should have access to a CD-ROM reader so you can install the software. Please check to see that you have a CD-ROM reader installed.

1.4.2 Required Software

This section describes the software that must be installed on the OpenVMS VAX system or the OpenVMS Alpha system before you can properly perform the installation, configure the system, or use the software. In cases where the minimum version is not specified, refer to the Software Product Description (SPD) for more information.

1.4.2.1 On OpenVMS VAX Systems

Before installing Digital DCE for OpenVMS VAX, you need the following software on your system:

- OpenVMS VAX Version 5.5-2 or higher
- DEC C/C++ Run-Time Components Kit, if you are installing on OpenVMS VAX Version 6.0 or earlier

  The DEC C/C++ Run-Time Components Kit contains versions of DECthreads runtime files, a version of the DEC C Runtime Library, and other files required for DCE application development. This kit is included with your Digital DCE kit as AACRT060.A. Make sure you read the DEC C/C++ Run-Time Components kit release notes, which you can print during the installation.

  Note that you do not need to install this special kit if you are installing on OpenVMS VAX Version 6.1 or higher.
- DECnet Phase IV or DECnet/OSI

  DECnet is required only if you run applications that use DECnet as their transport.
- DEC TCP/IP Services Version 2.0D or higher

  You must have DEC TCP/IP Services installed and configured on each host from which you plan to execute DCE applications. See *DEC TCP/IP Services for OpenVMS Installation and Configuration* for more information about the UDP/IP and TCP/IP transports.

  If you plan to use MultiNet from TGV, Pathway from Wollongong, or TCPware from Process Software (instead of Digital's DEC TCP/IP Services), please see the release notes for more information.
- **If you are installing on an OpenVMS VAX Version 5.5-2 system, you must add @SYS$STARTUP:CRT$STARTUP to your SYS$MANAGER:SYSTARTUP_V5.COM file before you start DCE.** If you do not do this, then DECnet, DECwindows, and other layered products that use C will not start when the system is rebooted.

1.4.2.2 On OpenVMS Alpha Systems

Before installing Digital DCE for OpenVMS Alpha, you need the following software on your system:

- OpenVMS Alpha Version 1.5 or OpenVMS Alpha Version 6.1 or higher
- A special kit, DCEPRE013.A, which is shipped as part of Digital DCE for OpenVMS Alpha kit. You must install this special kit before you install Digital DCE for OpenVMS Alpha Version 1.5. This kit contains a version of the DEC C Run-Time Library and the time service execlet.

  Note that if you have OpenVMS Alpha Version 6.1 or higher, you do not need to install this special kit.
- DECnet Phase IV or DECnet/OSI
  DECnet is required only if you run applications that use DECnet as their transport.
- DEC TCP/IP Services Version 3.0 or higher
  You must have DEC TCP/IP Services installed and configured on each host from which you plan to execute DCE applications. See *DEC TCP/IP Services for OpenVMS Installation and Configuration* for more information about the UDP/IP and TCP/IP transports.

  If you plan to use MultiNet from TGV, Pathway from Wollongong, or TCPware from Process Software (instead of Digital's DEC TCP/IP Services), please see the release notes for more information.

1.4.3 Time Required for Installation

Depending on your configuration, the installation can take from 10 to 30 minutes.

1.4.4 Disk Space, Global Pages, and Global Sections Required

The disk space, global pages, and global sections requirements of Digital DCE are different for the Run Time Services Kit (RTK) and for the Application Developer's Kit (ADK). These requirements also differ on OpenVMS VAX and on OpenVMS Alpha systems. The following table lists the requirements before the installation for each kit on each platform. (Disk space requirements are listed in blocks.) Note that the CDS Server and Security Server images are part of the Run Time Services Kit and are enabled by PAKs.

Table 1–1. Disk Space, Global Pages and Global Sections Requirements

Kit	Disk Space	Global Pages	Global Sections
OpenVMS VAX RTK	22,000	3000	40
OpenVMS VAX RTK & ADK	36,000	3000	40
OpenVMS Alpha RTK	36,000	6000	35
OpenVMS Alpha RTK & ADK	48,000	6000	35

To determine how much free disk space is on your system disk, enter the following command:

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

The system responds with a short table; the column labeled Free Blocks shows the amount of storage space remaining on your system disk. If there is not enough disk space to install or run Digital DCE, work with your system manager to delete and purge files that are no longer needed.

To determine the number of free global pages and global sections on your system, enter the following commands:

```
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")

$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
```

If the values displayed by the system are greater than the minimum required, your system has adequate free global pages and global sections. If the values are less than the minimum required, use the AUTOGEN

command procedure to increase the values, as follows:

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

For details on using AUTOGEN, see the *OpenVMS System Manager's Manual*.

1.4.5 Privileges and Quotas Required

To install Digital DCE for OpenVMS VAX and OpenVMS Alpha, log into the system manager account. If you are not logged into the system manager's account during installation, you must have at least the SETPRV privilege. To determine the privileges you have, enter the following command:

```
$ SHOW PROCESS/PRIVILEGES
```

If you do not have sufficient privileges to install Digital DCE, see your system manager.

The DCE system management utility requires WORLD privileges for the SHOW command and WORLD, SYSPRV, and CMKRNL privileges for all other commands.

You should also check to make sure you have adequate quotas for the installation. You need the following quota values:

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

Use the OpenVMS Authorize Utility if you want to verify and change process quotas for the installation account in the user authorization file (UAF). For example, to change the BYTLM quota for your installation account, enter the following command sequence:

```
$ RUN SYS$SYSTEM:AUTHORIZE
UAF> MODIFY account-name /BYTLM = 18000
UAF> SHOW account-name
UAF> EXIT
$ LOGOUT
```

After you change the quotas for your installation account, log out of the installation account and log in again for the new quotas to take effect. You can then proceed with the installation.

User account quotas are stored in the file SYSUAF.DAT. For more information on modifying account quotas, see the description of the Authorize Utility in the OpenVMS system management documentation.

1.4.6 Completing License Management Facility Requirements

If you are installing only the Run Time Services Kit of Digital DCE, you do not need a separate license. The right to use the Digital DCE Run Time Services Kit is granted with the OpenVMS operating system.

If you are installing the Application Developer's Kit, the CDS Server Kit, or the Security Server Kit, you must register and load the appropriate license for the kit you are installing before you begin the installation.

To register a license under OpenVMS, first log into the system manager's account, SYSTEM. Then use either of two ways to perform the registration:

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

The license for the Application Developer's Kit is DCE-APP-DEV. The license for the Security Server Kit is DCE-SECURITY. The license for the CDS Server Kit is DCE-CDS.

Although it is necessary to have only one license active for this product, the License Management Facility (LMF) checks for the existence of any valid license. If LMF displays license failures for some of these other licenses, disregard the messages.

If you plan to use Digital DCE on more than one node in a VMScluster environment, you must register and load a license for each of the other nodes before you configure them.

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

1.4.7 Performing System Backup

Back up your system disk before installing any software. Use the backup procedures established at your site. For details on backing up a system disk, see the *OpenVMS Backup Utility Manual*.

Chapter 2

Installing DCE

This chapter describes the installation procedure for Digital DCE for OpenVMS VAX and OpenVMS Alpha.

You can use different media to install Digital DCE. The examples in this chapter show the installation procedure using disk files.

See Appendix B for logs of sample installations.

2.1 About the OpenVMS Installation Procedure

This section gives a brief overview of the OpenVMS installation procedure, VMSINSTAL.COM. The OpenVMS installation command has the following format:

$ @SYS$UPDATE:VMSINSTAL *product ddcu:* **[OPTIONS N]**

where:

- *product* is the name and version of the product being installed; for the Digital DCE, specify DCEVAX013 if you have a VAX processor or DCEAXP013 if you have an Alpha processor. The examples in this

chapter assume a VAX system, so *product* has the value DCEVAX013 in this chapter's installation commands.

- *ddcu:* is a device name on which the distribution volumes will be mounted. Remember that all Alpha systems come with CD-ROM readers.

It is not necessary to use the console drive to install DCE. If you do use the console drive, replace any media you remove from the drive.

Include the optional parameter OPTIONS N if you want VMSINSTAL to prompt you to display or print the release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the release notes. VMSINSTAL permits the use of several other options. For more information about the other options, see your processor-specific installation or operations guide.

When you invoke VMSINSTAL, it checks the following conditions:

- Whether you are logged in to a privileged account. 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. See Section 1.4.5 for more information on quota values.

VMSINSTAL then checks whether the following conditions exist:

- Whether network processes are up and running
- Whether any users are logged in to 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 **<Return>**.

You can stop the installation at any time by pressing **<Ctrl/C>** or **<Ctrl/Y>**. However, files created up to that point are not deleted. You must delete these files manually, using the OpenVMS DELETE command. Appendix A lists the files and directories created during the installation procedure.

2.2 Starting the Digital DCE Installation Procedure

If you are installing a kit that runs on OpenVMS VAX Version 6.0 or earlier, you should already have installed the special DEC C/C++ Run-Time Components Kit, which is included with your Digital DCE kit. You should also have read the DEC C/C++ Run-Time Components kit release notes, which you can print when you install this kit. (Note that if you are installing a kit that runs on OpenVMS VAX Version 6.1 or higher, you do not need to install the special kit.)

If you are installing a kit that runs on OpenVMS Alpha Version 1.5, you should already have installed the special Alpha kit, which is included with your Digital DCE kit. (Note that if you are installing a kit that runs on OpenVMS Alpha Version 6.1 or higher, you do not need to install the special kit.)

See Section 1.4.2 for more information.

If you are installing Digital DCE from tape media, start the installation procedure as follows:

1. Log in to the account from which you are installing Digital DCE.
2. Register the appropriate LMF PAK if you are installing the Digital DCE Application Developer's Kit. (Note that you do not need a license to install the Digital DCE Run Time Services Kit. The right to use the Run Time Services Kit is granted with the OpenVMS operating system license.)
3. Mount the kit media on the appropriate device.
4. Invoke the following command procedure, substituting the correct name of your media device for MUA0 (used in the example):

```
$ @SYS$UPDATE:VMSINSTAL DCEVAX013 MUA0:
```

If you are installing Digital DCE from disk files or CD-ROM, start the installation procedure as follows:

1. Log into the account from which you are installing the Digital DCE.
2. If you are installing a kit other than the Run Time Services Kit, make sure you have registered the appropriate LMF PAK.

3. Invoke the following command procedure, substituting the correct name of your media device and directory for DKA300:[SMITH] (used in the example):

   $ @SYS$UPDATE:VMSINSTAL DCEVAX013 DKA300:[SMITH]

As the installation begins, the procedure responds with the following information and questions:

```
        VAX/VMS Software Product Installation Procedure V5.5-2

It is 27-JAN-1995 at 17:06.

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

The procedure prints informational messages.

```
The following products will be processed:
  DCEVAX V1.3

         Beginning installation of DCEVAX V1.3 at 15:36

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

©  Digital Equipment Corporation. 1995. All Rights Reserved
```

You have the option to purge files from previous versions of Digital DCE. Purging is recommended; however, if you need to keep files from a previous version, type NO in response to the question. You are also told whether you performed the necessary preinstallation.

```
* Do you want to purge files replaced by this installation [YES]?
%DCEVAX-I-AACRT0K, The required AACRT060 kit has been installed. This
installation will continue.
```

2.3 Continuing the Installation

This section describes the part of the installation procedure that is specific to DCE.

Description of Kits

The installation procedure displays information about the four Digital DCE kits (Run Time Services Kit, Application Developer's Kit, Security Server Kit, and CDS Server Kit). Depending on the kit, the procedure displays specific information about the kit that will be installed.

```
    Greetings!

    This is DCE V1.3 for OpenVMS VAX and OpenVMS Alpha.
    There are four components: the DCE Run Time Services, the
    DCE Application Development Kit, the DCE Security Server,
    and the DCE CDS Server.

    1. The Run Time Services provides the core services necessary to
       execute and manage DCE applications.

    2. The Application Development Kit provides the services and tools
       required to develop, execute, and manage DCE applications.
       The Run Time Services capability is automatically provided
       with the Application Development Kit.

   3. The Security Server is always supplied but is enabled with a PAK.
      The security server supplies support for a cell wide security
      database. A cell must have at least one system running a security
      server.

   4. The CDS Server is always supplied but is enabled with a PAK.
      The CDS server supplied support for a cell wide naming database.
      A cell must have at least one system running a CDS server.


* Press return to Continue:
```

If you registered the license for the Application Development Kit, the procedure displays the following messages:

```
You have registered the OpenVMS DCE V1.3 Application Development Kit
license.

The Application Development Kit installs:

+ The Run Time Services Kit
    * Authenticated CDS Advertiser and Client Support
    * CDS Browser
    * CDS Control Program (CDSCP)
    * Authenticated DCE RPC runtime support (supports DECnet, TCP,
      and UDP)
    * Resource Broker
    * RTI (Remote Task Invocation) RPC for Digital's ACMSxp TP product
    * Security Client Support
    * Integrated Login
    * A DCE_LOGIN tool for obtaining credentials
    * A RGY_EDIT tool for registry maintenance functions
    * KINIT, KLIST, and KDESTROY Kerberos tools
    * An ACL_EDIT tool for access control lists (ACLs) for DCE objects
    * RPC Control Program (RPCCP)
    * Name Services Interface Daemon (nsid); also known as the PC
      Nameserver Proxy
    * Native Kerberos
    * XDS Directory Services
    * XDS Object Managment
+ Required DCE application development header files
+ Interface Definition Language (IDL) compiler
+ Object-Oriented RPC
+ NIDL-to-IDL compiler (on OpenVMS VAX only)
+ Generic Security Service (GSSAPI)
+ LSE Templates for IDL
+ UUID Generator
+ .H (Include) files and .IDL files for application development
+ Sample DCE applications

NOTE: Please add the following to your system's
      SYS$MANAGER:SYLOGIN.COM.
      These files define foreign commands for using DCE on OpenVMS.
```

```
$ @SYS$MANAGER:DCE$DEFINE_REQUIRED_COMMANDS.COM
$ @SYS$COMMON:[DCE$LIBRARY]DCE$DEFINE_OPTIONAL_COMMANDS.COM
```

Selecting a TCP/IP Product

You are now asked to update DCE$STARTUP.COM and choose a TCP/IP product.

```
Please add the following command to SYS$STARTUP:SYSTARTUP_*.COM on your
system. This ensures that DCE$STARTUP.COM is executed at system boot.The
parameters supplied to DCE$STARTUP.COM depend on the specific TCP/IP
product you intend to use. You will now be asked to select the name of
this TCP/IP product, and the installation will supply you with the
correct command for SYS$STARTUP:SYSTARTUP_*.COM.

