VAX Distributed Name Service Installation Guide

Order Number: AA-KN86B-TE

August 1988

This manual tells you how to install the VAX Distributed Name Service.

Revision/Update Information:	This is a revised manual.
Operating System and Version:	VAX/VMS V4.6 or later
Software Version:	VAX Distributed Name Service V1.1

Digital Equipment Corporation

August 1988

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of such license.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Digital Equipment Corporation or its affiliated companies.

Copyright ©1988 by Digital Equipment Corporation

All Rights Reserved.
Printed in U.S.A.

The postpaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation:

DEC	DIBOL	UNIBUS
DEC/CMS	EduSystem	VAX
DEC/MMS	IAS	VAXcluster
DECnet	MASSBUS	VMS
DECsystem–10	PDP	VT
DECSYSTEM–20	PDT	
DECUS	RSTS	
DECwriter	RSX	digital™

This document was prepared using VAX DOCUMENT, Version 1.2

Contents

PREFACE vii

CHAPTER 1 PREINSTALLATION CONSIDERATIONS 1–1

1.1 INSTALLATION REQUIREMENTS 1–2
1.1.1 Kit Contents 1–2
1.1.2 Hardware 1–3
1.1.3 Software 1–3
1.1.4 Product Authorization Key (PAK) 1–3
1.1.5 Disk Space 1–3
1.1.6 Account Requirements 1–4
1.1.6.1 Privileges • 1–4
1.1.6.2 BYTLM Quota • 1–4
1.1.6.3 Open File Quota • 1–4
1.1.6.4 PRCLM • 1–5
1.1.7 System Requirements 1–5
1.1.7.1 Processes • 1–5
1.1.7.2 Global Pages and Global Sections • 1–6
1.1.8 Installing DNS on a VAXcluster 1–7
1.1.9 Installation Time Requirements 1–7

1.2 INSTALLING ADDITIONAL DNS SERVERS 1–7
1.2.1 Synchronizing System Clocks 1–8
1.2.2 Assigning Access Rights 1–8
1.2.2.1 Storing the Clearinghouse Object in the Root Directory • 1–9
1.2.2.2 Storing the Clearinghouse Object in a Different Directory • 1–9
1.2.3 Network Information 1–9
1.2.3.1 Name of an Existing DNS Node • 1–10
1.2.3.2 Clearinghouse Name • 1–10

CHAPTER 2 INSTALLATION AND VERIFICATION PROCEDURES 2–1

2.1 PREPARING FOR INSTALLATION 2–1

2.2 GETTING HELP 2–2

2.3 THE DNS INSTALLATION PROCEDURE 2–2

CHAPTER 3 POSTINSTALLATION PROCEDURES 3–1

3.1 MODIFYING ACCESS 3–1
3.1.1 Modifying Access Rights to a New Namespace 3–1
3.1.2 Modifying Access Rights to an Existing Namespace 3–2

3.2 MODIFYING EVENT LOGGING 3–2

3.3 INITIALIZING CACHES ON CLIENT NODES 3–3

3.4 STARTING DNS AUTOMATICALLY 3–4

3.5 STOPPING DNS 3–5

3.6 INSTALLATION VERIFICATION PROCEDURE 3–5

3.7 IF STARTUP FAILS 3–5

CHAPTER 4 ERROR HANDLING 4–1

APPENDIX A FILES AFFECTED BY DNS INSTALLATION A–1

APPENDIX B SAMPLE INSTALLATION DIALOGUES FOR VMS VERSION 4.6 AND VERSION 4.7 SYSTEMS B–1

B.1 SAMPLE INSTALLATION DIALOGUE: NEW NAMESPACE B–1

B.2 SAMPLE INSTALLATION DIALOGUE: EXISTING NAMESPACE B–5

APPENDIX C SAMPLE INSTALLATION DIALOGUES FOR VMS VERSION 5.0 SYSTEMS C–1

C.1 SAMPLE INSTALLATION DIALOGUE: NEW NAMESPACE C–1

C.2 SAMPLE INSTALLATION DIALOGUE: EXISTING NAMESPACE C–5

INDEX Index–1

Preface

The VAX Distributed Name Service (DNS) provides you with a networkwide means of assigning unique, location-independent names to network resources, also known as objects. Objects can be files, disks, nodes, queues, mailboxes, and so forth. A DNS object name is known and updated networkwide, so that all users and applications in your network can access an object using the same, unique name. Because DNS names are location independent, users and applications do not need to know on which node an object resides. DNS translates an object's name to a set of attributes; its network address is one of these attributes.

Applications that are designed to work with DNS use DNS names to name their objects. For example, DNS is currently a prerequisite for the Remote System Manager (RSM) V2.0 and the VAX Distributed File Service (DFS), both of which use DNS names for their objects.

Over time, additional Digital applications will use DNS to name their objects. In DECnet Phase V networks, node names will be DNS names that are stored on DNS server nodes.

This manual tells you how to install DNS. It also tells you how to run the DNS installation verification procedure.

Intended Audience

This manual is intended for anyone who will install DNS in their network. The reader should be familiar with the VMSINSTAL procedure.

Document Structure

This manual contains the following chapters and appendixes:

- Chapter 1 tells you what you must do before you install DNS software.
- Chapter 2 tells you how to use the VMSINSTAL procedure to install DNS. It also tells you how to run and interpret the output of the Installation Verification Procedure.
- Chapter 3 describes postinstallation tasks.
- Chapter 4 lists error messages that you might receive while you install DNS and tells you how to deal with them.
- Appendix A lists files created or modified by the DNS installation.
- Appendix B contains two sample DNS installation dialogues for VMS Version 4.6 and Version 4.7 systems. The first sample depicts the installation of the first DNS server in a network; the second sample depicts the installation of a subsequent DNS server.
- Appendix C contains two sample DNS installation dialogues for VMS Version 5.0 systems. The first sample depicts the installation of the first DNS server in a network; the second sample depicts the installation of a subsequent DNS server.

Associated Documents

You should have the following additional documents available for reference:

- *VAX Distributed Name Service Management Guide*
- *Guide to VAX/VMS Software Installation*
- *VAX/VMS System Manager's Reference Manual*
- *VMS License Management Utility Manual*

You must be familiar with basic DNS concepts before you can successfully install DNS in your network. Therefore, read Chapters 1 and 2 of the management guide before you try to install DNS.

Conventions

`Special type`	This special type in examples indicates system output or user input.
Red type	Red type in examples indicates user input.
RET	Press the RETURN key.
UPPERCASE	Uppercase letters in command lines indicate keywords that must be entered. You can enter them in either uppercase or lowercase. You can abbreviate command keywords to the first three characters or the minimum unique abbreviation.
lowercase italics	Lowercase italics in command syntax or examples indicate variables for which either the user or the system supplies a value.
[ ]	Square brackets in the installation dialogue enclose default answers. To choose the default, press RET. To specify another answer, type the answer after the question and press RET.
CTRL/*x*	Hold down the CONTROL key and then press the key specified by *x*.

Chapter 1

Preinstallation Considerations

The VAX Distributed Name Service (DNS) provides you with a networkwide means of assigning unique, location-independent names to network resources, also known as **objects**. Objects can be files, disks, nodes, queues, mailboxes, and so forth. A DNS **object name** is known and updated networkwide, so that all users and applications in your network can access an object using the same, unique name. Because DNS names are location independent, users and applications do not need to know on which node an object resides. DNS translates an object's name to a set of **attributes**; its network address is one of these attributes.

Applications that are designed to work with DNS use DNS names to name their objects. For example, DNS is a prerequisite for the following applications:

- Remote System Manager (RSM) V2.0
- VAX Distributed File Service (DFS)

You must install DNS before you can install and use RSM, DFS, or any other Digital applications supported by DNS.

NOTE

Before you try to install DNS, read Chapters 1 and 2 of the *VAX Distributed Name Service Management Guide*. Successful installation of DNS requires that you understand the key DNS concepts outlined in those chapters.

You must perform the following tasks before you install and start DNS software and verify its installation:

- Make sure that the system on which you are going to install DNS is configured properly, as described in this chapter.
- Plan the location of one or more DNS servers in your network, as described in Chapter 2 of the *VAX Distributed Name Service Management Guide*.
- If you are installing DNS on a VMS Version 5.0 system, make sure that you have first registered a Product Authorization Key (PAK) for DNS, as described in Section 1.1.4.
- If the DNS server that you are installing is not the first in your network, refer to Section 1.2, which describes considerations for second and subsequent DNS installations.
- Invoke the VMSINSTAL procedure and respond to questions displayed at your terminal.
- Perform postinstallation tasks, as described in Chapter 3.

1.1 Installation Requirements

You must fulfill the following requirements before you can install DNS software.

1.1.1 Kit Contents

DNS software is available in three distribution kits:

- RX50 floppy disk
- TK50 cartridge tape cartridge
- Magnetic tape, 1600-bpi, 9-track

The Software Bill of Materials accompanying the distribution kit specifies the quantity and contents of your media as well as the documentation you receive. The documentation set for DNS consists of this manual and the *VAX Distributed Name Service Management Guide*.

Contact your Digital representative if any components are missing.

1.1.2 Hardware

You can use DNS on any VAX processor except MicroVAX I and VAXstation I. DNS requires a communications device supported by DECnet-VAX, such as QNA or DMP.

1.1.3 Software

To install DNS, you must have installed VMS V4.6 or later. You must also have installed DECnet-VAX V4.6 or later.

On a VMS Version 5.0 system, before you can install DNS, you must use the LMF utility to register and load a license PAK for the DNS product, as described in Section 1.1.4.

1.1.4 Product Authorization Key (PAK)

DNS supports the VMS License Management Facility (LMF) provided by VMS Version 5.0. Before you can install DNS on a VMS Version 5.0 system, LMF requires that you first register a license Product Authorization Key (license PAK) for the DNS product. License PAK information is provided with the DNS product and you register and load this information into your system's license database using the VMS LMF utility. Refer to the instructions in the *VMS License Management Utility Manual* for more information.

1.1.5 Disk Space

Installation of DNS requires a total of 7000 blocks of free disk space. During installation, if you do not choose the default disk for the DNS$SERVER directory, you will need 2000 free blocks on the system disk (SYS$SYSDEVICE) and 5000 free blocks on the disk you specify for the DNS$SERVER directory.

To determine the number of free blocks on a disk, enter the SHOW DEVICES command, as follows:

```
$ SHOW DEVICES device-name RET
```

The number of free blocks will be displayed under the heading Free Blocks.

1.1.6 Account Requirements

This section specifies the system privileges you need to install DNS, and the BYTLM, open file quota, and PRCLM requirements.

1.1.6.1 Privileges

You must have the following system privileges to install DNS:

SYSPRV, SYSNAM, OPER, NETMBX, TMPMBX, GROUP, GRPPRV, PFNMAP, PRMGBL, SHMEM, SYSGBL, SETPRV, CMKRNL. It is recommended that DNS be installed from the SYSTEM account.

