DECndu

Installation (VMS)

Order Number: AA–XXXXX–XX

DECndu

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Supersession/Update Information:	This is a preliminary manual.
Operating System and Version:	VMS V5.4
Software Version:	DECndu V1.0

Order Number: AA–XXXXX–XX

XX–XXXXX–XX

Please report all documentation problems through the QAR system set up for your field test site as specified in the field test letter and agreement.

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Contents

A DECndu Product and Device Kits

B Informational, Error, and Fatal Messages

C Sample Procedures

D Associated Documentation

Examples

Figures

Preface

This installation guide explains how to:

- Install the DECndu (Network Device Upgrade) Utility distribution software
- Perform the DECndu installation procedure to a network device
- Verify the software installation

Intended Audience

This guide is for system managers or network managers who are responsible for upgrading network devices such as DECbridge 500 units, DECconcentrator 500 units, and system adapters. A system manager is responsible for the VMS system that is about to be established as a load host. A network manager is responsible for the local area network (LAN).

To use this manual effectively, you should be familiar with both DECnet™ Phase IV network management concepts and the VMS operating system.

Structure of this Guide

This guide has three chapters and four appendixes as follows:

Chapter 1	Introduces the Network Device Upgrade (DECndu) Utility and provides a summary of the DECndu software installation and verification procedures.
Chapter 2	Describes how to install the distribution software.
Chapter 3	Explains how to upgrade a network device such as a DECbridge 500, DECconcentrator 500, and FDDI adapter and then verify the software installation.

Appendix A	Lists and describes the files in the DECndu distribution kits.
Appendix B	List and explains informational, error, and fatal messages.
Appendix C	Provides examples of the DECndu.
Appendix D	Provides a list of associated documents.

Conventions Used in This Guide

Familiarize yourself with the following conventions:

Convention	Meaning
`Special type`	This special type indicates system output or user input. System output is in black type; user input is in red type.
bold	Indicates, in running text, new terms or concepts
UPPERCASE	VMS commands, node names, directory names, and file names appear in uppercase.
italic	Italic type in command syntax or examples indicate variables for which either you or the system supplies a value.
[ ]	Square brackets in command syntax statements indicate that the enclosed value(s) are optional. You can enter none or one. Default values apply for unspecified options. (Do not type the brackets.)
key	Press the specified key. For example, RET means that you should press the RETURN key.
CTRL/*x*	Hold down the CONTROL key and simultaneously press the key specified by *x*. The server displays this key combination as ^*x*.
CTRL/*z*	Hold down the CONTROL key and simultaneously press the key specified by *z*. The server displays this key combination as ^*z*.

1 Overview

This chapter discusses DECndu (Network Device Upgrade) Utility features and concepts, and summarizes the software installation and verification procedures.

1.1 What Is the Network Device Upgrade Utility

DECndu software is an automated network device upgrade utility that provides an easy and cost-effective means of upgrading and updating network devices such as the DECbridge 500, DECconcentrator 500 and Fiber Distributed Data Interface (FDDI) adapters. DECndu software has a direct protocol interface and it provides informative messages on what is happening as it runs.

1.2 DECndu Software (VMS)

DECndu software runs as an application on a VMS operating system. A copy of DECndu software and several other distribution files make up the DECndu software kit for the VMS operating system.

To perform an upgrade onto a network device, complete three tasks:

1. Install DECndu software onto a load host.
2. Install the software image files for the network devices you are upgrading.
3. Use DECndu software to down-line load the image files onto the network device.

This chapter reviews the DECndu (Network Device Upgrade) Utility features and concepts, and summarizes the software installation and verification procedures.

1.3 Performing the Software Installation: A Summary

Figure 1–1 outlines the software installation and verification procedures (Chapters 2 and 3 provide complete instructions).