        TCP/IP product                                  Keyword

        Digital's TCP/IP Services for OpenVMS           UCX
        MultiNet from TGV                               MULTINET
        Pathway from Wollongong                         PATHWAY
        TCPware from Process Software                   TCPWARE
        No TCP/IP Available at this time                NONE

* Enter one of the keywords from the table above [UCX]: <CR>
%DCEAXP-I-STARTUCX, Enter $ @SYS$STARTUP:DCE$STARTUP in your
SYS$MANAGER:SYSTARTUP_*.COM
```

Note that for UCX, you must have at least UCX Version 2.0 D installed for OpenVMS VAX systems and UCX Version 3.0 for OpenVMS Alpha systems. The installation procedure checks for these prerequisites.

See the release notes for more information on UCX, MultiNet, Pathway, and TCPware.

Installing Language Sensitive Editor (LSE) Templates for IDL

If you are installing DCE on a cluster on which the Language Sensitive Editor (LSE) is installed, the system or the user must have a license to run LSE in order for DCE to install the LSE templates for the Interface Definition Language (IDL) compiler. Type YES to the following question if you have a license to run LSE.

```
  * Load Language-Sensitive Editor (LSE) templates for IDL? [N]?
```

Creating a DCE$SERVER Account

If you do not already have a DCE$SERVER account, the installation procedure creates one for you with TMPMBX, NETMBX, DETACH, and SYSPRV privileges.

```
    In order to ensure that the DCE daemon processes run in the proper
    environment, this installation procedure will create an account for
    them.  This account, DCE$SERVER, is created with TMPMBX, NETMBX,
    DETACH and SYSPRV privileges.  It is not possible to log into this
    account.

    You must specify a unique UIC for this account in order to ensure
    proper security of the network.  The password for this account will
    be generated.  You do not need to know the password, since the account
    is disabled.  If this scenario violates your security policies, you
    may change it after the installation has finished via the VMS
    AUTHORIZE utility.


* Enter the UIC of the new DCE$SERVER account:  [363,363]:
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named DCE$SERVER.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier DCE$SERVER value: [000363,000363] added
 to rights data base
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT
 named DCE$SERVER.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-SYSDIR, This product creates system
 directory [DCE$SERVER].
%DCEVAX-I-ADDID, This installation adds an IDENTIFIER
 named NET$DECLAREOBJECT.

    The rights identifier NET$DECLAREOBJECT will now be granted to the
    DCE$SERVER account. You may ignore the message:

"%UAF-E-GRANTERR, unable to grant identifier NET$DECLAREOBJECT
 to DCE$SERVER
-SYSTEM-F-DUPIDENT, duplicate identifier"
```

```
    if it should occur as a result of granting the identifier.

%UAF-I-GRANTMSG, identifier NET$DECLAREOBJECT granted to DCE$SERVER
```

When to Reboot

You must reboot if you are installing Digital DCE on an OpenVMS VAX Version 5.5-2 system. (You must reboot because SYS$UTC_SERVICES is not shipped with OpenVMS VAX Version 5.5-2.) If you are installing on OpenVMS VAX Version 6.0 or higher or on OpenVMS Alpha, you do not need to reboot. Instead, you are asked whether you want to configure.

If you are installing on an OpenVMS VAX Version 5.5-2 system, you receive the following message:

```
                    * * * N O T E * * *

    Successful installation of this product will require a reboot in
    order to load the SYS$UTC_SERVICES loadable image that was placed
    on your system by this installation. You will be notified at the
    end of this installation that a reboot is required and have the
    option to proceed or not.

    This installation will complete without configuring DCE on this
    system.

    To complete the installation of this product, you should reboot
    the system.  If it is not convenient to reboot at this time, then
    enter NO to the following question.

    If you enter NO, the installation procedure will continue.
```

Shutting Down the System

The procedure asks whether you want the system to shut down after the installation is completed. If you respond NO, then you must shut down the system before you start the configuration process. When the installation procedure finishes, all files are installed, but some images are not activated until after the system has been rebooted. An example of such an image is SYS$UTC_SERVICES.EXE.

```
* Will you allow a system shutdown after this product is installed [YES]?
```

```
* How many minutes for system shutdown [0]: 0
```

Rebooting the System

The procedure asks whether or not you want an automatic system reboot.

```
* Do you want to do an automatic system reboot [YES]?
```

If you respond NO, then after system shutdown, the system console prompt (>>>) is displayed. At the prompt, you can manually reboot the system disk with a command such as the following.

>>> **boot dka100:**

Completing the Installation

The procedure runs to completion.

```
    No more questions will be asked.  The remaining time for the
    installation will depend upon your configuration and could vary
    from 10 to 30 minutes.

    Thank you.

    OpenVMS DCE Development Team
    Digital Equipment Corporation


%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [DCELOCAL.VAR].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [DCELOCAL.VAR.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [DCELOCAL.VAR.RPC.ADM].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [DCELOCAL.ETC].
%DCEVAX-I-LOADUTC, SYS$LOADABLE_IMAGES:SYS$UTC_SERVICES.EXE
                           has been installed.
         A system reboot is required.
%SMI-S-IMGFILCRE, image file created.
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
```

```
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [DCE$LIBRARY].
%DCEVAX-I-INCLIDL, The .H and .IDL files will be in
                           SYS$COMMON:[DCE$LIBRARY]
%VMSINSTAL-I-RESTORE, Restoring product save set D ...
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.BOOK].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.TEST1].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.TEST2].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.MATRIX1].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.MATRIX2].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.DTSS].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.POSIX].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.SX].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.PAYROLL].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                            [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                     [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                     [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY].
%VMSINSTAL-I-SYSDIR, This product creates system directory
              [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT].
%VMSINSTAL-I-SYSDIR, This product creates system directory
              [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT].
%VMSINSTAL-I-SYSDIR, This product creates system directory
                     [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE].
```

```
%VMSINSTAL-I-SYSDIR, This product creates system directory
                     [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA].
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%DCEVAX-I-INFO, Installing the DCE Resource Broker Kit

    Since you are not going to configure DCE on your system at this time,
    this completes the installation. To configure this node at a later
    time, please run the DCE configuration utility with the "CONFIG"
    option as shown:

        $ @SYS$MANAGER:DCE$SETUP CONFIG

    Please see the product's Installation and Configuration Guide for
    more details.

        Installation of DCEVAX V1.3 completed at 17:11

%VMSINSTAL-I-SHUTDOWN, This product requires that the system be rebooted.
        SHUTDOWN -- Perform an Orderly System Shutdown
                    on node WEBOPN
Do you really want to shutdown node WEBOPN [NO]?
        VMSINSTAL procedure done at 17:11

$ LOGOUT
  SYSTEM       logged out at 27-JAN-1995 at 17:24:05.97
```

Note that if you were installing only the Run Time Services Kit, the installation would have been similar to the installation of the Application Development Kit. However, you would have created directories and files only from savesets A and B. The Application Development Kit creates files from savesets A, B, C, D, and E.

2.4 Installing on a VMScluster

On a VMScluster with a common system disk, you need only install Digital DCE once. After the initial installation, ensure that a separate license is registered and loaded on each cluster member that you plan to use for DCE services.

If you are installing DCE for OpenVMS over an existing version of DCE on a common system disk in a VMScluster environment, be sure to shut down DCE on all nodes that share the common system disk before the installation. If you do not shut down DCE and you select the PURGE option within VMSINSTAL, parts of DCE and your OpenVMS cluster may exhibit undesirable characteristics.

Note: You must configure each node separately. A reboot is also required.

To configure each node separately, enter the following command on each node:

```
$ @SYS$MANAGER:DCE$SETUP.COM CONFIG
```

If you are installing Digital DCE on a VMScluster that does not have a common system disk, you must install and configure on each node that you plan to use for DCE services.

Chapter 3

Postinstallation Procedures

This chapter describes postinstallation steps that you need to take and lists ways to recover from errors that you encounter during the installation.

3.1 Postinstallation Tasks

After the installation is completed successfully, perform the following tasks:

1. In the system startup command procedure, SYS$MANAGER:SYSTARTUP_V5.COM (called SYS$MANAGER:SYSTARTUP_VMS.COM on OpenVMS Version 6.0 and higher), add the following command after the startup commands for the network transports, DECnet and/or DEC TCP/IP Services:

   $ @SYS$STARTUP:DCE$STARTUP.COM

   The DCE$STARTUP command procedure automatically defines the required DCE logical names and starts the DCE daemon processes in accordance with your DCE host configuration.

2. If you installed the special DEC C/C++ Run-Time Components Kit, you must also add the following line to the system startup command procedure:

   $ @SYS$STARTUP:CRT$STARTUP.COM

3. Add the following command to the site-specific system shutdown procedure, SYS$MANAGER:SYSHUTDWN.COM, before the shutdown commands for the network transports, DECnet and DEC TCP/IP Services:

   $ @SYS$STARTUP:DCE$SHUTDOWN.COM

4. If you chose not to configure this node as part of the installation process, you can configure the node at a later time by entering the following command.

   $ @SYS$MANAGER:DCE$SETUP CONFIG

   You must configure the DCE services before you can use them. See Chapter 4 in this guide.

5. If you are running DCE server applications that are listening over the DECnet Phase IV (**ncacn_dnet_nsp**) protocol or the DECnet/OSI (**ncacn_dnet_nsp**) protocol, you must grant the NET$DECLAREOBJECT rights identifier to those processes from which the server runs.

6. Define foreign commands. There are two foreign command definition files: one file contains required commands and the other file is optional. Add the following line to the file SYS$MANAGER:SYLOGIN.COM:

$ @SYS$MANAGER:DCE$DEFINE_REQUIRED_COMMANDS.COM

   DCE$DEFINE_REQUIRED_COMMANDS.COM, the required command definition file, defines the following foreign commands:

   - **acl_edit**, which invokes the ACL editor (Security)
   - **cdscp**, which invokes the CDS control program

- **chpass**, which invokes the DCE change password utility
- **DCE$UAF**, which invokes the DCE Integrated Login User Authorization File utility
- **dce_login**, which validates a principal's identity and obtains network credentials (Security)
- **dtscp**, which invokes the DTS control program
- **EXPORT**, which invokes the DCE Integrated Login EXPORT utility
- **IMPORT**, which invokes the DCE Integrated Login IMPORT utility
- **kdestroy**, which destroys a principal's login context (Security)
- **kinit**, which obtains a ticket-granting ticket (Security)
- **klist**, which lists tickets (Security)
- **rgy_edit**, which invokes the registry database editor (Security)
- **rpccp**, which invokes the RPC control program

If you choose not to execute this command definition file, you cannot use any of the previous programs and commands.

DCE$DEFINE_OPTIONAL_COMMANDS.COM, the optional command definition file, defines the following foreign commands:

- **idl**, which invokes the IDL compiler
- **nidl_to_idl**, which invokes the utility that converts from NIDL to IDL
- **rpclm**, which invokes the RPC Log Manager
- **uuidgen**, which invokes the UUID generator utility

By default, these utilities use DCL-style interfaces. If you execute the optional foreign commands file, you have access to the version of these utilities that uses the universal interface. There are three possible actions that you can take:

- Define the universal interface for all users on your system to ensure that the same interface is available to users across operating system platforms. Note that all examples that document these four utilities use the universal interface. Include the following line in the file SYS$MANAGER:SYLOGIN.COM:

```
$ @SYS$COMMON:[DCE$LIBRARY]DCE$DEFINE_OPTIONAL_COMMANDS.COM
```

- Give users access to only the DCL-style interface. In this case, you do not need to take any action.
- Make the DCL-style interface available to some users, but allow others access to the universal interface. Do not define the optional commands in SYLOGIN.COM. Tell users who want to use the universal interface to include the following line in their account's LOGIN.COM procedure:

```
$ @SYS$COMMON:[DCE$LIBRARY]DCE$DEFINE_OPTIONAL_COMMANDS.COM
```

7. If you are installing DCE on a VMScluster, you must take the following steps:
   a. Ensure that a license is registered and loaded on each node in the cluster from which users plan to use DCE. (If you are installing only the Digital DCE Run Time Services Kit, you already have a right to use the DCE Run Time Services Kit. This right was granted with the OpenVMS operating system license.)
   b. Configure each node in the cluster from which users plan to use DCE by entering the following the command:

      $ @SYS$MANAGER:DCE$SETUP CONFIG

3.2 Installation Error Recovery

The following list describes errors that you may encounter during installation and provides suggestions about how to recover from those errors:

- **You try to install the OpenVMS VAX kit on an OpenVMS Alpha system (or vice versa).**
  Reinstall with the correct kit.
- **The system does not have the required version of OpenVMS installed.**
  Upgrade the operating system to at least the minimum required version and restart the installation procedure.
- **The required DCE license has not been loaded.**
  Register and load a license for the appropriate kit and restart the installation.
- **You run out of disk space.**
  Either clean up your disk or install less of the kit.
- **The required DEC C/C++ Run-Time Components kit has not been installed.**
  If you are installing on OpenVMS VAX 6.0 or earlier, you must install the DEC C/C++ Run-Time Components kit before you install Digital DCE. Note that the DEC C/C++ kit and documentation are included with this Digital DCE kit.
- **The required DCEPRE013.A saveset for Alpha has not been installed.**
  If you are installing on an OpenVMS Alpha Version 1.5 system, you must install the required DCEPRE013.A saveset before you install Digital DCE. Note that the saveset is included with this Digital DCE kit.
- **If you plan to run DCE applications via IP, you must have UCX Version 2.0 D (for OpenVMS VAX) or Version 3.0 (for OpenVMS Alpha) or higher installed.**
  Install the correct version of UCX. The installation procedure checks for the prerequisites.
- **No network transports were found.**
  You must install and configure DECnet, UCX, or both before running any DCE applications.

- **SYS$SYSTEM:RIGHTSLIST.DAT does not exist on this system.**
  RUN AUTHORIZE and then issue the CREATE/RIGHTS command. RIGHTSLIST.DAT is created for you.
- **Invalid UIC.**
  Find and enter the correct UIC in the correct format.

Chapter 4

Configuring DCE

This chapter describes the DCE system configuration utility for Digital DCE for OpenVMS VAX and OpenVMS Alpha. Note that DCE must be configured.

Many of the system configuration utility prompts have default values associated with them. The default responses are based on your existing configuration, if you have one. Otherwise, default values for the most common DCE system configurations are provided.

The system configuration utility sets up the DCE environment on your node so that you can use DCE services. The system configuration utility leads you through the process of creating or joining a cell.

Note: If you are installing a new version of Digital DCE for OpenVMS VAX and OpenVMS Alpha over an existing version, you do not have to reconfigure DCE after the installation. Before the installation, stop the DCE deamons with one of the following commands (CLEAN is recommended):

```
$ @SYS$MANAGER:DCE$SETUP CLEAN
$ @SYS$MANAGER:DCE$SETUP STOP
```

Then, after the installation, enter the following command:

```
$ @SYS$MANAGER:DCE$SETUP START
```

You must reconfigure if you are installing DCE for the first time or if you are installing a new version over DCE Version 1.0.

4.1 Starting the System Configuration Utility

If you did not reboot after the installation and if you chose to configure your system during installation, the DCE system configuration utility starts automatically. You can also start the system configuration utility manually at the DCL prompt. You can use the same command to perform an initial configuration or to reconfigure DCE. See Appendix C for several sample configurations.

To start the system configuration utility at the DCL prompt, enter the following command:

```
$ @SYS$MANAGER:DCE$SETUP
```

The DCE System Management Main Menu appears:

```
                DCE System Management Main Menu

                    DCE for OpenVMS VAX V1.3


  1)  Configure   Configure DCE services on this system
  2)  Show        Show DCE configuration and active daemons
  3)  Stop        Terminate all active DCE daemons
  4)  Start       Start all DCE daemons
  5)  Restart     Terminate and restart all DCE daemons
  6)  Clean       Terminate all active DCE daemons and remove
                  all temporary local DCE databases
  7)  Clobber     Terminate all active DCE daemons and remove
                  all permanent local DCE databases
  8)  Test        Run Configuration Verification Program
```

```
  0)  Exit        Exit this procedure
  ?)  Help        Display helpful information

Please enter your selection:
```

Enter 1 to view the DCE Configuration Menu.

To skip the previous menu and go directly to the DCE Configuration Menu, enter the following command:

$ @SYS$MANAGER:DCE$SETUP CONFIG

4.2 Initial Configuration Menu

The configuration procedure displays an initial menu:

```
          DCE Configuration Menu

1)  RPC_Only    Provide DCE RPC services only
2)  Client      Configure this host as a DCE client system
3)  Server      Configure this host as a full DCE server system
4)  Custom      Define a customized DCE configuration for this host
5)  IntLogin    Enable or disable DCE integrated login support
6)  Rebuild     Rebuild DCE on this host using the current
                configuration
7)  Add_SecRep  Add a Security Replica to the configuration on this host
8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                on this host

0)  Exit        Return to previous menu
?)  Help        Display helpful information


Please enter your selection:
```

Brief explanations of options 1 to 6 on the DCE Configuration Menu follow:

1) RPC_Only	Provides a subset of the DCE RPC services. Specifically, all RPC requests must be unauthenticated and no RPC name service interface routines are available. This configuration will, however, allow applications to communicate if full string bindings are supplied by the RPC clients.
2) Client	Provides full DCE RPC services, client services for CDS and Security, and optional time services. A DCE client system must join an existing DCE cell with a security registry and a CDS master server available on other systems in the cell.
3) Server	Provides full DCE RPC services, a security registry server for the cell, a CDS master server, a DTS server, and the NSI agent for name service independent access to directory services from PC client systems. There can be only one security registry and CDS master server in a cell, although they need not reside on the same host.
4) Custom	If one of the other configuration options is not appropriate for this host, this option creates a customized DCE configuration. This configuration allows tailoring of the following DCE services: • Security Client or Security Registry Server or Security Replica • CDS Client, CDS Master Server, or CDS Replica Server • Global Directory Agent (optional) • Time Services (optional) • NSI Agent (optional)
5) IntLogin	Provides support for Integrated Login, which combines the DCE and OpenVMS login procedures. (See the *Digital DCE for OpenVMS VAX and OpenVMS Alpha Product Guide* for information on Integrated Login.)
6) Rebuild	If a valid configuration is present, this option rebuilds the DCE configuration on this host using the current settings. Note that this option appears on the menu only if the procedure detects an existing valid configuration.

7) Add_SecRep	Adds a security replica to the configuration on this host. This option is only present if the host is a DCE security client.
7) Del_SecRep	Deletes the security replica from this host. This option appears instead of Add_SecRep if a security replica has already been configured. Selecting this option is the only way to delete a security replica (except for clobbering the configuration).
8) Add_CdsRep	Adds a CDS replica clearinghouse to the configuration on this host. This option is only present if the host is a DCE CDS client.
8) Del_CdsRep	Deletes the CDS replica clearinghouse from this host. This option appears instead of Add_CdsRep if a CDS replica has already been configured. Selecting this option is the only way to delete a CDS replica clearinghouse (except for clobbering the configuration).

4.3 Configuration Procedure

This section leads you through the configuration process. It assumes that you have chosen either the client or server option from the configuration menu described in Section 4.2.

4.3.1 Initial Messages

If you are performing an initial configuration, the procedure responds with messages similar to the following:

```
Starting DCE client configuration . . .

This system has no current DCE configuration.

Based on this configuration, there should be no active DCE daemons.

 At each prompt, enter your response.  You may enter <Return> for
 the default response, displayed in [brackets], or '?' for help.
```

```
   Entering a CONTROL-Z will terminate this configuration request.

Press <RETURN> to continue . . .
```

The procedure then stops any daemons and removes all files from previous configuration operations.

```
Removing temporary local DCE databases . . .

Removing permanent local DCE databases . . .
```

4.3.2 Time Zone Configuration

If you do not already have a valid time zone configuration, you are asked to provide one during the configuration. For more information on time zone configuration, see the Troubleshooting chapter in the *Digital DCE for OpenVMS VAX and OpenVMS Alpha Product Guide*

The following questions may be displayed:

```
DCE requires a valid UTC time zone configuration.  No time zone
configuration startup procedure was found, so you will now be
asked to provide local time zone information so that the startup
procedure will be created.


        Timezone Options:

        [0]     Exit Timezone Configuration

        [1]     Choose a timezone using menus
        [2]     Use Universal Coordinated Time (UTC)
        [3]     Type in your own timezone rule

* Enter an option number [1] :

        Timezone Region Options:

        [0]     Return to the Timezone Options menu
```

```
        [1]     Europe
        [2]     North America
        [3]     Central & South America
        [4]     Africa
        [5]     Asia
        [6]     South Pacific
        [7]     Antarctica

* Enter a timezone region number :

        Timezone Subregion Options:

        [0]     Return to Region Options menu

        [1]     US/Eastern
        [2]     US/East-Indiana
        [3]     US/Central
        [4]     US/Mountain
        [5]     US/Pacific
        [6]     US/Alaska
        [7]     US/Arizona
        [8]     US/Navajo
        [9]     US/Michigan
        [10]    US/Aleutian
        [11]    US/Hawaii
        [12]    US/Samoa
        [13]    Canada/Newfoundland
        [14]    Canada/Atlantic
        [15]    Canada/Eastern
        [16]    Canada/Central
        [17]    Canada/East-Saskatchewan
        [18]    Canada/Mountain
        [19]    Canada/Pacific
        [20]    Canada/Yukon

* Enter a timezone subregion number :
```

4.3.3 Defining the DCE Hostname

After removing the temporary and permanent local DCE databases, the procedure leads you through the process of creating or joining a cell. (Note that names and identifiers associated with DCE, including principal names and passwords, are case sensitive and that cell names and hostnames are always converted to lowercase.)

First, the system responds with the following messages:

```
Starting Remote Procedure Call Services daemon (DCE$RPCD) . . .
%RUN-S-PROC_ID, identification of created process is 218001AB
```

It then asks you for the DCE hostname:

```
Please enter the DCE hostname for this system [dcevms]:
```

Press <Return> to take the default name. If you do not take the default, define a name for your system that is unique within your DCE cell. You can base this name on your network hostname, but do not include any dots (.) in the name. Use only the hostname portion of the node's fully specified name. For example, use only **myhost**; do not use **myhost.mycompany.com**.

4.3.4 Defining the DCE Cellname

After you enter the hostname, you are asked whether you want to search the LAN for known DCE cells:

```
Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]?
```

If you answer YES the system responds with messages similar to the following:

```
Searching, please wait . . .

The following cells were discovered within broadcast range of this system:

     openup_cell.dce.zko.dec.com
     opndce_cell.dce.zko.dec.com
     excess_cell.dce.zko.dec.com
```

```
opnsea_cell.dce.zko.dec.com
```

Whether you answered YES or NO to the previous question, you are then asked for the name of your DCE cell:

```
Please enter the name of your DCE cell []: excess_cell.dce.zko.dec.com
```

Note that cell names can look like IP Domain names with the form **cellname.domain.company.com**.

X.500 cell names have the form **c=country/o=organization/ou=organization unit**.

Note: X.500 cell names can contain spaces or hyphens if they are enclosed in double quotes, but underscores are never allowed, even if they are enclosed in double quotes. For example, the X.500 cell names **/c=us/o=digital/ou="excess cell"** and **/c=us/o=digital/ou="excess-cell"** are allowed, but **/c=us/o=digital/ou=excess_cell** and **/c=us/o=digital/ou="excess_cell"** are not allowed.

X.500 requires DECnet/OSI. If you enter an X.500 style cell name and you do not have DECnet/OSI installed, the system responds with the following message:

```
***
*** You have entered an X.500 style cellname.
*** DECnet/OSI has not been found on this system and is necessary for X.500
*** operation.  If you wish to configure an X.500 cell, please exit this
*** program and install DECnet/OSI.  YOu can then configure DCE successfully.
***
```

If you do not know the cell name, refer to section on global names in the *OSF DCE Administration Guide*, or consult your network administrator. Note that you should not include the /.../ or /.:/ prefix when specifying a cellname. It will be added automatically whenever it is needed.

You are then asked whether you want to save the current cell names:

```
Do you want to save these names for your DCE configuration (YES/NO) [YES]?
```

Under normal circumstances, press <Return> to save the settings. You must save these names to be able to start the DCE daemons.

If you have made an error in the hostname or cellname and want to correct the error, answer NO to the question on saving the current names. You are then asked whether you want to continue the procedure. Answer YES if you are satisfied. Answer NO if you have made a mistake and want to change your answers.

If you have specified an X.500 cellname, you are then asked whether you want to register the DCE cell in X.500. Remember that X.500 requires DECnet/OSI.

```
Do you want to register the DCE cell in X.500 (YES/NO/?) [N]? y
```

4.3.5 Defining Security Information

Note that the security questions in this section may vary depending on the type of configuration you are performing.

If this is a client, you are asked to enter the name of the host where the security registry for the cell is located.

```
Please enter the hostname of the DCE security registry [leaper]:
Checking TCP/IP local host database for address of "leaper". Please wait ...
Checking BIND servers for address of "leaper".  Please wait ...
```

To configure an OpenVMS DCE client system, you need access to a DCE security registry server. Security initialization requires contacting the security registry.

If the hostname that you specify is not currently defined in the TCP/IP hosts database, you must also provide the IP address. When you enter the hostname, do not include any dots (.) or include the DCE **hosts/** prefix with the hostname.

You must also provide the principal name and password that are authorized to perform cell configuration operations. The default principal name is **cell_admin**.

```
Please enter the principal name to be used [cell_admin]:
Please enter the password for principal "cell_admin" (or ? for help):
```

Note that if the Internet address for the hostname that you specified cannot be obtained from the current TCP/IP services, the procedure asks whether you want to enter a different hostname.

```
Do you want to specify a different hostname (YES/NO/?) [Y]?
```

If you answer NO, you are asked to provide the IP address.

```
Please enter the IP address for opra:  55.13.792.631
```

4.3.6 Defining CDS

If the procedure did not search the LAN for cells or your cell name is not in the list that the procedure found, the procedure asks whether the CDS master server is in broadcase range.

```
Is the CDS Master Server within broadcast range (YES/NO/?) [Y]
```

CDS clients learn about namespace clearinghouse servers by using an advertisement protocol that is broadcast over the LAN. If the CDS master server for this cell is not reachable on the LAN, you must provide the name of the host running the CDS master server so that this client can contact the server directly via TCP/IP messages instead of LAN broadcast messages. This situation may arise if your CDS Master Server is accessible only through a WAN or is behind a LAN bridge that is filtering out the broadcast messages.

If the CDS master server is not within broadcast range, DCE startup will use the **cdscp define cached server** command to initiate communication with the CDS master server. If the server is within broadcast range, no cached server command is required.

4.3.7 Configuring Multiple LAN Cells

If you are configuring a CDS Master Server, you are asked whether the cell uses multiple LANs. The cell uses multiple LANs if clients and servers are divided into profile groups to facilitate performance. (Most cells will not require this feature.)

```
Does this cell use multiple LANs (YES/NO/?) [N]? y
```

If you answer YES, the system responds with messages similar to the following:

```
Checking TCP/IP local host database for address of "leaper".  Please wait . . .
Please enter the name of your LAN [43.7.12]:
```

If you are configuring a CDS client and the procedure detects a multi-LAN cell, you are asked which LAN your host is on. (The following questions are asked during the configuration, because the search cannot occur until after the CDS daemons are started.)

```
Testing for multi-LAN cell . . .

This cell has been configured to span multiple LANs.  The known LANs are:

       43.7.12

Please enter the name of the LAN for this host [43.7.12]: 27.0.66

The requested LAN has not yet been defined in the namespace.

Do you want to define it (YES/NO/?) [Y]?
```

4.3.8 Defining Time Services

Digital DCE for OpenVMS VAX and OpenVMS Alpha provides two time services: DCE DTS and DECnet/DTSS. By default, DCE DTS is used.

```
Do you want to disable DECnet/DTSS, and use DCE DTS instead? (YES/NO/?) [Y]?
```

If you accept the default and use DCE DTS, you can choose to accept time from DECnet/DTSS servers by answering YES to the following question.

```
Do you want to accept time from DECnet/DTSS servers? (YES/NO/?) [N]?
```

Note that if you rely on DCE time services for time synchronization, you need a minimum of three time servers to synchronize time in a cell. See the section on the DCE Distributed Time Service in the *OSF DCE Administration Guide* for more information.

4.3.9 Saving the DCE Services

One of the last questions asked is whether you want to save the service configuration:

```
Do you want to save this service configuration (YES/NO/?) [Y]
```

If you answer YES, the actual configuration begins. If you answer NO, you are returned to the main menu, where you may answer all the questions again or stop the configuration.

4.3.10 Configuring

Once you answer YES to saving the service configuration, the actual configuration begins. You receive messages similar to the following:

```
Establishing security environment for principal "cell_admin" . . .

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 00000DAE
      Testing access to the security registry . . .
```

```
   Initializing CDS...

   Starting CDS Name Service Advertiser daemon (DCE$CDSADV) . . .
%RUN-S-PROC_ID, identification of created process is 00000EEF

   Starting CDS Name Service Client daemon (DCE$CDSCLERK) . . .
%RUN-S-PROC_ID, identification of created process is 00000EC2

Configuring client host objects in the cell namespace . . .

Setting up required objects in namespace directory "/.:/hosts/excess" . . .


    Creating namespace directories and objects . . .

Configuring required RPC information . . .
    Modifying ACL's on namespace objects  . . .
        /.:/hosts/excess
        /.:/hosts/excess/self
        /.:/hosts/excess/cds-clerk
        /.:/hosts/excess/profile
        /.:/lan-27.0.66-profile

   Starting Distributed Time Service daemon (DCE$DTSD) . . .
%RUN-S-PROC_ID, identification of created process is 00000EC3

Press <RETURN> to continue . . .
```

After you press <Return>, the DCE Configuration Menu is displayed.

4.3.11 Exiting from the Configuration

After the configuration is completed, the initial DCE Configuration Menu is displayed once again. Enter 0 to exit.