1.1.6.2 BYTLM Quota

The BYTLM quota must be set to a minimum of 20,000.

To determine the current BYTLM value, enter the following command:

```
$ SHOW PROCESS/QUOTA RET
```

The display that appears will include the heading, "Buffered I/O Byte Count Quota". If the value is less than 20,000, modify the record in the user authorization file for the system account, as follows:

```
$ MCR AUTHORIZE RET
UAF> MODIFY SYSTEM/BYTLM=20000 RET
UAF> EXIT RET
$
```

You must log out and then log in again for the new value to take effect.

1.1.6.3 Open File Quota

The open file quota must be set to a minimum of 30. You can check the current value of this parameter by entering the following command:

```
$ SHOW PROCESS/QUOTA RET
```

The display that appears will include the heading, "Open File Quota". If the value is less than 30, modify the record in the user authorization file for the system account, as follows:

```
$ MCR AUTHORIZE RET
UAF> MODIFY SYSTEM/FILLM=30 RET
UAF> EXIT RET
$
```

You must log out and then log in again for the new value to take effect.

1.1.6.4 PRCLM

The subprocess quota must be set to a minimum of 3. You can check the current value of this parameter by entering the following command:

```
$ SHOW PROCESS/QUOTA RET
```

The display that appears will include the heading, "Subprocess Quota". If the value is less than 3, modify the record in the user authorization file for the system account, as follows:

```
$ MCR AUTHORIZE RET
UAF> MODIFY SYSTEM/PRCLM=3 RET
UAF> EXIT RET
$
```

You must log out and then log in again for the new value to take effect.

1.1.7 System Requirements

This section specifies system parameter values that are required to install DNS.

Whenever parameter values are changed, enter the following command to reset the parameter values and to reboot the system so that the new parameter values take effect:

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

For information about AUTOGEN, see the *VAX/VMS System Manager's Reference Manual*.

1.1.7.1 Processes

DNS requires three process entry slots for the following detached processes:

- DNS$TA—The transaction agent process. It communicates with DNS clients.
- DNS$BACK—The background process. It updates copies of directories.

- DNS$ADVER—The advertisement process. It notifies DNS clients that clearinghouses on DNS servers are available.

To check the number of free process slots, enter the following command:

```
$ SHOW MEMORY RET
```

The line for Process Entry Slots and Balance Set Slots should each be at a minimum value of 3 in the Free column. If this is not the case, edit the SYS$SYSTEM:MODPARAMS.DAT file to change the values of these parameters.

1.1.7.2 Global Pages and Global Sections

In order for DNS to function properly, you may need to increase the number of global pages and global sections (the SYSGEN parameters GBLPAGES and GBLSECTIONS). If the current settings for these parameters are inadequate, VMSINSTAL will not be able to start up DNS at the end of the installation procedure.

DNS requires 334 global pages and 12 global sections.

To check the number of available global pages and global sections, enter the following commands:

```
$ RUN SYS$SYSTEM:INSTALL RET
INSTALL> /GLOBAL RET
```

These commands display the system global pages and global sections. The last line of the display shows the number of used global sections and the number of used and unused global pages. To determine the number of unused global sections, you must exit from INSTALL (type /EXIT after the prompt) and invoke the SYSGEN utility as follows:

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

These commands display the SYSGEN settings for global sections. The value appears under the heading Current. Subtract the used global sections value from the current SYSGEN value to determine the number of unused global sections.

If the unused global pages and sections are not adequate for running DNS, edit the SYS$SYSTEM:MODPARAMS.DAT file to add statements that increase the values of the SYSGEN GBLPAGES and GBLSECTIONS parameters.

To increase GBLPAGES and GBLSECTIONS values, add the following statements at the end of the SYS$SYSTEM:MODPARAMS.DAT file:

```
ADD_GBLPAGES=nnn
ADD_GBLSECTIONS=nnn
```

where *nnn* is the number by which you are increasing the current setting.

1.1.8 Installing DNS on a VAXcluster

You can install DNS on individual members of a VAXcluster. Each cluster member operates as an independent DNS server. Files are not shared among the servers. Rather, all server files reside in the SYS$SPECIFIC directories. Client files are stored in the SYS$COMMON directories.

If you enter the following commands before DNS is installed, you can assign access control rights using the cluster alias instead of the individual cluster node names:

```
$ RUN SYS$SYSTEM:NCP RET
NCP> DEFINE OBJECT DNS$TA NUMBER 44 ALIAS OUTGOING ENABLE RET
NCP> SET OBJECT DNS$TA NUMBER 44 ALIAS OUTGOING ENABLE RET
NCP> EXIT
$
```

1.1.9 Installation Time Requirements

Installation of DNS should take about 10 minutes. The installation verification procedure (IVP) should take about 5 minutes.

1.2 Installing Additional DNS Servers

If the DNS server you are installing is not the first one in the network, you will have to synchronize system clocks, assign access rights, and obtain name information, as described in the following sections.

1.2.1 Synchronizing System Clocks

You must synchronize local system clock time with clock time on an existing DNS server. Synchronize clocks by first issuing the VMS SHOW TIME command for the existing server. Then issue the VMS SET TIME command to enter that time (plus elapsed time) on the system on which you are installing DNS.

The installation procedure will fail if there is a discrepancy of more than 4 minutes between system clock times on DNS servers. See the BADCLOCK error message in Chapter 4.

The following is a list of the time categories that you can display by issuing the SHOW TIME command. You can specify these values by issuing the SET TIME command.

dd = day of the month (1—31)
mmm= month (first three letters of the month)
yyyy = year
hh = hour of the day (0—23)
mm = minutes (0—59)
ss = seconds 0—59)
cc = hundredths of a second (0—99)

The format for the SET TIME command is as follows:

SET TIME = *dd–mmm–yyyy hh*:*mm*:*ss.cc*

Specify values for the time parameters as required.

1.2.2 Assigning Access Rights

You will find a detailed discussion of access rights in Chapter 3 of the *VAX Distributed Name Service Management Guide*. The following sections cover details of particular interest to the DNS installer.

NOTE

The following discussion applies to the installation of only the second and subsequent DNS servers in an existing namespace. It does not apply to installation of the first DNS server.

In assigning access rights, one of two conditions will be true:

1. You are storing the clearinghouse object in the root directory.
2. You are storing the clearinghouse object in a directory other than the root directory.

The following sections discuss assignment of access rights under these conditions. In both cases, the user (expressed as *node-name*::*user-name*) needs read, write, delete, and control access to the directory that stores the clearinghouse object.

1.2.2.1 Storing the Clearinghouse Object in the Root Directory

If you accept the default clearinghouse name offered by the installation procedure, you create a clearinghouse object that is stored in the root directory. Therefore, DNS (*node-name*::DNS$SERVER) needs read, write, delete, and control access to the root directory in order to create the clearinghouse object.

1.2.2.2 Storing the Clearinghouse Object in a Different Directory

If you specify a name other than the default name for your clearinghouse, you can place the name in a directory that is not the root. The clearinghouse object will be placed in the directory you specify. Therefore, the DNS server needs read, write, delete, and control access to the directory that stores the clearinghouse object. The server also needs read and write access to that directory's parent directory.

The directory that stores the clearinghouse object must be allowed to contain clearinghouse objects, as described in Chapter 3 of the *VAX Distributed Name Service Management Guide*.

1.2.3 Network Information

Obtain the following information from a DNS manager in your network.

1.2.3.1 Name of an Existing DNS Node

You need to know the name of a node on which DNS is installed and running. Enter this name in response to the following installation procedure request:

```
*Enter the DNS server node name:
```

See the installation description in Chapter 2.

1.2.3.2 Clearinghouse Name

Ask other DNS managers in your network whether the DNS server you are installing is joining an existing namespace that has a hierarchical structure. If so, ask the appropriate DNS manager for the name of the directory that stores the clearinghouse object. Enter that directory name, followed by the clearinghouse name in response to the following installation procedure request:

```
*Clearinghouse name [node-name_CH]:
```

Chapter 2

Installation and Verification Procedures

This chapter tells you how to install DNS software on nodes running VAX/VMS V4.4 or later or MicroVMS V4.4 or later. It also describes a procedure that verifies the installation.

2.1 Preparing for Installation

You use the VMSINSTAL procedure to install DNS. VMSINSTAL asks a series of questions to which you must provide appropriate responses. For help on any of the VMSINSTAL questions, enter a question mark (?) in response to the question. This displays information that should help you answer the question. The question is then repeated. Default responses appear in square brackets ([ ]). Press RET to accept the default response.

To abort the installation procedure, press CTRL/Y. When you do so, the installation procedure deletes all DNS files it has created up to that point and exits. If you want to retry the installation procedure after you have pressed CTRL/Y, you must invoke VMSINSTAL again. See step 2 in Section 2.3.

To save a copy of the VMSINSTAL session for future reference, issue the SET HOST 0/LOG command before using VMSINSTAL.

Before you install DNS, be sure that you have fulfilled all the requirements described in Chapter 1.

NOTES

You must keep DECnet-VAX running while you install DNS. DNS uses DECnet-VAX services during the installation.

The installation procedure executes the DNS$STARTUP.COM file and creates a temporary batch queue named DNS$BATCH_*node-name*. Therefore, the queue manager must be running in order to install DNS.

2.2 Getting Help

On-line information is available to help you prepare answers to the DNS installation questions. To display this information, type a question mark (?) after any question.

The next section presents the HELP text along with the questions posed by the installation procedure. Reviewing the HELP text before you start the installation procedure can help you prepare responses to the installation questions.

2.3 The DNS Installation Procedure

To install DNS, follow these steps:

Step 1. Log in to the system manager account.

The system manager account has the privileges necessary for running VMSINSTAL.

Step 2. Invoke VMSINSTAL.

To invoke VMSINSTAL enter this command line:

```
$ @SYS$UPDATE:VMSINSTAL DNS011 ddcu: [OPTIONS N] RET
```

The value *ddcu*: represents the name of the device on which your distribution media is mounted. You can obtain this name by entering the following command:

```
$ SHOW DEVICE
```

Specifying OPTIONS N is the only way to print the release notes. If you do not specify OPTIONS N, the procedure automatically moves the release notes to SYS$HELP. It is recommended that you read the release notes before you start the installation.

This following appears on the screen:

```
      VAX/VMS Software Product Installation Procedure Vx.x

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

Step 3. Check the system environment.

VMSINSTAL now checks your system environment and notifies you of any running processes. If DECnet is running, you see a warning message, as shown in the following sample display. Other non-system processes that are running are also noted, as shown in the example. If DECnet is not running, no messages are displayed, and the procedure goes directly to step 4 and fails during step 6.