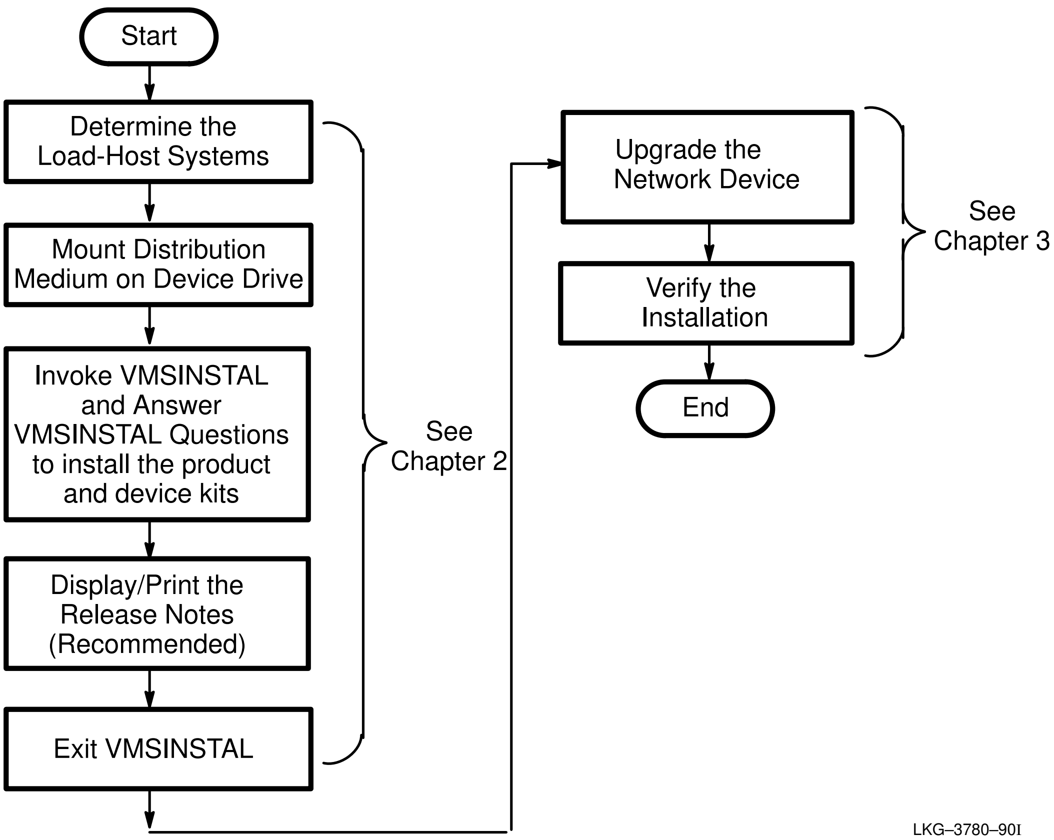

Figure 1–1: DECndu Software Installation Flow Chart

1.4 License Registration

You must register and load your license for DECndu *before* you start the installation in order to run the Installation Verification Procedure and use the software. You are prompted during VMSINSTAL about license registration.

To register a license under VMS, first log in to the system manager's account, SYSTEM. You then have a choice of two ways to perform the registration:

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

For complete information on using the License Management Facility (LMF), see the *VMS License Management Utility* manual.

1.5 Distribution Kits

To perform an upgrade to a system device, you need to install two kits with the VMSINSTAL procedure: a product kit and a device kit.

The product kit (NDU$) is a software tool for upgrading a network device. You use the VMSINSTAL procedure to install this utility.

A device kit, such as DEFCN, DEFEB, or DEFZA includes the actual upgrade image file for a specific network device (bridge, concentrator, or adapter). You install the appropriate device kit following the product kit installation.

Refer to Appendix A for a list of contents included in the product and device kits.

1.5.1 Installing the Software Distribution Kit

You install DECndu software onto a VMS operating system with the VMSINSTAL.COM procedure, which does the following:

- Copies the files from the distribution media to the VMS load host
- Moves these files to the target directories
- Prints and/or displays the release notes when you specify the OPTIONS N parameter

Chapter 2 provides complete instructions for installing the software.

1.5.2 Verifying the Installation

Verifying the successful installation of the software on the load host is accomplished automatically when you run VMSINSTAL. You receive error messages if the installation fails.

Verifying the upgrade of network devices is described in Chapter 3.

1.6 HELP Facility

Information on DECndu is available by typing HELP DEVICE_UPGRADE at the DCL prompt.

Example 1–1: Sample Output of HELP Facility

```
$ HELP DEVICE_UPGRADE

DEVICE_UPGRADE

    NDU (Network Device Upgrade) is used to download a new software image
    into FDDI box products which implement the ELMS and MOP protocols.

   NDU can also display device information such as type and firmware
   version. The host and FDDI product must be able to communicate over an
   Ethernet segment, which implies that a DEFEB must be used.

  Additional information available:

  SHOW       LOAD

DEVICE_UPGRADE Subtopic? load

DEVICE_UPGRADE

  LOAD

      Upgrades the specified device with the specified image.

      Format:

        DEVICE_UPGRADE LOAD target image_file

    Additional information available:

    Parameters /PASSWORD  /CONTROLLER           /LOG       /CONFIRM
    Examples

DEVICE_UPGRADE LOAD Subtopic?
DEVICE_UPGRADE Subtopic?
Topic?
$
```

2 Installing DECndu Software

This chapter tells you how to install the DECndu software onto your VMS load host. This software procedure down-line loads software upgrades to upgradeable network devices such as the DECbridge 500, DECconcentrator 500, and FDDI adapters.