```
        DCE Configuration Menu

1)  RPC_Only    Provide DCE RPC services only
2)  Client      Configure this host as a DCE client system
3)  Server      Configure this host as a full DCE server system
```

```
4)  Custom      Define a customized DCE configuration
                for this host
5)  IntLogin    Enable or disable DCE integrated login support
6)  Rebuild     Rebuild DCE on this host using the current
                configuration
7)  Add_SecRep  Add a Security Replica to the configuration on this host
8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                on this host

0)  Exit        Return to previous menu
?)  Help        Display helpful information


Please enter your selection: 0
```

4.4 Client Configuration Considerations

By default, the client configuration configures the following components:

- RPC
- Security client
- CDS clerk and advertiser
- DTS clerk

See Appendix C for an example of a client configuration.

4.5 Server Configuration Considerations

By default, the server configuration configures the following components:

- RPC
- CDS Master Server
- Security Server
- DTS Server

- PC NSI Agent

See Appendix C for an example of a server configuration.

4.6 Custom Configuration Considerations

Before you begin a custom configuration, make sure you are familiar with all the components of a configuration. Performing a custom configuration is more complex than performing other configurations.

When you choose either the client or the server configurations, defaults are automatically set for you. However, if you do not want all the defaults, or if you want additional DCE components (such as Security Replica or GDA), consider performing a custom configuration.

The custom configuration lets you tailor a client or server system as well as include the following options:

- Security
  - — Master
  - — Replica
- CDS
  - — Master
  - — Replica
  - — GDA
- Time services
- NSI
- The ability to configure a split server (with CDS master server and security registry on different hosts)

If your system time is synchronized with another time service, a custom configuration lets you eliminate DTS from the configuration.

See Appendix C for an example of a custom configuration.

4.6.1 Custom Configuration for a Split Server Cell

The only way you can configure a split server cell (so that the CDS master server is on one host and the security registry is on another) is through a custom configuration.

To configure a split server cell, you need two custom configurations occurring at almost the same time. In brief, the process is as follows:

- Start the security registry server configuration

  You are asked some or all of the following questions:

  — Do you wish to configure "hostname" as the security master server?

  — Do you wish to configure "hostname" as the security replica server? (You receive this question if you answered NO to the previous question.)

  — Please enter the principal name to be used [cell_admin]:

  — Please enter the password for principal "cell_admin":

  — Please enter the password again to confirm it:

- Pause the configuration when requested
- Perform the CDS master server configuration

  You are asked some or all of the following questions:

  — Will "hostname" be the CDS master server for the cell?

  — Do you wish to configure "hostname" as the CDS replica server? (You receive this question if you answered NO to the previous question.)

  — Is the CDS master server within broadcast range?

  — Do you want to enable the Global Directory Agent? (If you answer YES, you are asked to enter the Domain and Bond Server address.)

- Return to the paused security registry server configuration and finish the split server configuration.

The following steps describe in more detail how to configure a split server cell:

1. Choose Custom from the DCE Configuration Menu.

2. Start the Security Registry Server by answering the configuration questions in a way similar to the following example:

```
Please enter the DCE hostname for this system [opra]:

Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]? n

Please enter the name for your DCE cell []:
                                    leaper_cell.dce.zko.dec.com

    Hostname:   opra
    Cellname:   leaper_cell.dce.zko.dec.com

Do you want to save these names for your DCE configuration
                                                 (YES/NO/?) [Y]?

Do you wish to configure opra as the Security Master server
                                                (YES/NO/?) [N]? y

Please enter the principal name to be used [cell_admin]:

Please enter the password for principal "cell_admin" (or ? for help):
Please enter the password again to confirm it:

Will opra be the CDS Master server for the cell (YES/NO/?) [N]? n

Do you wish to configure opra as a CDS Replica server
                                               (YES/NO/?) [N]? n

Is the CDS Master Server within broadcast range (YES/NO/?) [N]? y

Do you want to enable DCE DTS (YES/NO/?) [N]? y

Do you want this host to be a DCE DTS Local Server (YES/NO/?) [N]? y

Do you want to configure the NSI Agent (YES/NO/?) [N]? y

Do you want to enable DCE integrated login support (YES/NO/?) [N]?

*****************************   WARNING   ****************************
***  You have selected a split-server configuration.  This requires
```

```
***  that you coordinate the configuration of the two hosts where the
***  Security Registry Server and the CDS Master Server will reside.
***  You cannot configure one without configuring the other.

***  You have chosen to configure this host as the Security Registry
***  Server.
***  Continue with the configuration and the process will pause and
***  prompt you to configure the CDS Master Server.

Do you want to proceed with this operation (YES/NO/?) [N]? y

Do you want to save this service configuration (YES/NO/?) [Y]
```

3. Pause this configuration after you receive the following message:

```
****************************    INFO     ****************************
***
***  This system has now been configured as a security server.  Since
***  you chose not to configure this system as a CDS server, you must
***  now configure another host as the Master CDS Server for this
***  cell.  Once you have done this, answer YES to the following
***  question to complete the configuration of this system.
***
************************************************************************

Has the CDS Master Server been configured (YES?NO/?) ?
```

4. Choose Custom from the DCE Configuration Menu.
5. Start the CDS Master Server by answering the configuration questions in a way similar to the following example (note that the hostnames are different for each configuration but the cell name is the same):

```
Please enter the DCE hostname for this system [leaper]:

Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]? n

Please enter the name for your DCE cell []:
                                  leaper_cell.dce.zko.dec.com

    Hostname:   leaper
```

```
    Cellname:   leaper_cell.dce.zko.dec.com

Do you want to save these names for your DCE configuration
                                                (YES/NO/?) [Y]?

Do you wish to configure leaper as the Security Master server
                                                (YES/NO/?) [N]?

Do you wish to configure leaper as a Security Replica server
                                                (YES/NO/?) [N]?

Please enter the hostname of the DCE security registry []: opra
Checking TCP/IP local host database for address of "opra".
Please wait . . .

Checking BIND servers for address of "opra".  Please wait . . .


Please enter the principal name to be used [cell_admin]:

Please enter the password for principal "cell_admin" (or ? for help):

Will leaper be the CDS Master server for the cell (YES/NO/?) [N]? y

Do you want to enable the Global Directory Agent (YES/NO/?) [N]? n

Does this cell use multiple LANs (YES/NO/?) [N]?

Do you want to enable DCE DTS (YES/NO/?) [N]? y

Do you want this host to be a DCE DTS Local Server (YES/NO/?) [N]? y

Do you want to configure the NSI Agent (YES/NO/?) [N]? y

Do you want to enable DCE integrated login support (YES/NO/?) [N]?

Do you want to proceed with this operation (YES/NO/?) [N]? y

Do you want to save this service configuration (YES/NO/?) [Y]
```

6. When you are finished configuring the CDS master server, return to the paused security registry server configuration. Answer YES to the following question:

```
Has the CDS Master Server been configured (YES?NO/?) [Y]? YES
```

The configuration for split servers is completed.

4.7 Considerations for Rebuilding Split Servers

If you have a split server configuration, you must rebuild the security server first. When it pauses, rebuild the CDS server configuration. When the CDS server configuration is completed, continue rebuilding the security server.

4.8 Running the Configuration Verification Procedure

You can run the Configuration Verification Procedure (CVP) at the end of a successful configuration by choosing Test (Option 8) on the initial DCE Configuration Menu or by entering the following command:

```
$ @SYS$MANAGER:DCE$SETUP TEST
```

The CVP starts and displays the following informational messages:

```
Executing Digital DCE V1.3 CVP (please wait)
© Digital Equipment Corporation. 1995. All Rights Reserved
```

The CVP invokes tests of the 10 DCE RPC interfaces, displaying a dot (.) as each test is successful. A completely successful test execution results in 10 dots printed in succession.

The CVP test requires CDS and Security. The test procedure does not run correctly if your system has been configured for RPC only.

4.9 Logical Names Created During Configuration

The configuration process creates the following logical names:

DCE	Defines a search list pointing to directories SYS$COMMON:[DCE$LIBRARY] and SYS$LIBRARY. These directories contain Application Developer's Kit include files and other files for creating DCE applications.
DCE$COMMON	Points to the directory SYS$COMMON:[DCELOCAL]. This directory holds DCE-specific files common to all DCE hosts in a cluster.
DCE$LOCAL	Points to the directory DCE$SPECIFIC. This directory defines the top of the DCE directory hierarchy.
DCE$SPECIFIC	Points to the directory SYS$SPECIFIC:[DCELOCAL]. This directory is for internal use only.

4.10 Configuration Error Recovery

If the system configuration utility encounters problems, error messages are displayed. When the procedure encounters nonfatal errors, it tries to continue. If the procedure encounters a fatal error, it terminates the requested operation.

The following list provides suggestions for dealing with errors encountered during a configuration:

- **Read SYS$MANAGER:DCE$SETUP.LOG.**
  If the configuration utility displays an error message, you can get more detailed information about the cause of the error by examining the associated log file, SYS$MANAGER:DCE$SETUP.LOG. This log file contains a record of the operations invoked by the system configuration utility and may help you diagnose the cause of the problem.
- **Retry the operation.**
  Because of the inherent nature of distributed computing, some errors are caused by transitory conditions such as the temporary shutdown of a server. The error may not recur if you retry the operation.

If the error occurs during a configure operation, make sure the reported problem has been corrected and then restart the configuration. If an error occurs during a START operation, follow these steps:

1. Stop all active daemons and delete all temporary local DCE databases using the following command:

   $ @SYS$MANAGER:DCE$SETUP.COM CLEAN

2. Re-enter the START command, as follows:

   $ @SYS$MANAGER:DCE$SETUP.COM START

4.11 Configuring on a VMScluster

You must configure each node in a VMScluster separately by entering the following command on each node:

$ @SYS$MANAGER:DCE$SETUP.COM CONFIG

4.12 Configuring in a POSIX Environment

If POSIX is already installed and running on your system, then the DCE configuration (DCE$SETUP.COM) performs the DCE setup for POSIX. However, if POSIX is installed after you perform the DCE configuration, then SYS$STARTUP:POSIX$STARTUP.COM performs the DCE setup for POSIX.

4.12.1 When POSIX Is Installed Before the Configuration

If POSIX is already installed and running on your system, the following symbolic links are defined during the DCE configuration:

- **/usr/dce/examples** which points to SYS$COMMON: [SYSHLP.EXAMPLES.DCE]

  This directory is the top-level directory for all OpenVMS DCE examples. Each subdirectory also includes makefiles for POSIX builds.

- **/usr/dce/bin** which points to SYS$COMMON: [SYSHLP.EXAMPLES.DCE.POSIX]

  This directory contains POSIX images for **dce_login, kinit, klist, kdestroy**, and **acl_edit**. These images may be called without specifying their full pathname. The pathname is added to the user's **PATH** environment variable during POSIX shell activation.

After installing and configuring DCE, the system manager should enter the following line at the end of **/etc/profile**:

```
. /usr/dce/bin/dce_defs.sh
```

Note the dot (.) at the beginning of the line. (In a future release of POSIX, it will not be necessary to add this line.)

4.12.2 When POSIX Is Installed After the Configuration

If POSIX is not installed and running until after the DCE configuration, then have the system manager perform the following steps:

1. Run the command procedure SYS$STARTUP: POSIX$STARTUP.COM.
2. Add the following line at the end of **/etc/profile**:

   ```
   . /usr/dce/bin/dce_defs.sh
   ```

   Note the dot (.) at the beginning of the line. (In a future release of POSIX, it will not be necessary to add this line.)

Appendix A

Files Created or Used on Your System

This appendix lists the directories and files that are created or used on your system by Digital DCE for OpenVMS VAX and OpenVMS Alpha.

A.1 Installation Files

The following files, all part of Saveset A, are created when you install Digital DCE for OpenVMS VAX or Digital DCE for OpenVMS Alpha:

```
[SYSUPD]DCE$KITBLD.DAT
[SYSUPD]DCE$KITBLD.IDX
[SYSEXE]DCE$ADD_ID.EXE
[SYSHLP]DCE013.RELEASE_NOTES
[SYSUPD]DCE$TAILOR.EXE
[SYSLIB]SMGSHR.EXE    !On OpenVMS VAX only, a new version may be installed.
[SYSUPD]DCE$COMPARE_VERSIONS.COM
[SYSUPD]DCE$GET_IMAGE_VERSION.COM
[SYSUPD]DCE$VERSIONS.COM
```

A.2 Runtime Services Kit Files

The following files, all part of Saveset B, are created when you install the Digital DCE Runtime Services Kit:

```
[SYS$STARTUP]DCE$STARTUP.COM
[SYS$STARTUP]DCE$SHUTDOWN.COM
[SYSMGR]DCE$DEFINE_REQUIRED_COMMANDS.COM
[SYSTEST]DCE$CVP.COM
[SYSMGR]DCE$SETUP.COM
[SYSMGR]DCE$SETUP_MULTINET.COM
[SYSMGR]DCE$SETUP_PATHWAY.COM
[SYSMGR]DCE$SETUP_UCX.COM
[SYSMGR]DCE$SETUP_TCPWARE.COM
[SYSEXE]DCE$SEC_SETUP.EXE
[SYSLIB]DCE$LIB_SHR.EXE
[SYSLIB]DCE$KERNEL.EXE
[SYSLIB]DCE$SOCKSHR_IP.EXE
[SYSLIB]DCE$SOCKSHR_DNET_IV.EXE
[SYSMSG]DCE$RPC_MSG.EXE
[SYSEXE]DCE$RPCCP.EXE
[SYSEXE]DCE$RPCD.EXE
[SYSEXE]DCE$RPCPERF_CLIENT.EXE
[SYSEXE]DCE$RPCPERF_SERVER.EXE
[SYSEXE]DCE$NSID.EXE
[SYSEXE]DCE$CHECK.EXE
[SYSEXE]DCE$GETCELLS.EXE
[SYSEXE]DCE$SX.EXE
[SYSEXE]DCE$CADUMP.EXE
[SYSEXE]DCE$CDSADV.EXE
[SYSEXE]DCE$CDSCLERK.EXE
[SYSEXE]DCE$CDSCP.EXE
[DCELOCAL.ETC]CDS_ATTRIBUTES.DAT
[DCELOCAL.ETC]CDSCP.BPT
[DCELOCAL.ETC]CDSCP.MBF
[SYSEXE]DCE$CDSBROWSER.EXE
[DECW$DEFAULTS.USER]DCE$CDSBROWSER.UID
[SYSHLP]DCE$CDSBROWSER.HLB
[SYSMSG]DCE$CDS_MSG.EXE
[SYSEXE]DCE$RGY_EDIT.EXE
```