```
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following procedures are still active:
         MAIL_38503
         JIM

*Do you want to continue anyway [NO]?
```

This display is informational. It does not mean that you should not continue. However, if you enter NO or press RET, VMSINSTAL terminates and you return to system command level. If you enter YES, the installation continues.

Step 4. Check backup.

The procedure then reminds you to back up your system disk before you install the software:

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

If you enter YES, the installation continues. If you enter NO, the installation terminates and you return to system command level.

Step 5. Mount the installation kit volume.

The procedure now prompts you to mount the distribution volume. Mount the volume and make sure that the device is in the ready state. Enter YES and press RET when you are ready. A confirmation message tells you that the medium is mounted.

```
Please mount the first volume of the set on ddcu:

*Are you ready?
%MOUNT-I-MOUNTED, DNS mounted on ddcu:
```

Step 6. Start the installation.

When the installation kit volume is mounted, the following is displayed:

```
The following products will be processed:

  DNS V1.1

 Beginning installation of DNS V1.1 at hh::mm

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

If DECnet is not running, the following message is displayed and you return to system command level.

```
DECNET is not running on this system. You must have DECNET running before
you can install DNS.
```

If you specified OPTIONS N when you invoked VMSINSTAL, the following is now displayed:

```
Release notes options:

1. Display release notes
2. Print release notes
3. Both 1 and 2


* Select option [3]:
```

It is recommended that you read the release notes before you install DNS. If you enter 1 or 3, VMSINSTAL displays the release notes at your terminal. If you enter 2 or 3, VMSINSTAL prompts you to enter a print queue name, as follows:

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

Enter a queue name or press RET. VMSINSTAL queues a copy of the release notes to print and displays a message such as the following:

```
Job DNS011 (queue queue, entry nnn) started on device
```

The following is then displayed:

```
* Do you want to continue the installation [N]?
```

Enter YES, or press RET to accept the default. If you enter YES, the procedure continues with this message:

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

The following is then displayed:

```
================================================================================
            VAX Distributed Name Service Installation.
================================================================================
```

If the queue manager is not running, you will see the following message:

```
The queue manager is stopped.  It must be started to continue this
installation.  This installation procedure will exit if you do not
want to start the queue manager.

* Do you want to want to start the queue manager [YES]?
```

If you enter YES or press RET, the installation procedure starts the queue manager. If you enter NO, the following message is displayed and you return to system command level.

```
You must have the queue manager running in order to continue with the
installation.
```

If you are re-installing DNS, the following is displayed (and the DNS installation questions 1-8, which follow this display, are not asked):

```
================================================================================
   A VAX Distributed Name Service exists on this system from a previous
   installation.  Image, help, and message files will be updated if you
   continue.  Clearinghouses file(s) will not be modified.
================================================================================
```

If you are installing DNS on a VMS Version 5.0 (or later) system, the following license PAK information for DNS is displayed along with a question that requires you to verify that you have used the LMF utility to register a license PAK for DNS:

```
%DNS-I-LICCHECK, Checking for DNS license on this system
Product:      DNS
Producer:     DEC
Version:      1.1
Release Date: 1-MAY-1988

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

You must answer YES to this question. Otherwise, the installation procedure exits after displaying the following message:

```
You do not have the license to run this product.
Please register the license for this product by typing the following
command and then re-try the installation.

@SYS$UPDATE:VMSLICENSE
```

The following message is then displayed (on both VMS V4.*x* and V5.0 systems):

```
Most products provide an Installation Verification Procedure (IVP)
which verifies the completeness and accuracy of the installation.
You may wish to run the IVP immediately after installation.

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

The Installation Verification Procedure (IVP) for DNS determines whether DNS is installed properly and whether basic DNS functions are operating properly. Press RET if you want to run the IVP immediately after installation is complete. If you do not want to run the IVP immediately after installation, enter NO. You can run the IVP later, as described in the installation procedure and in Chapter 3.

The following is then displayed:

```
During this installation, new files will be provided to replace existing
versions.  You may purge these older versions to save disk space, or keep
them if you feel they may be of use.  Purging is recommended.

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

If you enter YES or press RET, duplicate files will be deleted.

NOTE

The questions that follow are specific to the DNS server installation. They are labeled DNS Question 1 through 8 and are explained in sequence.

```
================================================================================
        VAX Distributed Name Service Site Specific Questions
================================================================================
```

DNS Question 1. If this is the first DNS server being installed in the network, enter YES to the following question. Otherwise, press RET to accept the default.

```
* Is this a new namespace [NO]:
```

If you enter a question mark (?), the following explanatory text is displayed and the question is repeated. If you enter YES, then DNS Question 2 is displayed; otherwise DNS Question 3 is displayed.

```
If the Name Service is already installed in your network, accept the
default answer to this question.  Otherwise, create a new namespace by
answering YES to this question.
```

DNS Question 2. Enter the name of the namespace, or press RET to accept the default. The default name is the name of your node followed by _NS.

```
* Namespace Name [node-name_NS]
```

If you enter a question mark, the following explanatory text is displayed and the question is repeated.

```
Your namespace must have a name.

Example: FIRM_NAME

or accept the default:

         node-name_NS
```

DNS Question 3. The following question is then displayed:

```
* Timezone (+hh:mm or -hh:mm):
```

If you enter a question mark, you receive the following explanatory text:

```
A timezone value is the number of hours and minutes difference between
the time observed in this node's timezone and Greenwich Mean Time (GMT).

A negative (-) timezone value means that this node is west of GMT.
A positive (+) timezone value means that this node is east of GMT.

The range is from -12:00 to +13:00.
The format is +hh:mm or -hh:mm, where:

         hh indicates the number of hours
         mm indicates the number of minutes
```

```
For example:
         Eastern Standard Time is -5:00 hours from GMT.
         Eastern Daylight Time is -4:00 hours from GMT.
         Oklahoma (Standard Time) is -6:00 hours from GMT.
         California (Standard Time) is -8:00 hours from GMT.
         Newfoundland is -3:30 hours from GMT.
         Australia Capital Territory  is +10:00 hours from GMT.
         Greece is +2:00 hours from GMT.
         Japan is +9:00 hours from GMT.
         Ontario, east of longitude W.63 degrees is -4:00 hours from GMT.
         Ontario, west of longitude W.63 degrees is -5:00 hours from GMT.
         Singapore is +7:30 hours from GMT.
         India is +5:30 hours from GMT.
         Great Britain, Iceland, Portugal, Upper Volta are at GMT or 0:0.
         Great Britain, Summer Time +1:00 hours from GMT.
```

DNS Question 4. Enter the name of the clearinghouse that this installation is creating, or press RET to accept the default. The default is the name of your node followed by _CH.

Note that the installation stores the clearinghouse name in the root directory by default. If you have already created a hierarchical namespace, you can specify a directory in the hierarchy in which the clearinghouse name will be stored. For example, if you specified the clearinghouse name ENGINEERING.CLEARINGHOUSE, you would create a clearinghouse named .ENGINEERING.CLEARINGHOUSE, whose name would be stored in the directory ENGINEERING.

```
* Clearinghouse Name  [node-name_CH]:
```

NOTE

If this is not the first installation of DNS in your network and you accept the default answer to this question, the installation procedure will copy the root directory (and its contents) to the clearinghouse you are creating. This is true for any clearinghouse that you store in the root directory. In a single-directory namespace, this is how the root directory gets distributed on multiple servers.

In a hierarchical namespace, if you specify a directory other than the root in which the clearinghouse name is to be stored, the installation procedure copies that directory (and its contents) to the clearinghouse you are creating.

If you enter a question mark, the following explanatory text is displayed and the question is repeated.

```
Your clearinghouse must have a name.

Example:    ENGINEERING.CLEARINGHOUSE

where ENGINEERING is a directory that exists in your namespace.

or accept the default:

            node-name_CH

This default name is a DNS name, not a VMS file specification.  The
file associated with the clearinghouse is created in the directory
associated with the DNS$SERVER account.
```

If this is not the first DNS server being installed in the network, you may want to review the discussion on access rights and name information in Chapter 1.

DNS Question 5. Enter a user identification code (UIC), or press RET to accept the default. The default value is [371,371].

The following information is then displayed.

```
 In order to ensure that the VAX Distributed Name Service runs with the
 proper quotas, this installation procedure will create the account
 DNS$SERVER.  You must specify a unique UIC for this account in order
 to ensure proper installation.

* Enter UIC for DNS server account (include brackets) [[371,371]]:
```

If you enter a question mark, the following explanatory text is displayed and the question is repeated.

```
 In order to ensure that the VAX Distributed Name Service processes run
 with the proper quotas, privileges, and username, this installation
 procedure will create an account for the server - DNS$SERVER.

 Specify an octal group number and user number that is unique for this
 system or accept the default uic that has been provided.  You must
 enclose the uic with square bracket characters.

 For example:  [371,371]
```

DNS Questions 6 and 7: You must specify and verify a password for the DNS server account, DNS$SERVER. The following questions are displayed:

```
* Enter password for the DNS server account:

* Verify password for the DNS server account:
```

If you enter a question mark in response to questions 6 or 7, the following information is displayed:

```
You must specify a password for the DNS$SERVER account.  The password
you specify must contain at least six characters.  Valid characters
for a password are A through Z, 0 through 9, $ (dollar sign), and _
(underscore).

As with the DCL SET PASSWORD command, your input will not appear on
the terminal.  To protect against typing errors you must enter the
password twice.
```

The following is then displayed:

```
%DNS-I-CREACC, Creating account DNS$SERVER for the VAX DNS Server
%VMSINSTAL-I-ACCOUNT, This installation creates an account named DNS$SERVER.
%DNS-I-CREDIR, VAX Distributed Name Service creates DNS$SERVER directory.
```

DNS Question 8: Enter the name of the device on which the DNS$SERVER directory will reside, or press RET to accept the default name. The default disk name is SYS$SYSROOT.

The following information is displayed:

```
* Device to be used for storing DNS$SERVER files [SYS$SYSROOT]:
```

If you enter a question mark, the following explanatory text is displayed and the question is repeated.

```
This installation procedure creates a directory "DNS$SERVER" on the disk
you specify.  The directory is used to store the clearinghouse database
and log files.
```

If the DNS$SERVER directory already exists on this disk, the following message is displayed:

```
%DNS-I-DIREXISTS, Directory "DNS$SERVER" already exists on this disk.
```

The following message are then displayed (note that the first message, VMSINSTAL-I-SYSDISK, appears only if you accepted the default name, SYS$SYSROOT, whereas the ensuing messages, VMSINSTAL-I-ACCOUNT are always displayed):

```
VMSINSTAL-I-SYSDISK, This product creates system disk directory
SYS$SYSROOT:[DNS$SERVER]
```

```
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-RESTORE, Restoring product saveset B...