To install DECndu software, use VMSINSTAL.COM, an automated procedure, which is part of the VMS operating system.

VMSINSTAL is an interactive procedure that performs the following installation tasks:

- Copies the release notes file from the distribution medium in to SYS$HELP.
- If you specify OPTIONS N, prints and/or displays a copy of the release notes.
- Copies installation verification procedure into SYS$TEST:NDU$IVP.COM.
- Copies the files from the distribution media to the disk

2.1 VMS System Requirements

You must have the following VMS features to install the DECndu software:

- VMS tailor requirements

  The required classes are: VMS Required Saveset and Network Support. Be certain that these classes are installed onto you system before installing the DECndu software. Refer to the *VMS Operating System Software Product Description (SPD)* for more information on VMS classes and tailoring.

- VMS version support

  Refer to the *DECndu Software Product Description (SPD)* for the minimum VMS version required to run DECndu software.

2.2 Preparing to Run VMSINSTAL

Before you run VMSINSTAL, check the following:

- You must have system manager privileges to run VMSINSTAL.
- Determine which systems are designated as load hosts for the DECndu software. You must install the distribution software onto load hosts. Ask your network manager for a list of the designated load hosts.
- Before installing the DECndu software, make sure the version of VMS you are using is supported. Supported versions of VMS include V5.3 or higher.
- Check that there is enough free disk space on the load host for the software. You need 800 blocks for the DECndu software on the load host. If you are installing a software upgrade on a DECconcentrator 500, you need 600 blocks. If you are installing a software upgrade on a DECbridge 500, you need 400 blocks. If you are installing a software upgrade on an FDDI adapter, you need 300 blocks per adapter.
- Back up the system disk. A system disk could accidentally become corrupt during installation, causing a need for a backup copy.

2.3 VMSINSTAL Conventions

VMSINSTAL is an interactive procedure. When you start VMSINSTAL, a series of questions is displayed. After each question, the default response (if there is one) appears in brackets ([ ]). At the end of each question, either a colon (:) or a question mark (?) appears. Respond in the following ways:

- To answer a question, type your response immediately after the colon or question mark and press RET .
- To select the default response, press RET .

- To get help with any question, type a question mark (?) as your response. After the help display appears, the question will reappear.

To abort the installation procedure at any time, press CTRL/Y ; to exit press CTRL/Z. The installation procedure deletes all files it has created up to that point and returns to the Digital Command Language (DCL) level.

To restart the installation procedure, invoke VMSINSTAL again.

See the *VMS Developer's Guide to VMSINSTAL* for a complete description of VMSINSTAL.

2.4 Printing and Reading Release Notes

Hard copy release notes are not included with this product. To print release notes, notes included in the distribution software, follow the instructions that follow.

Select one of the printing options:

- If you select option 1, the release notes are displayed on your terminal.
- If you select option 2, VMSINSTAL asks you to queue the file for printing. Press RET to print the release notes on the default printer, or specify another print queue. A message indicates that the system queued the file.
- If you select option 3, VMSINSTAL first asks you to queue the file for printing. Press RET to print the release notes on the default printer, or specify another print queue. A message indicates that the system queued the file.

  VMSINSTAL then displays the release notes on your terminal.
- If you select option 4, VMSINSTAL copies the release notes to SYS$HELP.
- If you select option 5, you do not display, print or copy the release notes.

Example 2–1: Sample Output for Release Note Options

```
        .
        .
        .

The following products will be processed:

 NDUT V0.2

    Beginning installation of NDUT V0.2 at 16:59

%VMSINSTAL–I–RESTORE, Restoring product saveset A ...

  Release Notes Options:

    1. Display release notes
    2. Print release notes
    3. Both 1 and 2
    4. Copy release notes to SYS$HELP
    5. Do not display, print or copy release notes

* Select option [2]:1

>>> release notes are displayed here <<<

* Do you want to continue the installation?n

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

    Installation of NDUT V0.2 completed at 17:01

    VMSINSTAL procedure done at 17:01
```

2.5 Product and Device Kits

Product kits, such as NDU010, include the NDU software and a product software installation manual. Device kits, such as DEFEB022, DEFCN023, and DEFZA010, include the image file for the device you are upgrading. Product kits and device kits are ordered and installed separately. Refer to Appendix A for a list of product and device kits used for upgrading network devices.