```
[SYSEXE]DCE$ACL_EDIT.EXE
[SYSEXE]DCE$DCE_LOGIN.EXE
[SYSEXE]DCE$SEC_CLIENTD.EXE
[SYSMSG]DCE$SEC_MSG.EXE
[SYSEXE]DCE$KDESTROY.EXE
[SYSEXE]DCE$KINIT.EXE
[SYSEXE]DCE$KLIST.EXE
[SYS$LDR]SYS$UTC_SERVICES.EXE   !OpenVMS VAX only
[SYSLIB]DTSS$RUNDOWN.EXE
[SYSLIB]DTSS$SHR.EXE
[SYSUPD]DTSS$INSTALL_TIMEZONE_RULE.COM
[SYSUPD]DTSS$TIMEZONE_RULES.DAT
[SYSEXE]DTSS$SET_TIMEZONE.EXE
[SYSEXE]DCE$DTSCP.EXE
[SYSHLP]DCE$DTSCP.HLB
[DCELOCAL.ETC]DTSCP.BPT
[SYSEXE]DCE$DTSD.EXE
[SYSEXE]DTSS$GRAPH.EXE
[SYSEXE]DCE$NSEDIT.EXE
[SYSLIB]DCE$NSEDIT_SHR.EXE
[SYSEXE]DCE$GDAD.EXE
[SYS$SYSTEM]DCE$UAF.EXE
[SYS$SYSTEM]DCE$CHPASS.EXE
[SYS$LIBRARY]DCE$LGI_CALLOUTS.EXE
[SYS$LIBRARY]DCE$UAF_SHR.EXE
[SYS$MESSAGE]DCE$IL_MSG.EXE
[SYS$SYSTEM]DCE$IMPORT.EXE
[SYS$SYSTEM]DCE$EXPORT.EXE
[SYS$SYSTEM]DCE$IMPORT_EXCLUDE.DAT
```

A.3 Application Developer's Kit Files

When you install the Application Developer's Kit, all the files in the Runtime Services Kit are created. In addition, the following files, all part of Saveset C, are created:

```
[SYSEXE]DCE$IDL.EXE
[SYSMSG]DCE$IDL_MSG.EXE
[SYSEXE]DCE$UUIDGEN.EXE
[SYSMSG]DCE$UUIDGEN_MSG.EXE
[SYSEXE]DCE$NIDL_TO_IDL.EXE   !OpenVMS VAX only
[SYSEXE]DCE$RPCLM.EXE
[SYSLIB]DCE$IL_DEF.H
[SYSLIB]DCE$IL_MSG.H
[DCE$LIBRARY]DCE$DEFINE_OPTIONAL_COMMANDS.COM
[DCE$LIBRARY]GSSAPI.H
[DCE$LIBRARY]IDL_ES.H
[DCE$LIBRARY]EP.IDL
[DCE$LIBRARY]IOVECTOR.IDL
[DCE$LIBRARY]LBASE.IDL
[DCE$LIBRARY]NBASE.ACF
[DCE$LIBRARY]NBASE.IDL
[DCE$LIBRARY]NCASTAT.IDL
[DCE$LIBRARY]NDROLD.IDL
[DCE$LIBRARY]RPC.IDL
[DCE$LIBRARY]RPCBASE.IDL
[DCE$LIBRARY]RPCPVT.IDL
[DCE$LIBRARY]RPCSTS.IDL
[DCE$LIBRARY]RPCTYPES.IDL
[DCE$LIBRARY]RRPC.IDL
[DCE$LIBRARY]TWR.IDL
[DCE$LIBRARY]UUID.IDL
[DCE$LIBRARY]XDSCDS.H
[SYSLIB]DCE_POSIX.OPT
[DCE$LIBRARY]DCE.OPT
[DCE$LIBRARY]DCE_VAXC.OPT    !OpenVMS VAX only
[DCE$LIBRARY]DCE$CC_TEST.COM
[DCE$LIBRARY]DCE_CF.H
[DCE$LIBRARY]DCE_CF_STS.H
[DCE$LIBRARY]DCE_ERROR.H
```

[DCE$LIBRARY]IDLBASE.H
[DCE$LIBRARY]IDLDDEFS.H
[DCE$LIBRARY]IOVECTOR.H
[DCE$LIBRARY]LBASE.H
[DCE$LIBRARY]NBASE.H
[DCE$LIBRARY]NBASE.FOR_H
[DCE$LIBRARY]NBASE.FOR
[DCE$LIBRARY]NCASTAT.H
[DCE$LIBRARY]NDROLD.H
[DCE$LIBRARY]RPC.H
[DCE$LIBRARY]RPCBASE.H
[DCE$LIBRARY]RPCEXC.H
[DCE$LIBRARY]RPCPVT.H
[DCE$LIBRARY]RPCSTS.H
[DCE$LIBRARY]RPCTYPES.H
[DCE$LIBRARY]RRPC.H
[DCE$LIBRARY]STUBBASE.H
[DCE$LIBRARY]TWR.H
[DCE$LIBRARY]UUID.H
[DCE$LIBRARY]ACCT.H
[DCE$LIBRARY]ACCT.IDL
[DCE$LIBRARY]ACLBASE.H
[DCE$LIBRARY]ACLBASE.IDL
[DCE$LIBRARY]BINDING.H
[DCE$LIBRARY]BINDING.IDL
[DCE$LIBRARY]DACLIF.H
[DCE$LIBRARY]DACLIF.IDL
[DCE$LIBRARY]DACLMGR.H
[DCE$LIBRARY]DACLMGR.IDL
[DCE$LIBRARY]DCE_CF_CONST.H
[DCE$LIBRARY]DCE_CF_CONST.IDL
[DCE$LIBRARY]ID_BASE.H
[DCE$LIBRARY]ID_BASE.IDL
[DCE$LIBRARY]KEYMGMT.H
[DCE$LIBRARY]KEYMGMT.IDL
[DCE$LIBRARY]MISC.H
[DCE$LIBRARY]MISC.IDL
[DCE$LIBRARY]ORIDE_BASE.H
[DCE$LIBRARY]ORIDE_BASE.IDL
[DCE$LIBRARY]PASSWD.H
[DCE$LIBRARY]PASSWD.IDL

```
[DCE$LIBRARY]PGO.H
[DCE$LIBRARY]PGO.IDL
[DCE$LIBRARY]POLICY.H
[DCE$LIBRARY]POLICY.IDL
[DCE$LIBRARY]RDACLIF.H
[DCE$LIBRARY]RDACLIF.IDL
[DCE$LIBRARY]RGYBASE.H
[DCE$LIBRARY]RGYBASE.IDL
[DCE$LIBRARY]RGYNBASE.H
[DCE$LIBRARY]RGYNBASE.IDL
[DCE$LIBRARY]SECIDMAP.H
[DCE$LIBRARY]SECIDMAP.IDL
[DCE$LIBRARY]SECSTS.H
[DCE$LIBRARY]SECSTS.IDL
[DCE$LIBRARY]SEC_BASE.H
[DCE$LIBRARY]SEC_BASE.IDL
[DCE$LIBRARY]SEC_LOGIN.H
[DCE$LIBRARY]SEC_LOGIN.IDL
[DCE$LIBRARY]DTSS$PROVIDER.C
[DCE$LIBRARY]DTSS$PROVIDER_ACTS.C
[DCE$LIBRARY]DTSPROVIDER_SSTUB.OBJ
[DCE$LIBRARY]DTSPROVIDER.H
[DCE$LIBRARY]DTSPROVIDER.IDL
[DCE$LIBRARY]DTSPROVIDER.ACF
[DCE$LIBRARY]UTC.H
[DCE$LIBRARY]UTCTYPES.H
[DCE$LIBRARY]CDSCLERK.H
[DCE$LIBRARY]DNSMESSAGE.H
```

A.4 Example Application Files

The following example application files, all part of Saveset D, are created when you install the Application Developer's Kit:

```
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]README.LIS
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK.ACF
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK.C
```

```
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK.COM
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK.IDL
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK.OPT
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK_MAIN.C
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]BOOK_MGR.C
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]DCE_LOGIN.PSX
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]RPCSERVER.C
[SYSHLP.EXAMPLES.DCE.RPC.BOOK]RPCSERVER.H
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]README.LIS
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]TEST1.C
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]TEST1.OPT
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]TEST1.IDL
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]TEST1_MAIN.C
[SYSHLP.EXAMPLES.DCE.RPC.TEST1]TEST1_MGR.C
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]DCE_LOGIN.PSX
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]README.LIS
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]KDESTROY.PSX
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]KINIT.PSX
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]KLIST.PSX
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2.ACF
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2.C
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2.COM
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2.OPT
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2.IDL
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2_MAIN.C
[SYSHLP.EXAMPLES.DCE.RPC.TEST2]TEST2_MGR.C
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER.C
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_BUILD.COM
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_GC1000.EXE
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_HOPF.EXE
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_NULL.EXE
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_PSTI.EXE
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_SPEC.EXE
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_START.COM
[SYSHLP.EXAMPLES.DCE.DTSS]DCE$DTS_PROVIDER_TRAC.EXE
[SYSHLP.EXAMPLES.DCE.POSIX]ACL_EDIT.
[SYSHLP.EXAMPLES.DCE.POSIX]DCE_DEFS.SH
[SYSHLP.EXAMPLES.DCE.POSIX]DCE_LOGIN.
[SYSHLP.EXAMPLES.DCE.POSIX]KDESTROY.
```

```
[SYSHLP.EXAMPLES.DCE.POSIX]KINIT.
[SYSHLP.EXAMPLES.DCE.POSIX]KLIST.
[SYSHLP.EXAMPLES.DCE.POSIX]NSEDIT.
[SYSHLP.EXAMPLES.DCE.SX]README.LIS
[SYSHLP.EXAMPLES.DCE.SX]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.SX]DCESX.C
[SYSHLP.EXAMPLES.DCE.SX]DCESX.COM
[SYSHLP.EXAMPLES.DCE.SX]DCESX.OPT
[SYSHLP.EXAMPLES.DCE.SX]DCESX0.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX0.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX1.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX1.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX2.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX2.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX3.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX3.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX4.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX4.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX5.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX5.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX6.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX6.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX7.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX7.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX8.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX8.IDL
[SYSHLP.EXAMPLES.DCE.SX]DCESX9.ACF
[SYSHLP.EXAMPLES.DCE.SX]DCESX9.IDL
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]README.LIS
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]SERVER.C
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]DCE_LIB.OPT
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]MANAGER.FOR
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]PAYROLL.COM
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]PAYROLL.DAT
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]PAYROLL.IDL
[SYSHLP.EXAMPLES.DCE.RPC.PAYROLL]PRINT_PAY.FOR
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]README.LIS
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]MANAGER.C
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.COM
```

```
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.TXT
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.DOS
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.NT
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.ACF
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.IDL
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]PHNBK.ULT
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]DOSPORT.H
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]CLIENT.C
[SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK]SERVER.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]README.LIS
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]CLIENT.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]DCE_LOGIN.PSX
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]MAKEFILE.OSF1
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]SERVER.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]ARITHMETIC.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]ARITHMETIC.IDL
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]CHECK_STATUS.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]CLIENT.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]PROCEDURE.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC]SERVER.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]DCE_LOGIN.PSX
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]README.LIS
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]MAKEFILE.OSF1
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]IMPLEMENT_INVENTORY.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]INVENTORY.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]INVENTORY.IDL
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]I_CLIENT.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]I_CLIENT.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]I_CLIENT.SH
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]I_PROCEDURES.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]I_SERVER.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY]CHECK_STATUS.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
                                  EXPLICIT-INVENTORY.ACF
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
                                  MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
                                   MAKEFILE.OSF1
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
```

```
                                    EXPLICIT.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
                                    EXPLICIT_CLIENT.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT]
                                    CHECK_STATUS.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    DO_IMPORT_BINDING.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    DO_INTERPRET_BINDING.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    IMPLICIT-INVENTORY.ACF
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    MAKEFILE.OSF1
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    IMPLICIT.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    IMPLICIT_CLIENT.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT]
                                    CHECK_STATUS.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]README.LIS
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]CONTEXT_RUNDOWN.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]DO_STRING_BINDING.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]GET_ARGS.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]REMOTE_FILE.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]REMOTE_FILE.IDL
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]R_CLIENT.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]R_PROCEDURES.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]R_SERVER.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]UNISTD.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE]CHECK_STATUS.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]README.LIS
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]MAKEFILE.OSF1
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]MAKEFILE.
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]BINDING.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]CLIENT_ALLOC.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]CLIENT_RECEIVE.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]CLIENT_SEND.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]FLOAT_UTIL.C
```

```
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]IN_PULL.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]OUT_PUSH.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]PIPE_STATE.H
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]RECEIVE_FLOATS.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]SEND_FLOATS.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]TRANSFER_DATA.COM
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]TRANSFER_DATA.IDL
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]T_SERVER.C
[SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA]CHECK_STATUS.H
```

Appendix B

Sample Installation Logs

This appendix provides the following listings:

- Preinstallation of the DEC C/C++ Run-Time Components Kit (AACRT060.A), which is required for the installation of Digital DCE Version 1.3 on systems running OpenVMS VAX Version 6.0 and earlier. (Note that you do not need to install this special kit if you are installing on OpenVMS VAX Version 6.1 or higher.)
- Installation of Digital DCE Version 1.3 on OpenVMS VAX
- Preinstallation of the special pre-Alpha kit (DCEPRE013.A), which is required for the installation of Digital DCE Version 1.3 on systems running OpenVMS Alpha Version 1.5. (Note that you do not need to install this special kit if you are installing on OpenVMS Alpha Version 6.1 or higher.)
- Installation of Digital DCE Version 1.3 on OpenVMS Alpha

B.1 Installing DCE C/C++ Run-Time Components Kit (AACRT060.A)

The following section is a log of the DCE C/C++ Run-Time Components Kit (AACRT060.A). You must install this kit before you install Digital DCE on systems running OpenVMS VAX Version 6.0 or earlier.

```
@SYS$UPDATE:VMSINSTAL AACRT060 dka200:[KITS]AACRT060 OPTIONS I

        VAX/VMS Software Product Installation Procedure V5.5-2

It is 24-JAN-1995 at 14:28.

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

The following products will be processed:

  AACRT V6.0

        Beginning installation of AACRT V6.0 at 14:28

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
  DEC C/C++ Version V06.0-60 Run-Time components for OpenVMS/VAX systems

    Copyright (c) Digital Equipment Corporation, 1995.  All rights reserved.


    This kit  provides  new  versions  of  several  OpenVMS  VAX  standard
    shareable  images  and  object  libraries  in  SYS$LIBRARY,  such  as
    VAXCRTL.EXE,  CMA$RTL.EXE, and  SMGSHR.EXE.  These provide support for
    several programming  capabilities provided by  OpenVMS VAX Version 6.0
    for C, C++, and other languages.

    ****************************************************************
    *                          W A R N I N G                       *
    ****************************************************************

    Programs  that link  against the new  versions of any of  these files,
    EVEN THOSE NOT WRITTEN IN DEC C OR C++, will NOT run on older versions
```

```
    of OpenVMS (V5.5-2 or earlier)  unless steps are taken to save the old
    SYS$LIBRARY configuration or redistribute this kit to additional sites.
    See Chapter 1 of the DEC C/C++ Run-Time Components Kit for OpenVMS VAX
    Systems Reference and Installation Manual for more details.

    In  addition,  if you  update the system  version of  OpenVMS VAX, the
    enhanced  versions of the new images and libraries may be  overwritten
    with  versions that lack the  enhanced support.  Be sure to  reinstall
    the DEC C/C++  Run-Time  Components kit after each OpenVMS VAX  system
    update.