   ================================================================================
                  Moving VAX Distributed Name Service files.
   ================================================================================

   This installation has added the following files:

   [SYSEXE]DNS$ADVER.EXE           - DNS advertisement process.
   [SYSEXE]DNS$BACK.EXE            - DNS background process.
   [SYSEXE]DNS$CONTROL.BIN         - DNS management command parsing table.
   [SYSEXE]DNS$CONTROL.EXE         - DNS control program.
   [SYSEXE]DNS$DISPLAY_TREE.EXE    - DNS namespace display utility.
   [SYSEXE]DNS$ML.EXE              - DNS management listener.
   [SYSEXE]DNS$SOLICIT.EXE         - DNS client solicitation process.
   [SYSEXE]DNS$TRANS.EXE           - DNS transaction process.
   [SYSHLP]DNS$011.RELEASE_NOTES   - DNS release notes.
   [SYSHLP]DNS$HELP.HLB            - DNS management help library.
   [SYSLIB]DNS$CLIENT.EXE          - DNS client shareable library.
   [SYSLIB]DNS$LIB.EXE             - DNS shareable library.
   [SYSMGR]DNS$CHANGE_DEF_FILE.COM - DNS change default DNS server command file.
   [SYSMGR]DNS$CLIENT_STARTUP.COM  - DNS client startup command file.
   [SYSMGR]DNS$CLIENT_STOP.COM     - DNS client shutdown command file.
   [SYSMGR]DNS$STARTUP.COM         - DNS startup command file.
   [SYSMGR]DNS$STOP.COM            - DNS shutdown command file.
   [SYSMSG]DNS$MSG.BIN             - DNS management text file.
   [SYSMSG]DNS$MSG.EXE             - DNS error message file.
   [SYSTEST]DNS$IVP.COM            - DNS installation verification procedure.
```

If you are creating a new namespace (that is, if you answered YES to DNS Question 1), go to the section of the procedure called "Starting VAX Distributed Name Service." If you are not creating a new namespace (that is, if you answered NO to DNS Question 1), the following section is included in your installation procedure.

```
================================================================================
     VAX Distributed Name Service Client Installation
================================================================================

    Installing VAX Distributed Name Service Client ...
```

If a client exists on this system, you see the following text:

```
A VAX Distributed Name Service Client Interface exists on this system
from a previously installed product.

The existing DNS client setup file, SYS$SYSTEM:DNS$DEFAULT_FILE.DAT,
will be appended to the new SYS$SYSTEM:DNS$DEFAULT_FILE.DAT.

The following DNS server nodes have been found.  Select a node name
from this list or the name of another DNS server node.

node-name1(a.nnn)
node-name2(a.nnn)
```

Where *node-name* is the name of a node on which DNS is running, and *a.nnn* is the DECnet address of that node.

```
* Enter the DNS server node name:
```

If you enter a question mark, the following explanatory text is displayed and the question is repeated.

```
    Enter the name of a node on which the DNS server software has been
    installed and is running.
```

The next section is displayed in its entirety if you are creating a new namespace.

```
================================================================================
                Starting VAX Distributed Name Service
================================================================================


Creating clearinghouse, please wait ...


Clearinghouse filename ____ device-name:[DNS$SERVER]clearinghouse-name.DNS

   Adding access to the new clearinghouse for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the new clearinghouse for user SYSTEM.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.
```

If a cluster alias exists, the following paragraph is also displayed:

```
   Adding access to the new clearinghouse for user SYSTEM on cluster alias.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.
```

The next two paragraphs appear only if you are creating a new namespace.

```
Adding access to the root directory for all users on all nodes.
The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

Adding DEFAULT access to the root directory for all users on all nodes.
The access rights are READ, WRITE, DELETE, TEST, and CONTROL.
```

The following post-installation instructions are displayed. Note that on VMS Version 5.0 systems, the SYS$MANAGER:SYSTARTUP.COM procedure is named SYS$MANAGER:SYSTARTUP_V5.COM.

```
================================================================================
     VAX Distributed Name Service Post-Installation Instructions
================================================================================

   Add a call to execute the DNS startup command procedure
   SYS$MANAGER:DNS$STARTUP.COM from the site specific startup command
   procedure SYS$MANAGER:SYSTARTUP.COM. This command must follow the
   STARTNET.COM and the START/QUEUE/MANAGER so that DECnet and the queue
   manager start before the DNS server.

   DNS startup installs shareable libraries and global sections, creates
   permanent detached processes, and adds DECnet objects.

   To implement the "DNSCP" command, which executes the DNS
   Control Program, the following command line should be added to the
   system login command file (filename = SYS$MANAGER:SYSLOGIN.COM):

   $ DNSCP :== $DNS$CONTROL   !Foreign command to run DNS utility.

   You can run the installation verification procedure at any
   time by typing:

   $ @SYS$TEST:DNS$IVP

   There are two DECnet event classes associated with this product, they
   are events 352 and 353. The following commands are included in
   DNS$STARTUP.COM:

   $ NCP SET KNOWN LOGGING EVENTS 352.*
   $ NCP SET KNOWN LOGGING EVENTS 353.1,2,3,4
```

If VMS V4.6 or V4.7 is running on your system the following is displayed (on VMS V5.0 systems, you must re-install DNS):

```
   This system is running VAX/VMS Version 4.6 or 4.7.

   Please re-install DNS when you upgrade your system to
   VMS Version 5.x.
```

If you indicated that you wanted to run the Installation Verification Procedure (IVP), the following is displayed:

```
================================================================
   VAX Distributed Name Service Installation Verification Procedure
================================================================
```

The IVP issues the DNS$CONTROL commands indicated by DNSCP in the following example. Appendix B contains sample output of the IVP.

```
DNSCP SHOW CHARACTERISTICS CLEARINGHOUSE ch-name
```

In this command, *ch-name* is the name of the clearinghouse that you specified during this installation. If the SHOW command is successful, the IVP displays the name of the directory stored in the specified clearinghouse. Clearinghouse attributes are defined in the *VAX Distributed Name Service Management Guide*.

The IVP then enters the following command:

```
DNSCP CREATE GROUP node-name_DNS$IVP
```

If you created a clearinghouse in a directory other than the root, the directory name precedes *node-name*_DNS$IVP.

If the CREATE command is successful, the IVP displays the unique identification number (UID) of group DNS$IVP.

The IVP then enters the following commands:

```
DNSCP ADD MEMBER node-name::SYSTEM GROUP node-name_DNS$IVP
```

If the ADD command is successful, the IVP adds the member *node-name*::SYSTEM to the group *node-name*_DNS$IVP.

```
DNSCP SHOW CHARACTERISTICS GROUP node-name_DNS$IVP
```

If the SHOW command is successful, the IVP displays the name of the member in the group *node-name*_DNS$IVP. The following command is then entered by the IVP:

```
DNSCP DELETE GROUP node-name_DNS$IVP
```

If the DELETE command is successful, the IVP exits and the following is displayed:

```
   Installation of Distributed Name Service V1.1 successful

 Installation of DNS V1.1 completed at time

 VMSINSTAL procedure done at hh:mm
```

If any of the commands entered by the IVP are not successful, then one or more of the error messages described in Chapter 4 is displayed. Take the appropriate action to correct the error. Then rerun the IVP by entering the following command:

```
$ @SYS$TEST:DNS$IVP RET
```

When the IVP is successful, DNS is available for use.

Chapter 3

Postinstallation Procedures

This chapter describes procedures that you can perform after DNS is installed.

3.1 Modifying Access

The DNS installation procedure assigns access rights as follows:

- If you are creating a new namespace, an access control entry is added to the root directory and to the clearinghouse you are creating. This gives all users all rights to the directory.
- If you are not creating a new namespace, all users are given all access rights to the clearinghouse being created.

You can examine access to directories by issuing the following DNS$CONTROL command:

SHOW ACCESS DIRECTORY *dir-name*

3.1.1 Modifying Access Rights to a New Namespace

In addition to giving an access control entry for a new namespace, the installation procedure also adds an access control entry that is propagated to all objects in the root directory. This gives all users all rights to the objects.

In the following DNS$CONTROL commands, which the installation procedure issues, *::* specifies all users, and the dot (.) specifies the root directory.

```
ADD ACCESS *::* DIR . /RIGHT=(READ,WRITE,DELETE,TEST,CONTROL)
ADD ACCESS *::* DIR . /FLAGS=(DEFAULT) /RIGHT=(READ,WRITE,DELETE,TEST,CONTROL)
```

To assign specific access rights to specific individuals and groups, first remove these entries using the following DNS$CONTROL commands:

```
DNS> REMOVE ACCESS *::* DIR ./RIGHT=(READ,WRITE,DELETE,TEST,CONTROL)
DNS> REMOVE ACCESS *::* DIR ./FLAGS=(DEFAULT)
     /RIGHT=(READ,WRITE,DELETE,TEST,CONTROL)
```

Then use the ADD ACCESS command to assign access rights as required.

3.1.2 Modifying Access Rights to an Existing Namespace

The installation procedure issues the DNS$CONTROL ADD ACCESS command in the following format to give access rights to the clearinghouse that is created when you install a DNS server in an existing namespace.

ADD ACCESS *::* CLEAR *ch-name* /RIGHT=(READ,WRITE,DELETE, TEST,CONTROL)

To assign specific access rights to specific individuals and groups, first remove these entries using the following DNS$CONTROL command:

REMOVE ACCESS *::* CLEAR *ch-name*

Then use the ADD ACCESS command to assign the appropriate access rights.

3.2 Modifying Event Logging

Event logging is usually turned on when DECnet is started. Then, during DNS installation, the DNS start-up procedure (DNS$STARTUP.COM) issues the following Network Control Program (NCP) commands:

```
SET KNOWN LOGGING EVENT 352.*
SET KNOWN LOGGING EVENT 353.1,2,3,4
```

These commands enable the specified events for all logging components. You must then turn on the components for which you want to log events. Do so by issuing the following NCP command:

SET LOGGING *component* STATE ON

The meaning of event codes is described in the *VAX Distributed Name Service Management Guide*.

3.3 Initializing Caches on Client Nodes

Installation of a DNS server creates a file called SYS$LIBRARY:DNS$NS_DEF_FILE.DAT. This file contains the namespace name and UID, the clearinghouse name and UID, and the node address of the DNS server. This file exists on DNS servers only; it does not exist on clients.

The following is an example of the information recorded in this file:

```
namespace nickname=PEACHTREE
namespace uid=000400fe50A0aaf95f54de8e00
clearinghouse name=nodex_ch
clearinghouse uid=aa000400fe50a2aa496f66de8e00
clearinghouse address=aa-00-04-00-fe-50
```

The file is copied during installation of applications that use DNS. It is copied to SYS$SYSTEM:DNS$DEFAULT_FILE.DAT on the system where the application is being installed and is used to initialize the DNS client cache.

It is important that this file remain world readable so that the installation of applications will not fail.

Such files from several DNS servers can be appended together to enable multiple clearinghouses to be loaded into the client's cache at startup. Using the multicast capability, clearinghouses are added to the DNS client's cache from DNS servers that are on the same Ethernet as the client. If there are no DNS servers on the same Ethernet as the DNS client, then appending extra SYS$LIBRARY:DNS_DEF_FILE.DAT files from other DNS servers to the DNS client's SYS$SYSTEM:DNS$DEFAULT_FILE.DAT file will help the client find an available DNS server during startup.

The client uses the first namespace name in the file as the default. If the client needs access to another namespace, then additional SYS$LIBRARY:DNS$NS_DEF_FILE.DAT files from DNS server nodes in the other namespace must be appended. Entries from that namespace must be referenced by prefixing the appropriate namespace name to the entry name. For example in the name, PEACHTREE:.APPLE.SAUCE.CAKE, PEACHTREE:. is the prefixed namespace name.

3.4 Starting DNS Automatically

You can edit your local system start-up command file (SYSTARTUP.COM) to invoke the DNS command file (DNS$STARTUP.COM) when the system is started.

NOTE

On VMS Version 5.0 systems, the SYSTARTUP.COM procedure is named SYSTARTUP_V5.COM.

To do this, simply add the following statement after the statement that invokes the DECnet start-up command file (STARTNET.COM) and the START/QUEUE/MANAGER statement:

```
$ @SYS$MANAGER:DNS$STARTUP.COM
```

The position of this statement (in the SYSTARTUP.COM file) is important because DECnet software and the queue manager must be started before the DNS software.

NOTE

Be careful with batch jobs for DECnet startup. If DECnet startup is in batch, DNS startup must occur later in the same batch stream to ensure that DNS starts after DECnet starts.

The following sample portion of a SYSTARTUP.COM file shows the statement that invokes the DNS start-up command file. This statement executes the DNS$STARTUP command procedure in your SYS$MANAGER directory.