2.6 Installing Product and Device Kits Using VMSINSTAL

Use the VMSINSTAL procedure to install the product kit and the device kit for the network device you are upgrading. You install the product kit firs t and then repeat this procedure for the device kit. The software installation procedure takes approximately 8–12 minutes to complete. If you are installing more than one device kit, repeat the procedure from Step 8 for each device kit. To install the DECndu software onto your VMS load host, follow these steps:

NOTE

VMSINSTAL can be invoked by performing the following steps or, if you are familiar with the procedure, invoked using command lines similar to the following example:

```
$ SET DEFAULT SYS$UPDATE RET
$ @VMSINSTAL NDU MUAO: OPTIONS N RET
```

1. Log in to the system account. You must have system manager privileges to log in.
2. Mount the DECndu software distribution medium on the appropriate device drive. Make sure the drive is on-line.
3. Set the default directory to SYS$UPDATE. Enter the following command:

   ```
   $ SET DEFAULT SYS$UPDATE RET
   ```

4. Start VMSINSTAL with the following command:

```
$ @VMSINSTAL  RET
```

VMSINSTAL displays the procedure title, the date, the time, and continues with the following messages (a warning appears only if DECnet is running) and prompt:

```
VAX/VMS Software Product Installation Procedure V5.3

It is 20-Aug-1990 at 20:58.

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]?
```

5. Type YES and press RET. The following prompt appears:

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

6. Press RET to answer YES. The following prompt appears:

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

7. Enter the location of the distribution volumes (for example, MUA0) and press RET. The following message and prompt appears:

   ```
   Enter the products to be processed from the first distribution volume
   set.
   * Products:
   ```

8. Enter the product kit name for the DECndu software or device kit name (saveset; for example, NDU010 for a product kit or DEFEB022 for a device kit) and press RET. The following prompt appears:

   ```
   * Options:
   ```

   NOTE

   If you have already installed a product or device kit, remember to remove the medium from the drive before attempting to mount another kit medium.

9. Enter RET. A confirmation message indicates that the medium is mounted and that the installation is commencing. The following prompt then appears:

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

The installation verification procedure (IVP) verifies that all the files from the distribution kit are in the directory, and that the release notes are in the SYS$HELP directory. Digital Equipment Corporation recommends that you run this procedure.

10. Enter YES and press RET to initiate IVP when the procedure runs. The following prompt appears:

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

11. Enter YES and press RET. The procedure displays product information and then prompts you for licensing information:

    Product: DECNDU–V
    Producer: DEC
    Version: 1.0
    Release Date: 1–OCT–1990*

    Does this product have an authorization key registered and loaded?

12. Enter YES and press RET. The system displays messages that show the installation taking place and that the software is successfully installed. Once the installation is completed, the following prompt appears:

```
Enter the products to be processed from the next distribution volume
set.

* Products:
```

13. Repeat this procedure from Step 8 if you are installing another kit or CTRL/Z to end the procedure. If you the end the procedure, the following message appears:

```
VMSINSTAL procedure done at 21:03.

$
```

Installation of the kits you installed is now complete.

2.7 Installation Verification (IVP)

If you did not request the IVP in the installation procedure, enter the IVP command as follows:

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

Beginning installation verification procedure for DECndu V1.0
```

If the installation verification procedure fails, VMSINSTAL displays the following message:

```
Installation Verification Procedures for DECndu V1.0 failed
```

If you receive verification errors, run VMSINSTAL again.

Example 2–2: Sample Output from the IVP and a Completion Message

```
The installation verification procedure (IVP) can be invoked at any time
after the installation by typing:
           @SYS$TEST:NDU$IVP
at the DCL command level prompt.
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...

Beginning installation of verification procedure for DECndu V1.0.

Successful completion of SYS$COMMON:[DECndu] directory
           .
           .
           .
Installation Verification procedure for DECndu V1.0 completed successfully
```

A Completion Message