* Continue with the installation? [N]? YES

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

    This kit  contains an  Installation  Verification  Procedure  (IVP) to
    verify the correct  installation of the DEC C/C++ Run-Time Components.
    The IVP will be placed in:

        SYS$TEST:CRT$IVP.COM

    After the installation is complete, you can invoke the command file at
    any time to reverify that DEC C/C++ Run-Time  Components are installed
    and working correctly.  Answer yes to the next question if you wish to
    run the IVP at the completion of this installation procedure.

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

        All questions and verifications regarding the installation of the
        DEC C/C++ Run-Time Components have been completed.  Depending on
        your configuration, time estimates for the remainder of the
        installation are 1 to 3 minutes.

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

  Your OpenVMS system will now be updated to include the following
  new files:

    SYS$HELP:CRT060.RELEASE_NOTES                       [new]
    SYS$HELP:CRT060_RELEASE_NOTES.PS                    [new]
    SYS$HELP:CRT060_RELEASE_NOTES.DECW$BOOK             [new]
```

```
SYS$HELP:CRT060_REF_INST.PS                    [new]
SYS$HELP:CRT060_REF_INST.TXT                   [new]
SYS$HELP:CRT060_RBI.PS                         [new]
SYS$HELP:CRT060_RBI.TXT                        [new]
SYS$TEST:CRT$IVP.COM                           [new]
SYS$TEST:[CRT]CRT$ERR1.OBJ                     [new]
SYS$TEST:[CRT]CRT$ERR2.OBJ                     [new]
SYS$TEST:[CRT]CRT$IVP1.OBJ                     [new]
SYS$TEST:[CRT]CRT$IVP2.OBJ                     [new]
SYS$TEST:[CRT]CRT$IVP3.OBJ                     [new]
SYS$TEST:[CRT]CRT$IVP4.OBJ                     [new]
SYS$STARTUP:CRT$STARTUP.COM                    [new]
SYS$LIBRARY:CMA$RTL.EXE                        [new]
SYS$LIBRARY:CMA$OPEN_RTL.EXE                   [new]
SYS$LIBRARY:CMA$LIB_SHR.EXE                    [new]
SYS$LIBRARY:CMA$OPEN_LIB_SHR.EXE               [new]
SYS$LIBRARY:CMA$TIS_SHR.EXE                    [new]
SYS$LIBRARY:CXXL$011_SHR.EXE                   [new]
SYS$MESSAGE:CXXL$MSG_SHR.EXE                   [new]
SYS$LIBRARY:DECC$SHR.EXE                       [new]
SYS$LIBRARY:DECCCURSE.OLB                      [new]
SYS$LIBRARY:DECCRTL.OLB                        [new]
SYS$LIBRARY:DECCRTLG.OLB                       [new]
SYS$LIBRARY:SMGSHR.EXE                         [new]
SYS$LIBRARY:UCX$CRTLIBXFR.OBJ                  [new]
SYS$LIBRARY:VAXC$EMPTY.EXE                     [new]
SYS$LIBRARY:VAXC$LCL.OPT                       [new]
SYS$LIBRARY:VAXC2DECC.EXE                      [new]
SYS$LIBRARY:VAXCRTL.EXE                        [new]
SYS$LIBRARY:VAXCG2DECC.EXE                     [new]
SYS$MESSAGE:VAXCMSG.EXE                        [new]
SYS$LIBRARY:VAXCCURSE.OLB                      [new]
SYS$LIBRARY:VAXCRTL.OLB                        [new]
SYS$LIBRARY:VAXCRTLG.EXE                       [new]
SYS$LIBRARY:VAXCRTLG.OLB                       [new]
SYS$LIBRARY:DECC$EMPTY.EXE                     [new]
```

```
    ****************************************************************************
    *                          R E M I N D E R                                 *
    ****************************************************************************

    If you are  installing on a  VMScluster, you  MUST execute the command
    file  SYS$STARTUP:CRT$STARTUP.COM on all members of the  cluster after
    installing the DEC C/C++ Run-Time Components kit.

    If you are  installing on an OpenVMS VAX system  prior to Version 6.0,
    ensure that you invoke the  SYS$STARTUP:CRT$STARTUP.COM  startup  file
    prior to  starting up any other  products in the system  startup file,
    SYS$MANAGER:SYSTARTUP_V5.COM.  See Chapter 4 of the DEC C/C++ Run-Time
    Components  Kit for  OpenVMS VAX  Systems  Reference and  Installation
    Manual for more details on postinstallation operations.

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

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    *-----------------------------------------*
    *    Installation Verification Procedure  *
    *     for DEC C/C++ Run-Time Components   *
    *-----------------------------------------*



    *-----------------------------------------*
    *    Test that components LINK properly   *
    *-----------------------------------------*


    *-----------------------------------------*
    *    Test that components RUN properly    *
    *-----------------------------------------*

        Testing DEC C RTL . . .
        Testing DEC C++ Class Library . . .
        Testing curses . . .
        Testing DEC C RTL . . .
        Testing DEC C++ Class Library . . .
```

```
      Testing curses . . .
      Testing VAX C RTL . . .
      Testing curses . . .
      Testing DECthreads . . .
      Testing VAX C RTL . . .
      Testing curses . . .
      Testing DECthreads . . .
      Testing VAX C RTL . . .
      Testing curses . . .
      Testing DECthreads . . .
      Testing VAX C RTL . . .
      Testing curses . . .
      Testing DECthreads . . .
      Testing VAX C RTL . . .
      Testing curses . . .
      Testing DECthreads . . .
      Testing VAX C shareable usage . . .
      Testing shareable portion . . .
      Testing main portion . . .
      Testing VAX C shareable usage . . .
      Testing shareable portion . . .
      Testing main portion . . .

** DEC C/C++ Run-Time Components Installation Verification Procedure **
** Ending at  24-JAN-1995 14:32:57.70 **

      Installation of AACRT V6.0 completed at 14:32

      VMSINSTAL procedure done at 14:33
```

B.2 Installing Digital DCE on OpenVMS VAX

This installation has the following prerequisites:

- OpenVMS VAX Version 5.5-2 was installed.
- The required DEC C/C++ Run-Time Components Kit (AACRT060.A) was installed.
- The Run Time Services Kit (RTK) is being installed.
- Both UCX V2.0 and DECnet Phase IV were installed.
- A DCE$SERVER account does not exist.
- The NET$DECLAREOBJECT right has not yet been granted to DCE$SERVER.
- SYS$UTC_SERVICES.EXE is not present on the system because you are installing DCE on systems running the OpenVMS VAX Version 5.5-2 operating system. The installation procedure will install SYS$UTC_SERVICES.EXE.

  NOTE: At the end of the DCE installation on systems running OpenVMS VAX Version 5.5-2, you are asked to reboot to activate this image. If you are installing DCE on OpenVMS VAX Version 6.0 or higher or OpenVMS Alpha, you do not normally need to reboot. Instead, you are asked at the end of the installation whether you want to configure.

```
@SYS$UPDATE:VMSINSTAL DCEVAX013 DKA200:[kits]DCEVAX013 options I

        VAX/VMS Software Product Installation Procedure V5.5-2

It is 24-JAN-1995 at 17:06.

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

The following products will be processed:

  DCEVAX V1.3

        Beginning installation of DCEVAX V1.3 at 17:06
```

```
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved
                       to SYS$HELP.

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* Do you want to purge files replaced by this installation [YES]?
%DCEVAX-I-AACRT0K, The required AACRT060 kit has been installed. This
installation will continue


    Greetings!

    This is DCE for OpenVMS VAX and OpenVMS Alpha V1.3.
    There are four components: the DCE Run Time Services, the
    DCE Application Developer's Kit, the DCE Security Server,
    and the DCE CDS Server.

  1. The Run Time Services provides the core services necessary to
     execute manage DCE applications.

  2. The Application Developer's Kit provides the services and tools
     required to develop, execute, and manage DCE applications.
     The Run Time Services capability is automatically provided with
     the Application Developer's Kit.

   3. The Security Server is always supplied but is enabled with a PAK.
      The security server supplies support for a cell wide security
      database. A cell must have at least one system running a security
      server.

   4. The CDS Server is always supplied but is enabled with a PAK.
      The CDS server supplied support for a cell wide naming database.
      A cell must have at least one system running a CDS server.


* Press return to Continue:

    You don't have the Application Developer's Kit registered
    the Run Time Services Kit will be installed
```

```
The Run Time Services Kit installs:

      * Authenticated CDS Advertiser and Client Support
      * CDS Browser
      * CDS Control Program (CDSCP)
      * Authenticated DCE RPC runtime support (supports DECnet, TCP,
        and UDP)
      * RTI (Remote Task Invocation) RPC for Digital's ACMSxp TP product
      * Security Client Support
      * Integrated Login
      * A DCE_LOGIN tool for obtaining credentials
      * A RGY_EDIT tool for registry maintenance functions
      * KINIT, KLIST, and KDESTROY Kerberos tools
      * An ACL_EDIT tool for access control lists (ACLs) for DCE objects
      * RPC Control Program (RPCCP)
      * Name Services Interface Daemon (nsid); also known as the PC
        Nameserver Proxy
      * Native Kerberos
      * XDS Directory Services
      * XDS Object Managment

NOTE: Please add the following to your system's
      SYS$MANAGER:SYLOGIN.COM.
      These files define foreign commands for using DCE on OpenVMS.

      $ @SYS$MANAGER:DCE$DEFINE_REQUIRED_COMMANDS.COM

  Please add the following command to SYS$STARTUP:SYSTARTUP_*.COM
  on your system. This ensures that DCE$STARTUP.COM is executed
  at system boot. The parameters supplied to DCE$STARTUP.COM depend
  on the specific TCP/IP product you intend to use. You will now
  be asked to select the name of this TCP/IP product, and the
  installation will supply you with the correct command for
  SYS$STARTUP:SYSTARTUP_*.COM.

    TCP/IP product                                Keyword

    Digital's TCP/IP Services for OpenVMS         UCX
    Multinet from TGV                             MULTINET
    Pathway from Wollongong                       PATHWAY
    TCPware from Process Software                 TCPWARE
```

```
        No TCP/IP Available at this time                NONE

* Enter one of the keywords from the table above [UCX]: UCX
%DCEVAX-I-STARTUCX, Enter $ @SYS$STARTUP:DCE$STARTUP in your
          SYS$MANAGER:SYSTARTUP_*.COM

  In order to ensure that the DCE daemon processes run in the proper
  environment, this installation procedure will create an account for
  them.  This account, DCE$SERVER, is created with TMPMBX, NETMBX,
  DETACH and SYSPRV privileges.  It is not possible to log into this
  account.

  You must specify a unique UIC for this account in order to ensure
  proper security of the network.  The password for this account will
  be generated.  You do not need to know the password, since the account
  is disabled.  If this scenario violates your security policies, you
  may change it after the installation has finished via the VMS
  AUTHORIZE utility.


* Enter the UIC of the new DCE$SERVER account:  [363,363]:
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT
 named DCE$SERVER.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier DCE$SERVER value: [000363,000363]
                                added to rights data base
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT
 named DCE$SERVER.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-SYSDIR, This product creates system
 directory [DCE$SERVER].
%DCEVAX-I-ADDID, This installation adds an IDENTIFIER
 named NET$DECLAREOBJECT.

    The rights identifier NET$DECLAREOBJECT will now be granted to the
    DCE$SERVER account. You may ignore the message:

"%UAF-E-GRANTERR, unable to grant identifier NET$DECLAREOBJECT
 to DCE$SERVER
-SYSTEM-F-DUPIDENT, duplicate identifier"
```

```
    if it should occur as a result of granting the identifier.

%UAF-I-GRANTMSG, identifier NET$DECLAREOBJECT granted to DCE$SERVER

                              * * * N O T E * * *

 Successful installation of this product will require a reboot in
 order to load the SYS$UTC_SERVICES loadable image that was placed
 on your system by this installation. You will be notified at the
 end of this installation that a reboot is required and have the
 option to proceed or not.

 This installation will complete without configuring DCE on this
 system.


 To complete the installation of this product, you should reboot
 the system.  If it is not convenient to reboot at this time, then
 enter NO to the following question.

 If you enter NO, the installation procedure will continue.

* Will you allow a system shutdown after this product is installed [YES]?
* How many minutes for system shutdown [0]:
* Do you want to do an automatic system reboot [YES]?
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL].
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL.VAR].
%VMSINSTAL-I-SYSDIR, This product creates system directory
[DCELOCAL.VAR.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
[DCELOCAL.VAR.RPC.AD
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL.ETC].
%DCEVAX-I-LOADUTC, SYS$LOADABLE_IMAGES:SYS$UTC_SERVICES.EXE has been
installed.
%SMI-S-IMGFILCRE, image file created.
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%DCEVAX-I-INFO, Installing the DCE Resource Broker Kit

    Since you are not going to configure DCE on your system at this time,
    this completes the installation. To configure this node at a later
```

```
    time, please run the DCE configuration utility with the "CONFIG"
    option as shown:


        $ @SYS$STARTUP:DCE$STARTUP CONFIG UCX

    Please see the product's Installation and Configuration Guide for more
    details.

        Installation of DCEVAX V1.3 completed at 17:11


%VMSINSTAL-I-SHUTDOWN, This product requires that the system be rebooted.
        SHUTDOWN -- Perform an Orderly System Shutdown
                    on node WEBOPN
Do you really want to shutdown node WEBOPN [NO]?
        VMSINSTAL procedure done at 17:24
$ LOGOUT
  SYSTEM       logged out at  24-JAN-1995 17:24:05.97
```

B.3 Installing the Pre-Alpha Kit (DCEPRE013.A)

The following section is a log of the special Alpha kit (DCEPRE013.A). You must install this kit before you install Digital DCE for OpenVMS Alpha Version 1.5.

```
$ @SYS$UPDATE:VMSINSTAL DCEPRE013 DKA100:[000000]DCEPRE013 OPTIONS i

        OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 24-JAN-1995 at 13:45.

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

The following products will be processed:
```

```
   DCEPRE V1.3

        Beginning installation of DCEPRE V1.3 at 13:45

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

        To complete the installation of this product, you must reboot
        the system.  If it is not convenient to reboot at this time, then
        enter NO to the following question. The installation of this kit
        will continue and the files moved to their appropriate locations
        without forcing the system to reboot upon completion of the
        installation. The system can than be rebooted at some more
        convenient time to actually have this update take effect.

        Entering YES will cause the system to automatically reboot
        upon the installation of this kit.

* Will you allow a system shutdown after this product is
  installed? [YES]: YES
* How many minutes for system shutdown [7]: 0


    No more questions will be asked ...


    Now applying DCEPRE013 ...


 0) DECC$SHR (new image)
 1) SYS$UTC_SERVICES (new image)

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
 directories...
%INSTALL-E-RESFAIL, failed to install image with /RESIDENT qualifier
-INSTALL-E-NOGHREG, insufficient memory in the code granularity hint
 region
%INSTALL-I-NONRES, installed image non-resident with other specified
 options
        Installation of DCEPRE V1.3 completed at 13:46

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY
```

```
    Creating installation data file: VMI$ROOT:[SYSUPD]DCEPRE013.VMI_DATA

%VMSINSTAL-I-SHUTDOWN, This product requires that the system be rebooted.