```
$ IF F$SEARCH("SYS$SYSTEM:NETACP.EXE") .NES. ""_
        THEN @SYS$MANAGER:STARTNET.COM
                              .
$ !Command procedure to start up DNS
                              .
$ IF F$SEARCH("SYS$MANAGER:DNS$STARTUP.COM") .NES. ""_
        THEN @SYS$MANAGER:DNS$STARTUP.COM
```

3.5 Stopping DNS

Invoking the SYS$MANAGER:DNS$STOP.COM command file will stop the DNS server, but it will not stop a DNS client. To stop a DNS client, enter the following command:

```
$ @SYS$MANAGER:DNS$CLIENT_STOP.COM
```

This command file resides on both DNS server and client nodes.

3.6 Installation Verification Procedure

You can run the Installation Verification Procedure (IVP) as part of the installation procedure. You can also invoke the IVP from the DCL prompt.

For example, if the IVP is not successful during installation, you can make the required corrections and then rerun it by entering the following command:

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

3.7 If Startup Fails

When DNS starts, a batch queue is created and a batch job is submitted to start the DNS processes. A log file named DNS$START_PROCESS.LOG is created in the directory associated with the DNS$SERVER account. If the installation fails, examine this file for information that will help determine the cause of the failure. The directory associated with the DNS$SERVER account is named DNS$SERVER. It resides on the disk that you specified during the installation dialogue.

Chapter 4
Error Handling

This chapter alphabetically lists error messages that may be issued by the DNS installation procedure.

%DNS-E-ACCESSDENIED, No rights to perform requested operation

Explanation: The user does not have the appropriate access rights to perform the requested operation.

User Action: Ask a DNS manager for the appropriate access to the entry.

%DNS-E-BADCLOCK, DNS server clocks not synchronized

Explanation: The GMT difference in DNS server clocks is greater than four minutes.

User Action: Reset one or more DNS server clocks or timezones.

%DNS-E-CLEARINGHOUSEDOWN, Clearinghouse is not available

Explanation: A requested clearinghouse is present at the DNS server but is not currently available.

User Action: Start the clearinghouse by issuing the DNS$CONTROL START CLEARINGHOUSE command.

%DNS-E-CLERKBUG, Bug, submit an SPR

Explanation: A bug was encountered in the client interface.

User Action: Submit a Software Performance Report.

%DNS-E-DATACORRUPTION, DNS server is unable to access clearinghouse datafile

Explanation: An error occurred while accessing the data stored at a clearinghouse.

User Action: Issue the a DNS$CONTROL REBUILD CLEARINGHOUSE command, or use a backup copy of the clearinghouse, if available. Refer to the DECnet event log for more information on the cause of the error.

%DNS-E-ENTRYEXISTS, Creation not possible, entry already exists

Explanation: This entry cannot be created because either an entry of the same name already exists in the namespace or a directory of the same name is in the process of being deleted.

User Action: Reenter the command with another name.

%DNS-E-GBLSECERROR, Error accessing DNS$GLOBAL section

Explanation: The DNS server global section, SYS$SYSTEM:DNS$GLOBAL.GBL, is not mapped. The DNS server was not started at this node.

User Action: Invoke the DNS$STARTUP command file to start the DNS server.

%DNS-E-INVALIDNAME, Invalid name

Explanation: The name of the entry was formed improperly.

User Action: Reenter the command with the correct syntax.

%DNS-E-NAMESERVERBUG, Bug, submit an SPR

Explanation: A bug was encountered in the DNS server.

User Action: Submit a Software Performance Report.

%DNS-E-NOCOMMUNICATION, Unable to communicate with DNS server

Explanation: It was impossible to communicate with a DNS server capable of processing the request. Any of the following may have been the cause:

- It was impossible to establish a DECnet link.
- The DNS server was not operating.

- A clearinghouse containing a copy of the directory needed to store the new clearinghouse information was stopped.

User Action: Make sure that:

- The remote DNS server is running .
- You can establish a DECnet connection to the remote DNS server node.
- All clearinghouses containing a copy of the directory used to store the new clearinghouse information are on.

%DNS-E-NONSRESOURCES, Insufficient resources at DNS server

Explanation: Resources required to process the request are not available at the DNS server.

User Action: Verify that the DNS server has adequate resources.

%DNS-E-NOTCHDIRECTORY, The parent directory is not a clearinghouse directory

Explanation: Clearinghouses can be stored only in a directory that is allowed to store clearinghouse objects (that is, it has the DNS$InCHName attribute set to 1).

User Action: To allow a directory to store clearinghouse objects, use the DNS$CONTROL SET DIRECTORY *directory-name* ALLOW command.

%DNS-E-POSSIBLECYCLE, Loop detected in link or group entry

Explanation: A loop was detected in a chain of links or groups. Two or more groups have each other as members.

User Action: Issue the DNS$CONTROL SHOW LINK command to follow the chain of links or groups. Remove the entry that is causing the loop.

%DNS-E-UNKNOWNENTRY, Requested entry does not exist

Explanation: The requested entry does not exist in the namespace, the user does not have access to the entry, or the entry is being deleted.

User Action: If the entry exists and you do not have proper access to it, you will need to acquire access rights to the directory that contains the entry and reinstall DNS.

Appendix A

Files Affected by DNS Installation

The following files (listed alphabetically) are in save set A of the DNS medium:

File	Function
DNS$011.RELEASE_NOTES	DNS release notes
KITINSTAL.COM	DNS kit installation procedure

The following files (listed alphabetically) are in save set B of the DNS medium:

File	Function
DNS$ADVER.EXE	DNS advertisement process
DNS$BACK.EXE	DNS background process
DNS$CHANGE_DEF_FILE.COM	DNS change default DNS server command file
DNS$CLIENT.EXE	DNS client shareable library
DNS$CLIENT_STARTUP.COM	DNS client start-up command file
DNS$CLIENT_STOP.COM	DNS client shutdown command file
DNS$CONTROL.BIN	DNS management command parsing table
DNS$CONTROL.EXE	DNS control program
DNS$DISPLAY_TREE.EXE	DNS namespace display utility
DNS$HELP.HLB	DNS management help library
DNS$IVP.COM	DNS installation verification procedure
DNS$LIB.EXE	DNS shareable library
DNS$ML.EXE	DNS management listener
DNS$MSG.BIN	DNS management text file
DNS$MSG.EXE	DNS error message file
DNS$SOLICIT.EXE	DNS client solicitation process
DNS$STARTUP.COM	DNS start-up command file
DNS$STOP.COM	DNS shutdown command file
DNS$TRANS.EXE	DNS transaction process

The installation procedure tells you when these files are moved to your system.

The following files are created by the installation procedure.

SYS$SYSTEM:DNS$GLOBAL.GBL
SYS$SYSTEM:DNS$GLOBAL_CACHE.GBL
SYS$LIBRARY:DNS$NS_DEF_FILE.DAT
SYS$SYSTEM:DNS$DEFAULT_FILE.DAT
ddcu:[DNS$SERVER]*ch-name*.DNS
ddcu:[DNS$SERVER]*ch-name*.GBL

Appendix B

Sample Installation Dialogues for VMS Version 4.6 and Version 4.7 Systems

This appendix contains two sample installation dialogues. Section B.1 shows the dialogue generated by installation of the first DNS server in a network. This installation creates a namespace. Note that the answer to the question "Is this a new namespace [NO]?" is YES.

Section B.2 shows the dialogue generated by installation of a DNS server in an existing namespace. Note that the answer to the question, "Is this a new namespace [NO]?" is NO (the default).

B.1 Sample Installation Dialogue: New Namespace

```
$ @SYS$UPDATE:VMSINSTAL DNS011 MUA0: RET

 VAX/VMS Software Product Installation Procedure V4.7

It is 6-APR-1988 at 15:24.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES RET
* Are you satisfied with the backup of your system disk [YES]? RET
```

```
Please mount the first volume of the set on MUA0:.
* Are you ready? YES RET
%MOUNT-I-MOUNTED, DNS mounted on _APPLE$MUA0:
The following products will be processed:
  DNS V1.1
 Beginning installation of DNS V1.1 at 15:25
%VMSINSTAL-I-RESTORE, Restoring product saveset A...
%VMSINSTAL-I-RELMOVED, The products release notes have been successfully moved to SYS$HELP.

   ================================================================================
                VAX Distributed Name Service Installation.
   ================================================================================


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

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

   ================================================================================
            VAX Distributed Name Service Site Specific Questions
   ================================================================================

* Is this a new namespace [NO]? YES RET
* Namespace Name  [APPLE_NS]: RET
* Timezone (+hh:mm or -hh:mm): -4:00 RET
* Clearinghouse Name  [APPLE_CH]: RET

  In order to ensure that the VAX Distributed Name Server runs with the
  proper quotas, this installation procedure will create the account
  DNS$SERVER.   You must specify a unique UIC for this account in order
  to ensure proper installation.