```
Installation of DECndu V1.0 completed at 4:57
VMSINSTAL procedure done at 4:57
$
```

3

Using DECndu

DECndu software automatically upgrades Digital’s software-enhanceable network devices, such as the DECbridge 500, DECconcentrator 500, and FDDI adapters.

DECndu software is loaded onto the host system using the VMSINSTAL procedure.

Use DECndu software to downline load the software onto your network device. To do this, you need to enter the **NETWORK_NETWORK_UPGRADE** verb followed by the **LOAD** command. The adapter name or address of the bridge/concentrator you are upgrading follows the LOAD command. If you are upgrading a bridge or wiring concentrator, the image file name is then entered in the command line. You use command qualifiers in the command line for the following during a LOAD operation:

- Password
- Controller device_type
- Log
- Confirm

The examples used in this chapter use “defebpass” for the password and ESA0 for the device_type.

DECndu prompts you for the target name of the device you are upgrading (hardware address of bridge/wiring concentrator or adapter name) and the software image filename. You can enter that information as part of the command line rather than relying on the prompts.

NOTE

The DECndu upgrade procedure will run even if you do not enter command qualifiers in the command line. Enter command qualifiers in the command line only when applicable.

3.1 Prerequisites for Upgrading Network Devices

In order to perform the upgrade procedure on network devices, verify the following prerequisites:

1. Ensure that there are no active DECelms or DECmcc sessions (User, Listener, Poller) on the system (management protocol will be locked by these active sessions and inaccessible by the DECndu).
2. Ensure that the management physical write enable switch on the bridge or wiring concentrator being upgraded (if so equipped) is ENABLED. Adapters do not have this switch.
3. Verify the password on the bridge or wiring concentrator you are upgrading. If a password exists, the /PASSWORD command qualifier must be entered in the command line. The password cannot be greater than 16 characters and must be entered in quotes to reserve case sensitivity (/PASSWORD="*password_string*").

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD 08-00-2B-11-22-33 mom$load:defeb021.sys-
   /PASSWORD="defebpass"
   ```

4. Determine the controller you are using for the upgrade of a bridge or wiring concentrator. A default controller is provided during installation (defined as NDU$NET_DRIVER during VMSINSTAL). You use the default controller or an alternate controller available on the host node for the upgrade.

   Type SHOW LOGICAL NDU$NET_DRIVER at the DCL prompt to find out the default controller device type. If you are using the default controller, proceed to the next step. If you are using an alternate controller, verify and record the alternate type of controller by typing the following command at the DCL prompt:

   ```
   $ SHOW DEVICE device_type
   ```

The network controller will be one of the following device-types:

DELUNA and DELUA — XE*c*0 (where ‘*c*’ stands for the controller)
DEQNA and DELQA — XQ*c*0
DEBNA — ET*c*0
DESVA — ES*c*0

Enter the /CONTROLLER command qualifier in the command line only if you are using an alternate controller (for example, /CONTROLLER=ESA0).

```
$ NETWORK_DEVICE_UPGRADE LOAD 08-00-2B-11-22-33 MOM$LOAD:DEFEB021.SYS-
/PASSWORD="defebpass"/CONTROLLER=ESA0
```

5. Verify and record the address of the bridge or wiring concentrator you are upgrading (for example, 08-00-2B-11-22-33).

6. Decide if you want a log of the procedure as it executes (soft copy only). Enter the /LOG command qualifier in the command line if you want a log.

```
$ NETWORK_DEVICE_UPGRADE LOAD 08-00-2B-11-22-33 MOM$LOAD:DEFEB021.SYS-
/PASSWORD="defebpass"/CONTROLLER=ESA0/LOG
```

7. The Circuit Service State on the host must be DISABLED to perform an upgrade for a bridge or wiring concentrator. The DECndu procedure automatically disables the circuit service state on the host as it runs if the state is ENABLED. Use the /CONFIRM command qualifier to control the disabling action of the DECndu procedure and be prompted by the procedure to continue with the upgrade.

   If you want to verify the current software revision on the bridge or concentrator before you upgrade, use the /CONFIRM command qualifier. The procedure will prompt you to continue.

```
$ NETWORK_DEVICE_UPGRADE LOAD 08-00-2B-11-22-33 MOM$LOAD:DEFEB021.SYS-
/PASSWORD="defebpass"/CONTROLLER=ESA0/LOG/CONFIRM
```

3.2 SHOW DEVICE and SHOW VERSION Commands

Use the SHOW DEVICE command to check network devices for information on the firmware revision number. The hardware address of the bridge/wiring concentrator or the name of the adapter follows the command. Enter the SHOW DEVICE command as follows:

```
$ NETWORK_DEVICE_UPGRADE SHOW DEVICE (hardware address of bridge/-
           concentrator or adapter name)
```

Use the SHOW VERSION command to obtain version information on the DECndu. Enter the SHOW VERSION command as follows:

```
$ NETWORK_DEVICE_UPGRADE SHOW VERSION
```

3.3 Invoking the Procedure

You can upgrade a bridge, wiring concentrator, or FDDI adapter using the DECndu procedure. If you are upgrading a FDDI adapter, the command line you enter is as follows:

```
$ NETWORK_DEVICE_UPGRADE LOAD (adapter name) (image file name)
  /qualifier
```

If you are upgrading a bridge or wiring concentrator, the command line you enter is as follows:

```
$ NETWORK_DEVICE_UPGRADE LOAD (hardware address of bridge/
   concentrator) (image filename)/qualifier
```

3.3.1 Upgrading an FDDI Adapter

If you are not familiar with the procedure, read through the following steps before entering commands.