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

        This system will shutdown in 7 minutes WITHOUT an
        automatic reboot.

        If you wish to do an immediate shutdown and reboot, type
        CTRL/Y and initiate the shutdown manually.

        The installation will not be complete until a system reboot.

    ****************************************************************
        SHUTDOWN -- Perform an Orderly System Shutdown
                    on node OPNWID
Do you really want to shutdown node OPNWID [NO]? YES
%SHUTDOWN-I-BOOTCHECK, Performing reboot consistency check...
%SHUTDOWN-I-CHECKOK, Basic reboot consistency check completed

SHUTDOWN message on OPNWID from user SYSTEM at _OPNWID$RTA2: 13:47:09
OPNWID will shut down in 0 minutes; back up soon.
System SHUTDOWN after DCEPRE V1.3 installation.
```

B.4 Installing Digital DCE on OpenVMS Alpha

This installation has the following prerequisites:

- OpenVMS Alpha Version 1.5 was installed.
- The required DCEPRE013 kit was installed.
- Both the Run Time Services Kit (RTK) and the Application Developer's Kit (ADK) are being installed.
- The ADK PAK was preloaded.

- Both UCX Version 3.0 (or higher) and DECnet Phase IV were installed.
- The DCE$SERVER account exists already.
- The NET$DECLAREOBJECT right has not yet been granted to DCE$SERVER; it will be granted by the installation procedure.

Note that the user was asked about configuration at the end of the installation and chose not to configure at this time.

```
$ @SYS$UPDATE:VMSINSTAL DCEAXP013 DKA100:[000000]DCEAXP013 OPTIONS I

        OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 24-JAN-1995 at 12:08.

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

The following products will be processed:

  DCEAXP V1.3

        Beginning installation of DCEAXP V1.3 at 12:08

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

    ) Digital Equipment Corporation. 1995. All Rights Reserved

* Do you want to purge files replaced by this installation [YES]? YES
%DCEAXP-I-DCEPREOK, The required DCEPRE013 kit has been installed.
This installation will continue

    Greetings!

    This is DCE for OpenVMS VAX and OpenVMS Alpha V1.3.
    There are four components: the DCE Run Time Services, the
    DCE Application Developer's Kit, the DCE Security Server,
    and the DCE CDS Server.

  1. The Run Time Services provides the core services necessary to
     execute manage DCE applications.
```

```
  2. The Application Developer's Kit provides the services and tools
     required to develop, execute, and manage DCE applications.
     The Run Time Services capability is automatically provided with
     the Application Developer's Kit.

   3. The Security Server is always supplied but is enabled with a PAK.
      The security server supplies support for a cell wide security
      database. A cell must have at least one system running a security
      server.

   4. The CDS Server is always supplied but is enabled with a PAK.
      The CDS server supplied support for a cell wide naming database.
      A cell must have at least one system running a CDS server.

* Press return to Continue:

    You have registered the OpenVMS DCE Application Developer's Kit
    license.

  The Application Developer's Kit installs:

      + The Run Time Services Kit
          * Authenticated CDS Advertiser and Client Support
          * CDS Browser
          * CDS Control Program (CDSCP)
          * Authenticated DCE RPC runtime support (supports DECnet, TCP,
            and UDP)
          * Resource Broker
          * RTI (Remote Task Invocation) RPC for Digital's ACMSxp TP product
          * Security Client Support
          * Integrated Login
          * A DCE_LOGIN tool for obtaining credentials
          * A RGY_EDIT tool for registry maintenance functions
          * KINIT, KLIST, and KDESTROY Kerberos tools
          * An ACL_EDIT tool for access control lists (ACLs) for DCE objects
          * RPC Control Program (RPCCP)
          * Name Services Interface Daemon (nsid); also known as the PC
            Nameserver Proxy
          * Native Kerberos
          * XDS Directory Services
          * XDS Object Managment
```

```
      + Required DCE application development header files
      + Interface Definition Language (IDL) compiler
      + Object-Oriented RPC
      + NIDL-to-IDL compiler (on OpenVMS VAX only)
      + Generic Security Service (GSSAPI)
      + LSE Templates for IDL
      + UUID Generator
      + .H (Include) files and .IDL files for application development
      + Sample DCE applications

  NOTE: Please add the following to your system's
        SYS$MANAGER:SYLOGIN.COM. These files define foreign commands
        for using DCE on OpenVMS.

          $ @SYS$MANAGER:DCE$DEFINE_REQUIRED_COMMANDS.COM
          $ @SYS$COMMON:[DCE$LIBRARY]DCE$DEFINE_OPTIONAL_COMMANDS.COM

   Please add the following command to SYS$STARTUP:SYSTARTUP_*.COM
   on your system. This ensures that DCE$STARTUP.COM is executed
   at system boot. The parameters supplied to DCE$STARTUP.COM depend
   on the specific TCP/IP product you intend to use. You will now
   be asked to select the name of this TCP/IP product, and the
   installation will supply you with the correct command for
   SYS$STARTUP:SYSTARTUP_*.COM.


        TCP/IP product                                  Keyword

        Digital's TCP/IP Services for OpenVMS           UCX
        Multinet from TGV                               MULTINET
        Pathway from Wollongong                         PATHWAY
        TCPware from Process Software                   TCPWARE
        No TCP/IP Available at this time                NONE

* Enter one of the keywords from the table above [UCX]: UCX
%DCEAXP-I-STARTUCX, Enter $ @SYS$STARTUP:DCE$STARTUP in your
 SYS$MANAGER:SYSTARTUP_*.COM

* Load Language-Sensitive Editor (LSE) templates for IDL? [Y]?

    In order to ensure that the DCE daemon processes run in the proper
```

```
    environment, this installation procedure will create an account for
    them.  This account, DCE$SERVER, is created with TMPMBX, NETMBX,
    DETACH and SYSPRV privileges.  It is not possible to log into this
    account.

    You must specify a unique UIC for this account in order to ensure
    proper security of the network.  The password for this account will
    be generated.  You do not need to know the password, since the
    account is disabled.  If this scenario violates your security
    policies, you may change it after the installation has finished
    via the VMS AUTHORIZE utility.


* Enter the UIC of the new DCE$SERVER account:  [363,363]:
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT
 named DCE$SERVER.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier DCE$SERVER value: [000363,000363] added
 to rights data base
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT
 named DCE$SERVER.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-SYSDIR, This product creates system
 directory [DCE$SERVER].

    The rights identifier NET$DECLAREOBJECT will now be granted to the
    DCE$SERVER account. You may ignore the message:

"%UAF-E-GRANTERR, unable to grant identifier NET$DECLAREOBJECT
 to DCE$SERVER
-SYSTEM-F-DUPIDENT, duplicate identifier"

    if it should occur as a result of granting the identifier.

%UAF-I-GRANTMSG, identifier NET$DECLAREOBJECT granted to DCE$SERVER

    You will now be asked if you would like to configure DCE on this
    system after this installation. In order to use most DCE services,
    you must first configure DCE on your system.

    If you choose to configure DCE, you will need to have data about
```

```
    your system environment ready to input to the configuration procedure.
    Please refer to the DCE Configuration section in your release notes
    for further details.

* Do you want to configure your system following this installation [Y]? N

    Since you are not going to configure DCE on your system at this time,
    this completes the data input portion of this installation.

    To configure this node at a later time, please run the DCE
    configuration utility with the "CONFIG" option as shown:

        $ @SYS$MANAGER:DCE$SETUP CONFIG

    Please refer to this product's Installation and Configuration Guide
    for more details.

    No more questions will be asked.  The remaining time for the
    installation will depend upon your configuration and could vary
    from 10 to 30 minutes.

    Thank you.

    OpenVMS DCE Development Team
    Digital Equipment Corporation.


%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL].
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL.VAR].
%VMSINSTAL-I-SYSDIR, This product creates system directory
[DCELOCAL.VAR.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
[DCELOCAL.VAR.RPC.ADM].
%VMSINSTAL-I-SYSDIR, This product creates system directory [DCELOCAL.ETC].
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-SYSDIR, This product creates system directory
 [DCE$LIBRARY].
%DCEAXP-I-INCLIDL, The .H and .IDL files will be in
 SYS$COMMON:[DCE$LIBRARY]
%DCEAXP-I-TEMPLATES, Installing LSE templates for the IDL compiler
```

```
%TPU-S-SAVEENV, environment written to
 OPNWID$DKA300:[SYS0.SYSUPD.DCEAXP013]LSE$SYSTEM_ENVIRONMENT.ENV;1
%VMSINSTAL-I-RESTORE, Restoring product save set D ...
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.BOOK].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.TEST1].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.TEST2].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.MATRIX1].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.MATRIX2].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.DTSS].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.POSIX].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.SX].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.PAYROLL].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.RPC.PHONEBOOK].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.ARITHMETIC].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.EXPLICIT].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.INVENTORY.IMPLICIT].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.REMOTE_FILE].
%VMSINSTAL-I-SYSDIR, This product creates system directory
  [SYSHLP.EXAMPLES.DCE.GDE_DCE_APPS.TRANSFER_DATA].
```

```
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%DCEVAX-I-INFO, Installing the DCE Resource Broker Kit

 Since you are not going to configure DCE on your system at this time,
 this completes the installation. To configure this node at a later
 time, please run the DCE configuration utility with the "CONFIG"
 option as shown:

        $ @SYS$STARTUP:DCE$STARTUP CONFIG UCX

 Please see the product's Installation and Configuration Guide for more
 details.

        Installation of DCEAXP V1.3 completed at 12:22

 Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

 Creating installation data file: VMI$ROOT:[SYSUPD]DCEAXP013.VMI_DATA

        VMSINSTAL procedure done at 12:23

$ LOGOUT

  SYSTEM       logged out at 24-JAN-1995 12:23:23.53
```

Appendix C

Sample Configuration Logs

The following sections contain sample logs of DCE configurations.

C.1 Initial Client Configuration

```
$ @SYS$MANAGER:DCE$SETUP


       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3


 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
```

```
                all temporary local DCE databases
 7)  Clobber    Terminate all active DCE daemons and remove
                all permanent local DCE databases
 8)  Test       Run Configuration Verification Program

 0)  Exit       Exit this procedure
 ?)  Help       Display helpful information

Please enter your selection: 1


        DCE Configuration Menu

 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current
                 configuration
 7)  Add_SecRep  Add a Security Replica to the configuration on this host
 8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                 on this host

 0)  Exit        Return to previous menu
 ?)  Help        Display helpful information

Please enter your selection: 2

Starting DCE client configuration . . .

This system has no current DCE configuration.

Based on this configuration, there should be no active DCE daemons.


   At each prompt, enter your response.  You may enter <RETURN> for
   the default response, displayed in [brackets], or '?' for help.
   Entering a CONTROL-Z will terminate this configuration request.

Press <RETURN> to continue . . .
```

```
Removing temporary local DCE databases . . .

Removing permanent local DCE databases . . .

   Starting Remote Procedure Call Services daemon (DCE$RPCD) . . .
%RUN-S-PROC_ID, identification of created process is 00000EED

Please enter the DCE hostname for this system [excess]:

Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]?

Searching, please wait . . .

The following cells were discovered within broadcast range of this system:


       opnfst_cell.dce.zko.dec.com
       opndce_cell.dce.zko.dec.com
       openup_cell.dce.zko.dec.com
       reaper_cell.dce.zko.dec.com

Please enter the name for your DCE cell [opnfst_cell.dce.zko.dec.com]:
                                        reaper_cell.dce.zko.dec.com

    Hostname:   excess
    Cellname:   reaper_cell.dce.zko.dec.com

Do you want to save these names for your DCE configuration (YES/NO/?) [Y]?

Please enter the hostname of the DCE security registry [reaper]:
Checking TCP/IP local host database for address of "reaper".
   Please wait . . .
Checking BIND servers for address of "reaper".  Please wait . . .

Please enter the principal name to be used [cell_admin]:

Please enter the password for principal "cell_admin" (or ? for help):

Do you want to enable DCE integrated login support (YES/NO/?) [N]?

    Remote Procedure Call Services      Enabled
```

```
    Security Services                 Client Enabled
    CDS Name Service                  Client Enabled
    PC Name Service Interface         Disabled
    Distributed Time Service          Clerk Enabled
    Integrated login                  Disabled

Do you want to save this service configuration (YES/NO/?) [Y]?

Establishing security environment for principal "cell_admin" . . .

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 00000DAE
      Testing access to the security registry . . .

   Initializing CDS...

   Starting CDS Name Service Advertiser daemon (DCE$CDSADV) . . .
%RUN-S-PROC_ID, identification of created process is 00000EEF

   Starting CDS Name Service Client daemon (DCE$CDSCLERK) . . .
%RUN-S-PROC_ID, identification of created process is 00000EC2

Configuring client host objects in the cell namespace . . .

Setting up required objects in namespace directory "/.:/hosts/excess" . . .

Testing for multi-LAN cell . . .

This cell has been configured to span multiple LAN's.
The known LAN's are:

       43.7.12

Please enter the name of the LAN for this host [43.7.12]: 27.0.66

The requested LAN has not yet been defined in the namespace.

Do you want to define it (YES/NO/?) [Y]?

    Creating namespace directories and objects . . .
```

```
Configuring required RPC information . . .
    Modifying ACL's on namespace objects  . . .
        /.:/hosts/excess
        /.:/hosts/excess/self
        /.:/hosts/excess/cds-clerk
        /.:/hosts/excess/profile
        /.:/lan-27.0.66-profile

   Starting Distributed Time Service daemon (DCE$DTSD) . . .
%RUN-S-PROC_ID, identification of created process is 00000EC3

Press <RETURN> to continue . . .
```

C.2 Initial Server Configuration

```
$ @SYS$MANAGER:DCE$SETUP

       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3

 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
                 all temporary local DCE databases
 7)  Clobber     Terminate all active DCE daemons and remove
                 all permanent local DCE databases
 8)  Test        Run Configuration Verification Program

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 1
```

```
        DCE Configuration Menu

 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current
                 configuration
 7)  Add_SecRep  Add a Security Replica to the configuration on this host
 8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                 on this host

 0)  Exit        Return to previous menu
 ?)  Help        Display helpful information

Please enter your selection: 3

Starting DCE server configuration . . .

This system has no current DCE configuration.

Based on this configuration, there should be no active DCE daemons.

   At each prompt, enter your response.  You may enter <RETURN> for
   the default response, displayed in [brackets], or '?' for help.
   Entering a CONTROL-Z will terminate this configuration request.

Press <RETURN> to continue . . .

Removing temporary local DCE databases . . .

Removing permanent local DCE databases . . .

   Starting Remote Procedure Call Services daemon (DCE$RPCD) . . .
%RUN-S-PROC_ID, identification of created process is 00000405

Please enter the DCE hostname for this system [reaper]:

Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]? n
```

```
Please enter the name for your DCE cell [reaper_cell]:
                              reaper_cell.dce.zko.dec.com

    Hostname:   reaper
    Cellname:   reaper_cell.dce.zko.dec.com

Do you want to save these names for your DCE configuration (YES/NO/?) [Y]?