* Enter UIC for DNS server account (include brackets) [[371,371]]: RET

* Enter password for the DNS server account: password RET

* Verify password for the DNS server account: password RET

%DNS-I-CREACC, Creating account DNS$SERVER for the VAX DNS server
%VMSINSTAL-I-ACCOUNT, This installation creates an account named DNS$SERVER.
%DNS-I-CREDIR, VAX Distributed Name Service creates DNS$SERVER directory
* Device to be used for storing DNS$SERVER files [SYS$SYSROOT]: DUA1 RET
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
```

```
   ================================================================================
                  Moving VAX Distributed Name Service files.
   ================================================================================

    This installation has added the following files:

    [SYSEXE]DNS$ADVER.EXE          - DNS advertisment process.
    [SYSEXE]DNS$BACK.EXE           - DNS background process.
    [SYSEXE]DNS$CONTROL.BIN        - DNS management command parsing table.
    [SYSEXE]DNS$CONTROL.EXE        - DNS control program.
    [SYSEXE]DNS$DISPLAY_TREE.EXE   - DNS namespace display utility.
    [SYSEXE]DNS$ML.EXE             - DNS management listener..
    [SYSEXE]DNS$SOLICIT.EXE        - DNS client solicitation process.
    [SYSEXE]DNS$TRANS.EXE          - DNS transaction process.
    [SYSHLP]DNS$011.RELEASE_NOTES  - DNS release notes.
    [SYSHLP]DNS$HELP.HLB           - DNS management help library.
    [SYSLIB]DNS$CLIENT.EXE         - DNS client shareable library.
    [SYSLIB]DNS$LIB.EXE            - DNS shareable library.
    [SYSMGR]DNS$CHANGE_DEF_FILE.COM- DNS change default server command file
    [SYSMGR]DNS$CLIENT_STARTUP.COM - DNS client startup command file.
    [SYSMGR]DNS$CLIENT_STOP.COM    - DNS client shutdown command file.
    [SYSMGR]DNS$STARTUP.COM        - DNS startup command file.
    [SYSMGR]DNS$STOP.COM           - DNS shutdown command file.
    [SYSMSG]DNS$MSG.BIN            - DNS management text file.
    [SYSMSG]DNS$MSG.EXE            - DNS error message file.
    [SYSTEST]DNS$IVP.COM           - DNS installation verification procedure.


   ================================================================================
                     Starting VAX Distributed Name Service
   ================================================================================

Creating clearinghouse, please wait ...

Clearinghouse filename _____________ DUA1:[DNS$SERVER]apple_ch.DNS

%RUN-S-PROC_ID, identification of created process is 00000183

   Adding access to the new clearinghouse for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the new clearinghouse for user SYSTEM.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the root directory for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding DEFAULT access to the root directory for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.


   ================================================================================
         VAX Distributed Name Service Post-Installation Instructions
   ================================================================================

   Add a call to the DNS startup command procedure SYS$MANAGER:DNS$STARTUP.COM
   to the site specific startup command procedure SYS$MANAGER:SYSTARTUP.COM.
   This command must follow the STARTNET.COM and the START/QUEUE/MANAGER, so
   that DECnet and the queue manager start before the DNS server.
```

```
   DNS startup installs shareable libraries and global sections, creates
   permanent detached processes, and adds DECnet objects.

   To implement the "DNSCP" command, which executes the DNS server
   Control Program, the following command line should be added to the system
   login command file (filename = SYS$MANAGER:SYLOGIN.COM):

   $ DNSCP :== $DNS$CONTROL      !Foreign command to run DNS utility.

   You can run the installation verification procedure at any time by
   typing:

   $ @SYS$TEST:DNS$IVP

   There are two DECnet event classes associated with this product, they
   are events 352 and 353.  The following commands are included in
   DNS$STARTUP.COM:

   $ NCP SET KNOWN LOGGING EVENTS 352.*
   $ NCP SET KNOWN LOGGING EVENTS 353.1,2,3,4


   This system is running VAX/VMS Version 4.6 or 4.7.

   Please re-install DNS when you upgrade your system to
   VMS Version 5.x.

   ============================================================================
        VAX Distributed Name Service Installation Verification Procedure
   ============================================================================

 DNSCP SHOW CHARACTERISTICS CLEARINGHOUSE APPLE_CH
   Directory _________________ APPLE_NS:.

 DNSCP CREATE GROUP APPLE_DNS$IVP
UID ____________________________________ aa-00-04-00-97-11-a0-7c-9e-58-5a-0f-91-00

 DNSCP ADD MEMBER APPLE::SYSTEM GROUP APPLE_DNS$IVP

 DNSCP SHOW CHARACTERISTICS GROUP APPLE_DNS$IVP
   Member _____ apple::system (APPLE_NS:.DNS$IV.apple.system)

 DNSCP DELETE GROUP APPLE_DNS$IVP

  Installation of Distributed Name Service V1.1 successful.

 Installation of DNS V1.1 completed at 15:34

 VMSINSTAL procedure done at 15:34

$
```

B.2 Sample Installation Dialogue: Existing Namespace

```
$ @SYS$UPDATE:VMSINSTAL DNS011 MUA0: RET

 VAX/VMS Software Product Installation Procedure V4.7
It is 6-APR-1988 at 16:35.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES RET
* Are you satisfied with the backup of your system disk [YES]? RET

Please mount the first volume of the set on MUA0:.
* Are you ready? YES RET
%MOUNT-I-MOUNTED, DNS mounted on _APPLE$MUA0:
The following products will be processed:
  DNS V1.1
 Beginning installation of DNS V1.1 at 16:37
%VMSINSTAL-I-RESTORE, Restoring product saveset A...
%VMSINSTAL-I-RELMOVED, The products release notes have been successfully moved to SYS$HELP.

   ================================================================================
                VAX Distributed Name Service Installation.
   ================================================================================


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

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

   ================================================================================
             VAX Distributed Name Service Site Specific Questions
   ================================================================================

* Is this a new namespace [NO]? RET
* Timezone (+hh:mm or -hh:mm): -4:00 RET
* Clearinghouse Name  [APPLE_CH]: RET

  In order to ensure that the VAX Distributed Name Server runs with the
  proper quotas, this installation procedure will create the account
  DNS$SERVER.   You must specify a unique UIC for this account in order
  to ensure proper installation.

* Enter UIC for DNS server account (include brackets) [[371,371]]: RET

* Enter password for the DNS server account: password RET

* Verify password for the DNS server account: password RET
```

```
%DNS-I-CREACC, Creating account DNS$SERVER for the VAX DNS server
%VMSINSTAL-I-ACCOUNT, This installation creates an account named DNS$SERVER.
%DNS-I-CREDIR, VAX Distributed Name Service creates DNS$SERVER directory
* Device to be used for storing DNS$SERVER files [SYS$SYSROOT]: DUA1 RET
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an account named DNS$SERVER.
%VMSINSTAL-I-RESTORE, Restoring product saveset B...

  ================================================================================
                 Moving VAX Distributed Name Service files.
  ================================================================================

   This installation has added the following files:

   [SYSEXE]DNS$ADVER.EXE          - DNS advertisment process.
   [SYSEXE]DNS$BACK.EXE           - DNS background process.
   [SYSEXE]DNS$CONTROL.BIN        - DNS management command parsing table.
   [SYSEXE]DNS$CONTROL.EXE        - DNS control program.
   [SYSEXE]DNS$DISPLAY_TREE.EXE   - DNS namespace display utility.
   [SYSEXE]DNS$ML.EXE             - DNS management listener..
   [SYSEXE]DNS$SOLICIT.EXE        - DNS client solicitation process.
   [SYSEXE]DNS$TRANS.EXE          - DNS transaction process.
   [SYSHLP]DNS$011.RELEASE_NOTES  - DNS release notes.
   [SYSHLP]DNS$HELP.HLB           - DNS management help library.
   [SYSLIB]DNS$CLIENT.EXE         - DNS client shareable library.
   [SYSLIB]DNS$LIB.EXE            - DNS shareable library.
   [SYSMGR]DNS$CHANGE_DEF_FILE.COM- DNS change default server command file
   [SYSMGR]DNS$CLIENT_STARTUP.COM - DNS client startup command file.
   [SYSMGR]DNS$CLIENT_STOP.COM    - DNS client shutdown command file.
   [SYSMGR]DNS$STARTUP.COM        - DNS startup command file.
   [SYSMGR]DNS$STOP.COM           - DNS shutdown command file.
   [SYSMSG]DNS$MSG.BIN            - DNS management text file.
   [SYSMSG]DNS$MSG.EXE            - DNS error message file.
   [SYSTEST]DNS$IVP.COM           - DNS installation verification procedure.

  ================================================================================
         VAX Distributed Name Service Client Installation
  ================================================================================

       Installing VAX Distributed Name Service Client

  A VAX Distributed Name Service Client Interface exists on this system
  from a previously installed product.

  The existing DNS client setup file, SYS$SYSTEM:DNS$DEFAULT_FILE.DAT,
  will be appended to the new SYS$SYSTEM:DNS$DEFAULT_FILE.DAT .
```

```
   The following DNS server nodes have been found. Select a node name
   from this list or the name of another DNS server node.

APPLE (4.407)
* Enter the name of an existing DNS server node: PLAPEN RET
%COPY-S-COPIED, PLAPEN::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;4 copied to
 VMI$ROOT:[SYSUPD.DNS011]DNS$DEFAULT_FILE.DAT;1 (1 block)
%APPEND-S-APPENDED, VMI$SPECIFIC:[SYSEXE]DNS$DEFAULT_FILE.DAT;105 appended to
 VMI$ROOT:[SYSUPD.DNS011]DNS$DEFAULT_FILE.DAT;1 (5 records)
%RUN-S-PROC_ID, identification of created process is 000001A3

   ================================================================================
                     Starting VAX Distributed Name Service
   ================================================================================

Creating clearinghouse, please wait ...

Clearinghouse filename _______________ DUA1:[DNS$SERVER]apple_ch.DNS

   Adding access to the new clearinghouse for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the new clearinghouse for user SYSTEM.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   ================================================================================
         VAX Distributed Name Service Post-Installation Instructions
   ================================================================================

   Add a call to the DNS startup command procedure SYS$MANAGER:DNS$STARTUP.COM
   to the site specific startup command procedure SYS$MANAGER:SYSTARTUP.COM.
   This command must follow the STARTNET.COM and the START/QUEUE/MANAGER, so
   that DECnet and the queue manager start before the DNS server.

   DNS startup installs shareable libraries and global sections, creates
   permanent detached processes, and adds DECnet objects.

   To implement the "DNSCP" command, which executes the DNS server
   Control Program, the following command line should be added to the system
   login command file (filename = SYS$MANAGER:SYLOGIN.COM):

   $ DNSCP :== $DNS$CONTROL      !Foreign command to run DNS utility.

   You can run the installation verification procedure at any time by
   typing:

   $ @SYS$TEST:DNS$IVP

   There are two DECnet event classes associated with this product, they
   are events 352 and 353.  The following commands are included in
   DNS$STARTUP.COM:

   $ NCP SET KNOWN LOGGING EVENTS 352.*
   $ NCP SET KNOWN LOGGING EVENTS 353.1,2,3,4

   This system is running VAX/VMS Version 4.6 or 4.7.