NOTE

As you do this procedure, DO NOT press return until instructed. This procedure shows how to build a command line.

1. To invoke the procedure type:

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD
   ```

   If you want a log file, enter the /LOG command qualifier.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG
   ```

   If you want to verify the Circuit Service state and software revision, enter the /CONFIRM command qualifier.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM
   ```

   Once you have entered the command, press RET.

2. The procedure prompts you for the target name of the device you are upgrading. Enter the name of the FDDI adapter you are upgrading (as shown in the following example).

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM
   Target name: DEFZA
   ```

   Once you have entered the adapter name, press RET.

3. The procedure then prompts you for the name of the device kit image file. Enter the name of the image file. The image file must be in the form: *product_identifier version revision* (as shown in the following example).

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM
   _Target name: DEFZA
   _Image Filename: MOM$LOAD:DEFZA010.SYS
   ```

   Once you have entered the image filename, press RET. The upgrade will begin. The following printout is an example of what appears when a full command line is used to initiate DECndu software. Note that your text may be different if you do not use a full command line or you are upgrading a different device.

NOTE

The DECndu procedure prompts you to answer one question if you use the /CONFIRM command qualifier. If you answer YES, you are prompted to answer a second question. The procedure exits if you answer NO.

```
%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-TARGET_VERSION, Target device is a DEFZA version 1.0

Do you wish to continue? (y/n) y

%NDU-I-SET_DLU_TRUE, Setting ELMS DLU switch to TRUE
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show lines
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show circuits
%NDU-I-NCP_SRV_ENA, NCP circuit service enabled
%NDU-I-CIR_ENABLED, Circuit service enabled.  Must be disabled.

Do you wish to continue? (y/n) y

%NDU-I-NCP_SET_STATE, setting circuit service state
%NDU-I-START_DLU, Beginning MOP downline load
%NDU-I-WAIT_BOX, Waiting for box to come back on-line
%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-DEV_BACK, Device back on line
%NDU-I-TARGET_VERSION, Target device is a DEFZA version 1.0
%NDU-I-SET_DLU_FALSE, Setting ELMS DLU switch to FALSE
%NDU-I-NCP_SET_STATE, setting circuit service state
$
```

The program is now complete and the upgrade has been completed successfully.

3.3.2 Upgrading a Bridge or Wiring Concentrator

If you are not familiar with the procedure, read through the following steps before entering commands.

NOTE

As you do this procedure, DO NOT press return until instructed. This procedure shows how to build a command line.

1. To invoke the procedure type:

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD
   ```

   If you want a log, enter the /LOG command qualifier.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG
   ```

   If you want to verify the Circuit Service state and software revision, enter the /CONFIRM command qualifier.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM
   ```

   If you are using an alternate controller, enter the /CONTROLLER command qualifier. If you are using the default controller, do not enter the /CONTROLLER command qualifier.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM/CONTROLLER=ESA0
   ```

   If the unit you are upgrading contains a password, enter the /PASSWORD command qualifier. The password itself must be entered in quotes.

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM/CONTROLLER=ESA0/-
   PASSWORD="defebpass"
   ```

   Once you have entered the entire command, press RET.

2. The procedure then prompts you for the hardware address of the unit you are being upgrading. Enter the hardware address (as shown in the following example).

   ```
   $ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM/CONTROLLER=ESA0/-
   PASSWORD="defebpass"
   _Hardware Address: 08-00-2B-11-22-33
   ```

   Once you have entered the hardware address, press RET.

3. The procedure then prompts you for the name of the device kit image file. Enter the name of the image file. The image file must be in the form: *product_identifier version revision* (as shown in the following example).

```
$ NETWORK_DEVICE_UPGRADE LOAD/LOG/CONFIRM/CONTROLLER=ESA0/PASSWORD=
"defebpass"
_Hardware Address: 08-00-2B-11-22-33
_Image File: MOM$LOAD:DEFEB021.SYS
```

Once you have entered the image file name, press RET The upgrade will begin. The following printout is an example of what appears when a full command line is used to initiate DECndu software. Note that your text may be different if you do not use a full command line or you are upgrading a different device.