Please enter the principal name to be used [cell_admin]:

Please enter the password for principal "cell_admin" (or ? for help):

Please enter the password again to confirm it:

Does this cell use multiple LANs (YES/NO/?) [N]? ?

    This cell uses multiple LANs if clients and servers are divided
    into profile groups to facilitate performance. (Most cells will not
    require this feature.)

Does this cell use multiple LANs (YES/NO/?) [N]? y

Checking TCP/IP local host database for address of "reaper".
Please wait . . .
Please enter the name of your LAN [43.7.12]:

Do you want to disble DECnet/DTSS, and use DCE DTS instead? (YES/NO/?) [Y]?

Do you want to accept time from DECnet/DTSS servers? (YES/NO/?) [N]?

Do you want to enable DCE integrated login support (YES/NO/?) [N]?

    Remote Procedure Call Services      Enabled
    Security Services                   Server Enabled
    CDS Name Service                    Master Server Enabled
    Global Directory Agent              Disabled
    PC Name Service Interface           Enabled
    Distributed Time Service            Server Enabled
    Integrated login                    Disabled

Do you want to save this service configuration (YES/NO/?) [Y]?
```

```
Building security registry database . . .

   Starting Security Service Server daemon (DCE$SECD) . . .
%RUN-S-PROC_ID, identification of created process is 00000412

Logging in to DCE using principal "cell_admin" . . .
Password must be changed!

Setting up security registry for cell_admin account . . .

Logging in to DCE using principal "cell_admin" . . .
Password must be changed!

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 00000413
      Testing access to the security registry . . .

Establishing security environment for principal "cell_admin" . . .

Setting up security registry for DTS Server . . .

   Initializing CDS...

   Starting CDS Name Service Advertiser daemon (DCE$CDSADV) . . .
%RUN-S-PROC_ID, identification of created process is 00000416

   Starting CDS Name Service Client daemon (DCE$CDSCLERK) . . .
%RUN-S-PROC_ID, identification of created process is 00000417

   Starting CDS Name Service Server daemon (DCE$CDSD) . . .
%RUN-S-PROC_ID, identification of created process is 00000419

Initializing the cell namespace . . .
    Modifying ACL's on "/.:" . . .

    Creating namespace directories and objects . . .

Configuring required RPC information . . .
    Modifying ACL's on namespace objects  . . .
        /.:/cell-profile
        /.:/hosts
```

```
/.:/hosts/reaper
/.:/hosts/reaper/self
/.:/hosts/reaper/cds-clerk
/.:/hosts/reaper/cds-server
/.:/hosts/reaper/profile
/.:/sec
/.:/sec-v1
/.:/subsys/dce/sec
/.:/reaper_ch
/.:/lan-profile
/.:/lan-43.7.12-profile
principal
principal/krbtgt
principal/krbtgt/reaper_cell.dce.zko.dec.com
principal/dce-ptgt
principal/dce-rgy
principal/hosts
principal/hosts/reaper
principal/hosts/reaper/self
principal/hosts/reaper/cds-server
principal/hosts/reaper/gda
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group/acct-admin
group/subsys
group/subsys/dce
group/subsys/dce/sec-admin
group/subsys/dce/dts-admin
group/subsys/dce/dts-servers
group/subsys/dce/dfs-admin
group/subsys/dce/dfs-fs-servers
group/subsys/dce/dfs-bak-servers
group/subsys/dce/cds-admin
group/subsys/dce/cds-server
org
policy
principal/nobody
principal/root
principal/daemon
principal/sys
principal/bin
principal/uucp
```

```
        principal/who
        principal/mail
        principal/tcb
        principal/dce-ptgt
        principal/dce-rgy
        group/none
        group/system
        group/daemon
        group/uucp
        group/bin
        group/kmem
        group/mail
        group/tty
        group/tcb
        org/none
        /.:/fs
        /.:/subsys/dce/dfs
        /.:/subsys/dce/dfs/bak
        /.:/subsys/DEC/pc
        /.:/subsys/DEC/examples

Setting up security registry for DTS Server . . .

   Terminating Security Service Client daemon (DCE$SEC_CLIENTD) . . .

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 0000041B
      Testing access to the security registry . . .

   Starting Distributed Time Service daemon (DCE$DTSD) . . .
%RUN-S-PROC_ID, identification of created process is 0000041C

   Starting PC Name Service Interface daemon (DCE$NSID) . . .
%RUN-S-PROC_ID, identification of created process is 000002E7


Press <RETURN> to continue . . .
```

C.3 Showing the DCE System Configuration and the DCE Daemons

```
$ @DCE$SETUP

       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3


 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
                 all temporary local DCE databases
 7)  Clobber     Terminate all active DCE daemons and remove
                 all permanent local DCE databases
 8)  Test        Run Configuration Verification Program

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 2

This system has the following DCE configuration:

    Hostname:   reaper
    Cellname:   excess_cell.dce.zko.dec.com

    Remote Procedure Call Services      Enabled
    Security Services                   Replica Enabled
      Security Replica Name             reaper_rep
    CDS Name Service                    Replica Server Enabled
      Replica Clearinghouse Name        reaper_ch
    Global Directory Agent              Disabled
    PC Name Service Interface           Disabled
    Distributed Time Service            Server Enabled
```

```
    Integrated login                    Disabled

This system supports the following network transport protocols:

    TCP/IP:    [ncacn_ip_tcp]
    UDP/IP:    [ncadg_ip_udp]
    DECnet:    [ncacn_dnet_nsp]

TCP/IP services on this system are provided by: UCX

   TCP/IP Services for OpenVMS

Based on this configuration, the following DCE daemons should be active:

       Daemon                          Process Name       Process ID

   Remote Procedure Call Services      DCE$RPCD            000003ED
   Security Service Client             DCE$SEC_CLIENTD     00000403
   Security Service Server             DCE$SECD            00000402
   CDS Name Service Advertiser         DCE$CDSADV          000003AF
   CDS Name Service Client             DCE$CDSCLERK        000003B0
   CDS Name Service Server             DCE$CDSD            000003B1
   Distributed Time Service            DCE$DTSD            00000445


Press <RETURN> to continue . . .

       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3


 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
                 all temporary local DCE databases
 7)  Clobber     Terminate all active DCE daemons and remove
                 all permanent local DCE databases
```

```
 8)  Test        Run Configuration Verification Program

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 0

     ***  DCE System Management Procedure Complete  ***
```

C.4 Custom Configuration

```
$ @SYS$MANAGER:DCE$SETUP.COM

       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3

 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
                 all temporary local DCE databases
 7)  Clobber     Terminate all active DCE daemons and remove
                 all permanent local DCE databases
 8)  Test        Run Configuration Verification Program

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 1


         DCE Configuration Menu
```

```
 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current
                 configuration
 7)  Add_SecRep  Add a Security Replica to the configuration on this host
 8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                 on this host

 0)  Exit        Return to previous menu
 ?)  Help        Display helpful information

Please enter your selection: 4


Starting DCE custom configuration . . .


This system has no current DCE configuration.

Based on this configuration, there should be no active DCE daemons.


   At each prompt, enter your response.  You may enter <RETURN> for
   the default response, displayed in [brackets], or '?' for help.
   Entering a CONTROL-Z will terminate this configuration request.

Press <RETURN> to continue . . .

   Starting Remote Procedure Call Services daemon (DCE$RPCD) . . .
%RUN-S-PROC_ID, identification of created process is 000003ED

Please enter the DCE hostname for this system [reaper]:

Do you wish to search the LAN for known DCE cells (YES/NO/?) [Y]?

Searching, please wait . . .

The following cells were discovered within broadcast range of this system:
```

```
       opndce_cell.dce.zko.dec.com
       openup_cell.dce.zko.dec.com
       excess_cell.dce.zko.dec.com

Please enter the name for your DCE cell [opndce_cell.dce.zko.dec.com]:
                                        excess_cell.dce.zko.dec.com

****************************   WARNING   ****************************
***  If you are configuring this host to be a CDS Master Server, this
***  cellname should not appear in the list of known cells.

Are you sure you want to use cellname EXCESS_CELL.DCE.ZKO.DEC.COM
                                                  (YES/NO/?) [Y]? y

    Hostname:   reaper
    Cellname:   excess_cell.dce.zko.dec.com

Do you want to save these names for your DCE
configuration (YES/NO/?) [Y]?


Do you wish to configure reaper as the Security Master
server (YES/NO/?) [N]?

Do you wish to configure reaper as a Security Replica
server (YES/NO/?) [N]? y

Please enter a unique name for this security replica
 (without prefixing subsys/dce/sec/ ) [reaper_rep]:


Please enter the hostname of the DCE security registry [excess]:
Checking TCP/IP local host database for address of "excess".
Please wait . . .

Please enter the principal name to be used [cell_admin]:

Please enter the password for principal "cell_admin" (or ? for help):

Do you wish to configure reaper as the CDS Master server
for the cell (YES/NO/?) [N]?
```

```
Do you wish to configure reaper as a CDS Replica server (YES/NO/?) [N]? y

Specify a name for this Replica clearinghouse that differs from the
CDS Master Server clearinghouse name of: excess_ch

Please enter the name for this clearinghouse? [reaper_ch]:

Do you want to enable DCE DTS (YES/NO/?) [N]? y

Do you want this host to be a DCE DTS Local Server (YES/NO/?) [N]? y

Do you want to configure the NSI Agent (YES/NO/?) [N]?

Do you want to enable DCE integrated login support (YES/NO/?) [N]?

    Remote Procedure Call Services      Enabled
    Security Services                   Replica Enabled
      Security Replica Name             reaper_rep
    CDS Name Service                    Replica Server Enabled
      Replica Clearinghouse Name        reaper_ch
    Global Directory Agent              Disabled
    PC Name Service Interface           Disabled
    Distributed Time Service            Server Enabled
    Integrated login                    Disabled

Do you want to save this service configuration (YES/NO/?) [Y]?

Removing temporary local DCE databases . . .

Removing permanent local DCE databases . . .

Establishing security environment for principal "cell_admin" . . .

Setting up security registry for DTS Server . . .

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 000003EE
      Testing access to the security registry . . .

   Initializing CDS...
```

```
   Starting CDS Name Service Advertiser daemon (DCE$CDSADV) . . .
%RUN-S-PROC_ID, identification of created process is 000003AF

   Starting CDS Name Service Client daemon (DCE$CDSCLERK) . . .
%RUN-S-PROC_ID, identification of created process is 000003B0

   Starting CDS Name Service Server daemon (DCE$CDSD) . . .
%RUN-S-PROC_ID, identification of created process is 000003B1
   Creating Clearinghouse "/.:/reaper_ch"

  Enter the name of a CDS directory existing in the master CDS
  namespace that you would like to replicate on this system.
  Do not include the /.:/ prefix to the directory name --
  This will be done for you."

*** When you are done, press only the <return> key ***

Enter the name of a CDS directory to be replicated
(or ? for help):subsys/dce
Enter the name of a CDS directory to be replicated
(or ? for help):

Configuring client host objects in the cell namespace . . .

Setting up required objects in namespace
directory "/.:/hosts/reaper" . . .

Testing for multi-LAN cell . . .

    Creating namespace directories and objects . . .

Configuring required RPC information . . .
    Modifying ACL's on namespace objects  . . .
        /.:/hosts/reaper
        /.:/hosts/reaper/self
        /.:/hosts/reaper/cds-clerk
        /.:/hosts/reaper/cds-server
        /.:/hosts/reaper/profile

Logging in to DCE using principal "cell_admin" . . .
Password must be changed!
```

```
Modifying ACLS on /.:/replist
                  /.:/subsys/dce/sec
                  /.:/sec

Building security registry replica database . . .

   Starting Security Service Server daemon (DCE$SECD) . . .
%RUN-S-PROC_ID, identification of created process is 00000402

Logging in to DCE using principal "cell_admin" . . .
Password must be changed!

Setting up security registry for DTS Server . . .

   Terminating Security Service Client daemon (DCE$SEC_CLIENTD) . . .

   Starting Security Service Client daemon (DCE$SEC_CLIENTD) . . .
%RUN-S-PROC_ID, identification of created process is 00000403
      Testing access to the security registry . . .

   Starting Distributed Time Service daemon (DCE$DTSD) . . .
%RUN-S-PROC_ID, identification of created process is 00000445
```

C.5 Adding and Deleting Replicas During Configuration

```
$ @SYS$MANAGER:DCE$SETUP.COM

       DCE System Management Main Menu

          DCE for OpenVMS VAX V1.3

 1)  Configure   Configure DCE services on this system
 2)  Show        Show DCE configuration and active daemons
 3)  Stop        Terminate all active DCE daemons
 4)  Start       Start all DCE daemons
```

```
 5)  Restart     Terminate and restart all DCE daemons
 6)  Clean       Terminate all active DCE daemons and remove
                 all temporary local DCE databases
 7)  Clobber     Terminate all active DCE daemons and remove
                 all permanent local DCE databases
 8)  Test        Run Configuration Verification Program

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 1

        DCE Configuration Menu

 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration
                 for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current
                 configuration
 7)  Add_SecRep  Add a Security Replica to the configuration on this host
 8)  Add_CdsRep  Add a CDS Replica clearinghouse to the configuration
                 on this host

 0)  Exit        Return to previous menu
 ?)  Help        Display helpful information

Please enter your selection: 7
      Testing access to the security registry . . .
Please enter a unique name for this security replica
 (without prefixing subsys/dce/sec/ ) [reaper_rep]:

Logging in to DCE using principal "cell_admin" . . .

Modifying ACLS on /.:/replist
                  /.:/subsys/dce/sec
                  /.:/sec

Building security registry replica database . . .
```

```
   Starting Security Service Server daemon (DCE$SECD) . . .
%RUN-S-PROC_ID, identification of created process is 00000B31

Press <RETURN> to continue . . .

         DCE Configuration Menu

 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current
                 configuration
 7)  Del_SecRep  Delete the Security Replica from this host
 8)  Del_CdsRep  Delete the Cds Replica clearinghouse from this host

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection: 7

Please confirm the deletion of the security replica (YES/NO/?) [N]? y

Logging in to DCE using principal "cell_admin" . . .

Deleting security replica subsys/dce/sec/reaper_rep

   Terminating Security Service Server daemon (DCE$SECD) . . .

Press <RETURN> to continue . . .

         DCE Configuration Menu

 1)  RPC_Only    Provide DCE RPC services only
 2)  Client      Configure this host as a DCE client system
 3)  Server      Configure this host as a full DCE server system
 4)  Custom      Define a customized DCE configuration for this host
 5)  IntLogin    Enable or disable DCE integrated login support
 6)  Rebuild     Rebuild DCE on this host using the current configuration
 7)  Add_SecRep  Add a Security Replica to the configuration on this host
```

```
 8)  Del_CdsRep  Delete the Cds Replica clearinghouse from this host

 0)  Exit        Exit this procedure
 ?)  Help        Display helpful information

Please enter your selection:0

     ***  DCE System Management Procedure Complete  ***
```

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