   Please re-install DNS when you upgrade your system to
   VMS Version 5.x.
```

```
   ============================================================================
        VAX Distributed Name Service Installation Verification Procedure
   ============================================================================

 DNSCP SHOW CHARACTERISTICS CLEARINGHOUSE APPLE_CH
   Directory _________________ PLAPEN_NS:.

 DNSCP CREATE GROUP APPLE_DNS$IVP

UID ____________________________________ aa-00-04-00-56-12-70-65-1d-1b-65-0f-91-00

 DNSCP ADD MEMBER APPLE::SYSTEM GROUP APPLE_DNS$IVP

 DNSCP SHOW CHARACTERISTICS GROUP APPLE_DNS$IVP

 Member _____ apple::system  (PLAPEN_NS:.DNS$IV.apple.system)

 DNSCP DELETE GROUP APPLE_DNS$IVP

  Installation of Distributed Name Service V1.1 successful.

 Installation of DNS V1.1 completed at 16:49

 VMSINSTAL procedure done at 16:50

$
```

Appendix C

Sample Installation Dialogues for VMS Version 5.0 Systems

This appendix contains two sample installation dialogues. Section B.1 shows the dialogue generated by installation of the first DNS server in a network. This installation creates a namespace. Note that the answer to the question "Is this a new namespace [NO]?" is YES.

Section B.2 shows the dialogue generated by installation of a DNS server in an existing namespace. Note that the answer to the question, "Is this a new namespace [NO]?" is NO (the default).

C.1 Sample Installation Dialogue: New Namespace

```
$ @SYS$UPDATE:VMSINSTAL DNS011 MUA0: RET

 VAX/VMS Software Product Installation Procedure V5.0

It is 6-APR-1988 at 15:32.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES RET
* Are you satisfied with the backup of your system disk [YES]? RET

Please mount the first volume of the set on MUA0:.
* Are you ready? YES RET
%MOUNT-I-MOUNTED, DNS mounted on _PLAPEN$MUA0:
The following products will be processed:
  DNS V1.1
 Beginning installation of DNS V1.1 at 15:32

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

```
   ============================================================================
                VAX Distributed Name Service Installation.
   ============================================================================

%DNS-I-LICCHECK, Checking for DNS license on this system
Product:      DNS
Producer:     DEC
Version:      1.1
Release Date: 1-MAY-1988

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

    Most products provide an Installation Verification Procedure (IVP)
    which verifies the completeness and accuracy of the installation.
    You may wish to run the IVP immediately after installation.

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

    During this installation, new files will be provided to replace existing
    versions.  You may purge these older versions to save disk space, or keep
    them if you feel they may be of use.  Purging is recommended.

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

   ============================================================================
             VAX Distributed Name Service Site Specific Questions
   ============================================================================

* Is this a new namespace [NO]? YES RET
* Namespace Name  [PLAPEN_NS]: RET
* Timezone (+hh:mm or -hh:mm): -4:00 RET
* Clearinghouse Name  [PLAPEN_CH]: RET

  In order to ensure that the VAX Distributed Name Server runs with the
  proper quotas, this installation procedure will create the account
  DNS$SERVER.   You must specify a unique UIC for this account in order
  to ensure proper installation.

* Enter UIC for DNS server account (include brackets) [[371,371]]: RET

* Enter password for the DNS server account: password RET

* Verify password for the DNS server account: password RET

%DNS-I-CREACC, Creating account DNS$SERVER for the VAX DNS server
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named DNS$SERVER.
%DNS-I-CREDIR, VAX Distributed Name Service creates DNS$SERVER directory

* Device to be used for storing DNS$SERVER files [SYS$SYSROOT]: DUA1 RET
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-RESTORE, Restoring product saveset  B...
```

```
   ================================================================================
                  Moving VAX Distributed Name Service files.
   ================================================================================

    This installation has added the following files:

    [SYSEXE]DNS$ADVER.EXE          - DNS advertisment process.
    [SYSEXE]DNS$BACK.EXE           - DNS background process.
    [SYSEXE]DNS$CONTROL.BIN        - DNS management command parsing table.
    [SYSEXE]DNS$CONTROL.EXE        - DNS control program.
    [SYSEXE]DNS$DISPLAY_TREE.EXE   - DNS namespace display utility.
    [SYSEXE]DNS$ML.EXE             - DNS management listener..
    [SYSEXE]DNS$SOLICIT.EXE        - DNS client solicitation process.
    [SYSEXE]DNS$TRANS.EXE          - DNS transaction process.
    [SYSHLP]DNS$011.RELEASE_NOTES  - DNS release notes.
    [SYSHLP]DNS$HELP.HLB           - DNS management help library.
    [SYSLIB]DNS$CLIENT.EXE         - DNS client shareable library.
    [SYSLIB]DNS$LIB.EXE            - DNS shareable library.
    [SYSMGR]DNS$CHANGE_DEF_FILE.COM- DNS change default server command file
    [SYSMGR]DNS$CLIENT_STARTUP.COM - DNS client startup command file.
    [SYSMGR]DNS$CLIENT_STOP.COM    - DNS client shutdown command file.
    [SYSMGR]DNS$STARTUP.COM        - DNS startup command file.
    [SYSMGR]DNS$STOP.COM           - DNS shutdown command file.
    [SYSMSG]DNS$MSG.BIN            - DNS management text file.
    [SYSMSG]DNS$MSG.EXE            - DNS error message file.
    [SYSTEST]DNS$IVP.COM           - DNS installation verification procedure.


   ================================================================================
                     Starting VAX Distributed Name Service
   ================================================================================
Creating clearinghouse, please wait ...

Clearinghouse filename _____________ DUA1:[DNS$SERVER]plapen_ch.DNS

%RUN-S-PROC_ID, identification of created process is 00000118

   Adding access to the new clearinghouse for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the new clearinghouse for user SYSTEM.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the root directory for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding DEFAULT access to the root directory for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   ================================================================================
         VAX Distributed Name Service Post-Installation Instructions
   ================================================================================

   Add a call to the DNS startup command procedure SYS$MANAGER:DNS$STARTUP.COM
   to the site specific startup command procedure SYS$MANAGER:SYSTARTUP_V5.COM.
   This command must follow the STARTNET.COM and the START/QUEUE/MANAGER, so
   that DECnet and the queue manager start before the DNS server.
```

```
   DNS startup installs shareable libraries and global sections, creates
   permanent detached processes, and adds DECnet objects.

   To implement the "DNSCP" command, which executes the DNS server
   Control Program, the following command line should be added to the system
   login command file (filename = SYS$MANAGER:SYLOGIN.COM):

   $ DNSCP :== $DNS$CONTROL      !Foreign command to run DNS utility.

   You can run the installation verification procedure at any time by
   typing:

   $ @SYS$TEST:DNS$IVP

   There are two DECnet event classes associated with this product, they
   are events 352 and 353.  The following commands are included in
   DNS$STARTUP.COM:

   $ NCP SET KNOWN LOGGING EVENTS 352.*
   $ NCP SET KNOWN LOGGING EVENTS 353.1,2,3,4


   ========================================================================
        VAX Distributed Name Service Installation Verification Procedure
   ========================================================================

 DNSCP SHOW CHARACTERISTICS CLEARINGHOUSE PLAPEN_CH
   Directory _________________ PLAPEN_NS:.

 DNSCP CREATE GROUP PLAPEN_DNS$IVP

UID ____________________________________ aa-00-04-00-56-12-70-ea-4f-86-5b-0f-91-00

 DNSCP ADD MEMBER PLAPEN::SYSTEM GROUP PLAPEN_DNS$IVP

 DNSCP SHOW CHARACTERISTICS GROUP PLAPEN_DNS$IVP

Member _____ plapen::system  (PLAPEN_NS:.DNS$IV.plapen.system)

 DNSCP DELETE GROUP PLAPEN_DNS$IVP

  Installation of Distributed Name Service V1.1 successful.

 Installation of DNS V1.1 completed at 15:42

 VMSINSTAL procedure done at 15:43

$
```