NOTE

> The DECndu procedure prompts you to answer one question if you use the /CONFIRM command qualifier. If you answer YES, you are prompted to answer a second question. The procedure exits if you answer NO.

```
%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-TARGET_VERSION, Target device is a DEFEB version 2.1

Do you wish to continue? (y/n) y

%NDU-I-SET_DLU_TRUE, Setting ELMS DLU switch to TRUE
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show lines
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show circuits
%NDU-I-NCP_SRV_ENA, NCP circuit service enabled
%NDU-I-CIR_ENABLED, Circuit service enabled.  Must be disabled.

Do you wish to continue? (y/n) y

%NDU-I-NCP_SET_STATE, setting circuit service state
%NDU-I-START_DLU, Beginning MOP downline load
%NDU-I-WAIT_BOX, Waiting for box to come back on-line
%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-DEV_BACK, Device back on line
%NDU-I-TARGET_VERSION, Target device is a DEFEB version 2.1
%NDU-I-SET_DLU_FALSE, Setting ELMS DLU switch to FALSE
%NDU-I-NCP_SET_STATE, setting circuit service state
$
```

The program is now complete and the upgrade has been completed successfully.

3.4 Running the Procedure Manually

You can manually run and load the DECndu procedure using ELMS and NCP. The manual upgrade involves using ELMS to check the software version and the update switch setting. Once this information is verified, use NCP to check the circuit service state. NCP then loads the device being upgraded.

NOTE

If you enable the update switch or circuit service state, disable them once the upgrade is complete.

Use the following steps to manually run the DECndu:

1. Invoke ELMS by typing ELMS at the DCL prompt.

   ```
   $ ELMS
   ```

2. Look at the current software version and the update switch setting by typing the SHOW STATUS command at the ELMS prompt.

   If the update switch is DISABLED, enable it as follows:

   ```
   $ ELMS
   ELMS> SHOW 08-00-2B-11-22-33 CHARACTERISTICS
   ELMS> SET 08-00-2B-11-22-33 UPDATE SWITCH TRUE PASSWORD password_string
   ELMS> EXIT
   $
   ```

3. Invoke NCP by typing MCR NCP at the DCL prompt.

   ```
   $ MCR NCP
   ```

4. Identify the circuit service (for example, QNA-0) by typing the SHOW KNOWN CIRCUIT command at the NCP prompt.

   ```
   NCP> SHOW KNOWN CIRCUIT
   ```

5. Verify that the circuit service is ENABLED by using the SHOW CIRCUIT *xxx*-0 CHARACTERISTICS command at the NCP prompt.

   ```
   NCP> SHOW CIRCUIT QNA-0 CHARACTERISTICS
   ```

   If it is disabled, set the state of the circuit to OFF, enable the circuit service, and then set the state of the circuit to ON again as shown in the following example:

```
NCP> SET CIR QNA-0 STATE OFF

NCP> SET CIR QNA-0 SERVICE ENABLE

NCP> SET CIR QNA-0 STATE ON
```

6. Enable the DECndu procedure by entering the node–id, hardware address, and load file as shown in the following example. (Note that the node-id should have a value of Area 13 or Area 62).

```
NCP> SET NODE 13.999 HARD ADDR 08-00-2B-11-22-33 LOAD FILE
    MOM$LOAD:DEFEB021.SYS
```

7. Load the node through the circuit service as follows:

```
NCP> LOAD NODE 13.999 VIA QNA-0
```

8. After a successful load, reset the circuit service to DISABLED (if it were originally DISABLED) as follows:

```
NCP> CIR QNA-0 STATE OFF

NCP> CIR QNA-0 SERVICE DISABLE

NCP> CIR QNA-0 STATE ON
```

9. Clear all characteristics associated with the node-id used in the load node-id example.

```
NCP> CLEAR NODE 13.999 ALL
```

10. Type EXIT at the NCP prompt to exit NCP. This returns you to the DCL prompt.

```
NCP> EXIT
```

11. Type ELMS at the DCL prompt, and verify the software version using the SHOW CHARACTERISTICS command as shown in the following example:

```
$ ELMS

ELMS> SHOW 08-00-2B-11-22-33 CHARACTERISTICS
```

12. Disable the update switch of the upgraded device as follows:

```
ELMS> SET 08-00-2B-11-22-33 UPDATE SWITCH FALSE -
      PASSWORD password_string

ELMS> EXIT

$
```

The procedure is now complete and the upgrade has been successfully completed.

3.5 Verifying the Upgrade

To verify that the installation you have just completed was successful, enter a command line that includes the SHOW DEVICE command and SHOW VERSION command. This will show the firmware revision number and version information on the DECndu.

NOTE

Make sure of the hardware address when verifying the upgrade.