C.2 Sample Installation Dialogue: Existing Namespace

```
$ @SYS$UPDATE:VMSINSTAL DNS011 MUA0: RET

 VAX/VMS Software Product Installation Procedure V5.0
It is 6-APR-1988 at 15:57.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES RET
* Are you satisfied with the backup of your system disk [YES]? RET

Please mount the first volume of the set on MUA0:.
* Are you ready? YES RET
%MOUNT-I-MOUNTED, DNS mounted on _BANANA$MUA0:
The following products will be processed:
  DNS V1.1
 Beginning installation of DNS V1.1 at 15:57

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

   ================================================================================
                VAX Distributed Name Service Installation.
   ================================================================================

%DNS-I-LICCHECK, Checking for DNS license on this system
Product:      DNS
Producer:     DEC
Version:      1.1
Release Date: 1-MAY-1988

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

    Most products provide an Installation Verification Procedure (IVP)
    which verifies the completeness and accuracy of the installation.
    You may wish to run the IVP immediately after installation.

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

    During this installation, new files will be provided to replace existing
    versions.  You may purge these older versions to save disk space, or keep
    them if you feel they may be of use.  Purging is recommended.

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

   ================================================================================
            VAX Distributed Name Service Site Specific Questions
   ================================================================================

* Is this a new namespace [NO]? RET
* Timezone (+hh:mm or -hh:mm): -4:00 RET
* Clearinghouse Name  [BANANA_CH]: RET
```

```
  In order to ensure that the VAX Distributed Name Server runs with the
  proper quotas, this installation procedure will create the account
  DNS$SERVER.   You must specify a unique UIC for this account in order
  to ensure proper installation.

* Enter UIC for DNS server account (include brackets) [[371,371]]: RET

* Enter password for the DNS server account: password RET

* Verify password for the DNS server account: password RET

%DNS-I-CREACC, Creating account DNS$SERVER for the VAX DNS server
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named DNS$SERVER.
%DNS-I-CREDIR, VAX Distributed Name Service creates DNS$SERVER directory

* Device to be used for storing DNS$SERVER files [SYS$SYSROOT]: DUA1 RET
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named DNS$SERVER.
%VMSINSTAL-I-RESTORE, Restoring product saveset  B...

   ================================================================================
                  Moving VAX Distributed Name Service files.
   ================================================================================

    This installation has added the following files:

    [SYSEXE]DNS$ADVER.EXE          - DNS advertisment process.
    [SYSEXE]DNS$BACK.EXE           - DNS background process.
    [SYSEXE]DNS$CONTROL.BIN        - DNS management command parsing table.
    [SYSEXE]DNS$CONTROL.EXE        - DNS control program.
    [SYSEXE]DNS$DISPLAY_TREE.EXE   - DNS namespace display utility.
    [SYSEXE]DNS$ML.EXE             - DNS management listener..
    [SYSEXE]DNS$SOLICIT.EXE        - DNS client solicitation process.
    [SYSEXE]DNS$TRANS.EXE          - DNS transaction process.
    [SYSHLP]DNS$011.RELEASE_NOTES  - DNS release notes.
    [SYSHLP]DNS$HELP.HLB           - DNS management help library.
    [SYSLIB]DNS$CLIENT.EXE         - DNS client shareable library.
    [SYSLIB]DNS$LIB.EXE            - DNS shareable library.
    [SYSMGR]DNS$CHANGE_DEF_FILE.COM- DNS change default server command file
    [SYSMGR]DNS$CLIENT_STARTUP.COM - DNS client startup command file.
    [SYSMGR]DNS$CLIENT_STOP.COM    - DNS client shutdown command file.
    [SYSMGR]DNS$STARTUP.COM        - DNS startup command file.
    [SYSMGR]DNS$STOP.COM           - DNS shutdown command file.
    [SYSMSG]DNS$MSG.BIN            - DNS management text file.
    [SYSMSG]DNS$MSG.EXE            - DNS error message file.
    [SYSTEST]DNS$IVP.COM           - DNS installation verification procedure.

   ================================================================================
          VAX Distributed Name Service Client Installation
   ================================================================================
```

```
        Installing VAX Distributed Name Service Client

   A VAX Distributed Name Service Client Interface exists on this system
   from a previously installed product.

   The existing DNS client setup file, SYS$SYSTEM:DNS$DEFAULT_FILE.DAT,
   will be appended to the new SYS$SYSTEM:DNS$DEFAULT_FILE.DAT .


   The following DNS server nodes have been found. Select a node name
   from this list or the name of another DNS server node.

BANANA (4.598)
* Enter the name of an existing DNS server node: APPLE RET
%COPY-S-COPIED, APPLE::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;83 copied to
 VMI$ROOT:[SYSUPD.DNS011]DNS$DEFAULT_FILE.DAT;1 (1 block)
%APPEND-S-APPENDED, VMI$SPECIFIC:[SYSEXE]DNS$DEFAULT_FILE.DAT;2 appended to
 VMI$ROOT:[SYSUPD.DNS011]DNS$DEFAULT_FILE.DAT;1 (5 records)
%RUN-S-PROC_ID, identification of created process is 00000152

   ================================================================================
                     Starting VAX Distributed Name Service
   ================================================================================

Creating clearinghouse, please wait ...

Clearinghouse filename _______________ DUA1:[DNS$SERVER]banana_ch.DNS

   Adding access to the new clearinghouse for all users on all nodes.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   Adding access to the new clearinghouse for user SYSTEM.
   The access rights are READ, WRITE, DELETE, TEST, and CONTROL.

   ================================================================================
         VAX Distributed Name Service Post-Installation Instructions
   ================================================================================

   Add a call to the DNS startup command procedure SYS$MANAGER:DNS$STARTUP.COM
   to the site specific startup command procedure SYS$MANAGER:SYSTARTUP_V5.COM.
   This command must follow the STARTNET.COM and the START/QUEUE/MANAGER, so
   that DECnet and the queue manager start before the DNS server.

   DNS startup installs shareable libraries and global sections, creates
   permanent detached processes, and adds DECnet objects.

   To implement the "DNSCP" command, which executes the DNS server
   Control Program, the following command line should be added to the system
   login command file (filename = SYS$MANAGER:SYLOGIN.COM):

   $ DNSCP :== $DNS$CONTROL      !Foreign command to run DNS utility.

   You can run the installation verification procedure at any time by
   typing:

   $ @SYS$TEST:DNS$IVP

   There are two DECnet event classes associated with this product, they
   are events 352 and 353.  The following commands are included in
   DNS$STARTUP.COM:
```

```
   $ NCP SET KNOWN LOGGING EVENTS 352.*
   $ NCP SET KNOWN LOGGING EVENTS 353.1,2,3,4

   ============================================================================
        VAX Distributed Name Service Installation Verification Procedure
   ============================================================================

 DNSCP SHOW CHARACTERISTICS CLEARINGHOUSE BANANA_CH
   Directory ________________ APPLE_NS:.

 DNSCP CREATE GROUP BANANA_DNS$IVP

UID ____________________________________ aa-00-04-00-97-11-00-51-b4-45-5f-0f-91-00

 DNSCP ADD MEMBER BANANA::SYSTEM GROUP BANANA_DNS$IVP

 DNSCP SHOW CHARACTERISTICS GROUP BANANA_DNS$IVP
   Member _____ BANANA::system  (APPLE_NS:.DNS$IV.banana.system)

 DNSCP DELETE GROUP BANANA_DNS$IVP

  Installation of Distributed Name Service V1.1 successful.

 Installation of DNS V1.1 completed at 16:11

 VMSINSTAL procedure done at 16:11
$
```

Index

A

Access rights • 1–8, 2–12
  assigning • 1–9
  defaults • 2–13
  displaying • 3–1
  granted by DNS installation • 3–1
  modifying • 3–2
ADD ACCESS command • 3–2
ADD MEMBER command • 2–14
AUTOGEN utility • 1–5

B

BADCLOCK message • 1–8
Batch queue • 3–5
BYTLM quota
  see Installation, requirements

C

Clearinghouse
  database • 2–10
  default name • 1–9, 2–8
  name • 1–10, 2–8, 2–12, 3–3
  object
    directory for storing • 1–9
    required access rights • 1–9
    storing in a directory • 2–8
  UID • 3–3
Client
  cache • 3–3
  shutdown command file • 2–11
Client (Cont.)
  start-up command file • 2–11
CMKRNL privilege • 1–4
CREATE GROUP command • 2–14

D

DELETE GROUP command • 2–14
DFS (VAX Distributed File Service) • 1–1
Disk space requirements
  see Installation, requirements
DNS$010.RELEASE_NOTES file • 2–11, A–2
DNS$011.RELEASE_NOTES file • A–1
DNS$ADVER.EXE file • 2–11, A–2
DNS$ADVER process • 1–6
DNS$BACK.EXE file • 2–11, A–2
DNS$BACK process • 1–5
DNS$CHANGE_DEF_FILE.COM file • A–2
DNS$CLIENT.EXE file • 2–11, A–2
DNS$CLIENT_STARTUP.COM file • 2–11, A–2
DNS$CLIENT_STOP.COM file • 2–11, 3–5, A–2
DNS$CONTROL.BIN file • 2–11, A–2
DNS$CONTROL.EXE file • 2–11, A–2
DNS$DEFAULT_FILE.DAT file • A–3
DNS$DISPLAY_TREE.EXE file • 2–11, A–2
DNS$GLOBAL.GBL file • A–3
DNS$GLOBAL_CACHE.GBL file • A–3
DNS$HELP.HLB file • 2–11, A–2
DNS$IVP.COM • 2–11
DNS$IVP.COM file • A–2
DNS$LIB.EXE file • 2–11, A–2
DNS$ML.EXE file • 2–11, A–2
DNS$MSG.BIN file • 2–11, A–2
DNS$MSG.EXE file • 2–11, A–2
DNS$NS_DEF_FILE.DAT file • 3–3, A–3

DNS$SERVER account • 2–9
  device • 2–10
  log file • 3–5
  UIC • 2–9
DNS$SOLICIT.EXE file • 2–11, A–2
DNS$STARTUP.COM file • 2–2, 2–11, 3–2, A–2
DNS$STOP.COM file • 2–11, 3–5, A–2
DNS$TA process • 1–5
DNS$TRANS.EXE file • 2–11, A–2
DNS messages
  file • 2–11
DNS server
  name • 2–12

E

Event codes • 3–3
Event logging • 3–2
  enabling • 3–3

G

Global pages
  see Installation, requirements
Global sections
  see Installation, requirements
GROUP privilege • 1–4
GRPPRV privilege • 1–4

H

Hardware requirements
  see Installation, requirements

I

Installation
  error messages • 4–1 to 4–3
  example • B–1, B–5, C–1, C–5
  requirements • 1–2
    BYTLM quota • 1–4
    disk space • 1–3
    global pages • 1–6
    global sections • 1–6
    hardware • 1–3
    kit contents • 1–2
Installation
  requirements (Cont.)
    multiserver networks • 1–7
    open file quota • 1–4
    privileges • 1–4
    processes • 1–5
    queue manager • 2–5
    software • 1–3
    system disk • 1–3
    system parameters • 1–5
    time • 1–7
  verification
    during VMSINSTAL • 2–6
    invoking the IVP • 2–13
    IVP completion message • 2–14
    IVP error messages • 2–15
    IVP functions • 2–14
    time • 1–7
IVP (Installation Verification Procedure)
  see Installation, verification

K

KITINSTAL.COM file • A–1

L

License PAK (License Product Authorization Key) • 1–3
LMF (License Management Facility) • 1–3

M

MODPARAMS.DAT file • 1–6

N

Namespace
  creating • 2–7, 2–11, 2–12, 2–13
  default name • 2–7
  hierarchical
    storing clearinghouse objects • 2–8
  name • 2–7, 3–3, 3–4
  UID • 3–3
NETMBX privilege • 1–4

O

Open file quota requirements
    see Installation, requirements
OPER privilege • 1–4

P

PAK *see* License PAK
PFNMAP privilege • 1–4
Postinstallation procedures • 3–1 to 3–5
    instructions • 2–13, 3–4
    running the IVP • 3–5
    starting DNS • 3–4
Preinstallation considerations • 1–1 to 1–10
Privileges requirements
    see Installation, requirements
PRMGBL privilege • 1–4
Process requirements
    see Installation, requirements
Product Authorization Key *see* License PAK

R

Release notes • 2–3
    displaying • 2–4
    printing • 2–4
REMOVE ACCESS command • 3–2
Root directory
    storing clearinghouse object • 1–9, 2–8
RSM (Remote System Manager) • 1–1

S

SET LOGGING command • 3–3
SETPRV privilege • 1–4
SET TIME command • 1–8
SHMEM privilege • 1–4
SHOW ACCESS DIRECTORY command • 3–1
SHOW CHARACTERISTICS CLEARINGHOUSE command • 2–14
SHOW CHARACTERISTICS GROUP command • 2–14
Software requirements
    see Installation, requirements
Software requirements (Cont.)
    see Installation, requirements
SYSGBL privilege • 1–4
SYSGEN utility • 1–6
SYSNAM privilege • 1–4
SYSPRV privilege • 1–4
System parameters
    see Installation, requirements
System time
    synchronizing • 1–8

T

Timezone • 2–7
TMPMBX privilege • 1–4

U

UAF (user authorization file) • 1–4, 1–5
UIC (user identification code) • 2–9
UID (unique identification number) • 2–14

V

VAXcluster
    alias • 1–7, 2–12
    installing DNS on • 1–7
VMSINSTAL procedure • 2–1
    aborting • 2–1
    batch queue created • 2–2
    creating a namespace • 2–7
    default responses • 2–1
    files added • 2–10
    help • 2–1, 2–2
    invoking • 2–2
    logging • 2–1
    options N • 2–4
    purging files • 2–6
    running the IVP • 2–6
    setting the timezone • 2–7
    step-by-step description • 2–2