Example 3–1: Sample Output of Verifying the Upgrade

```
$ NETWORK_DEVICE_UPGRADE SHOW DEVICE {hardware address of bridge/
  concentrator or adapter name}

Name        DEFEB
Firmware Rev   V2.3


$ NETWORK_DEVICE_UPGRADE SHOW VERSION

Network Device Upgrade Utility V1.0
```

A

DECndu Product and Device Kits

This appendix lists all product and device kits used with the DECndu procedure.

A.1 Product Kit Contents

File Name	Description
KITINSTAL.COM	Command file that VMSINSTAL uses to do part of the installation procedure
NDU_ENTRY.OBJ	
VMS_NDU_MSG.OBJ	
NDU_OBJS.OLB	
NDU$HELP.HLP	Help facility
VMS_NDU_CLD.CLD	
NDU.SYS	DECndu software image
NDU010.RELEASE_NOTES	DECndu Release notes for V1.0
NDU$IVP.COM	Installation Vertification Procedure (IVP) file
NDU$STARTUP.COM	
NDU$MAIN.EXE	

A.2 Device Kit Contents

File Name	Description
<Device><Version>.SYS	Command file that VMSINSTAL uses to do part of the installation procedure
<Device><Version>.Release_Notes	Release notes for V1.0

B

Informational, Error, and Fatal Messages

This appendix lists the messages produced by DECndu. Each message is accompanied by an explanation. This appendix lists the messages alphabetically. The messages are accompained by explanations and, where possible, suggested actions to recover from errors.

B.1 Severity Levels

Three types of messages are displayed during the running of DECndu: Informational, Error, and Fatal.

Informational messages indicate that DECndu has performed your request.

Error messages indicate that the command may have performed some, but not all, of your request, and that you may need to verify command output.

Fatal messages indicate that DECndu has discovered inconsistencies in itself and that normal processing cannot continue.

B.2 DECndu Messages

ADAP_NOT_SPT - Adapters not supported yet

Severity: Error

Explanation: Adapters are not supported in VMS.

User Action: None

BAD_DEV_GETDVI - Bad device type in net_getdvi

Severity: Fatal

Explanation: Bad device type in net_getdvi routine.

User Action: Call developers.

BAD_DEV_NET_FIN - Bad device type in net_fin

Severity: Fatal

Explanation: Bad device type in net_fin routine.

User Action: Call developers.

BAD_MOP_PARMLD - Error with MOP response to PARMLD_XFER

Severity: Error

Explanation: Response to MOP parameter load with transfer address was incorrect.

User Action: Try again.

BAD_RET_NETLD - Bad status from net_load

Severity: Fatal

Explanation: Software Error.

User Action: Call developers.

BAD_RET_XMTRCV - Bad status returned by NET_XMT_RCV routine

Severity: Error

Explanation: Status returned is unknown.

User Action: Call developers.

BAD_TAR_TYPE - Bad target_type passed to net_open

Severity: Fatal

Explanation: Wrong target type passed to net_open routine.

User Action: Call developers.

BLK0_ERROR - Error reading blk0 information

Severity: Error

Explanation: Image file problem.

User Action: Check if image file proper format (RSX).

BLK_LOADED - !ZL blocks loaded

Severity: Informational

Explanation: Number of blocks loaded to driver.

User Action: None

BOOT_ERROR - Error during boot message

Severity: Error

Explanation: Trouble while sending MOP boot message.

User Action: See following error.

CIR_ENABLED - Circuit service enabled. Must be disabled.

Severity: Informational

Explanation: NCP circuit service must be disable to use NDU.

User Action: None

CONT_PROMPT - Do you wish to continue? (y/n)

Severity: Informational

Explanation: Check if user wants to go.

User Action: None

CTRL_NEEDED - Controller must be specified

Severity: Error

Explanation: Network controller must be specified in command line.

User Action: Re–enter command line with controller.

DEV_BACK - Device back on line

Severity: Informational

Explanation: Device came back up.

User Action: None

DEV_FW_VER - Device firmware version not found

Severity: Error

Explanation: Could not find firmware version information in ELMS message.

User Action: Is box supported by NDU?

DEV_NOT_BACK - Device not on line

Severity: Error

Explanation: Device did not reboot.

User Action: Check physical indicators (LEDs).

DEV_TYPE - Device type not found

Severity: Error

Explanation: Could not find type information in ELMS message.

User Action: Is box supported by NDU?

DEV_TYPE_MISS - Device type information not found

Severity: Error

Explanation: Device type info was not in the ELMS response.

User Action: Call developers.

DEV_VER_MISS - Device firmare version not found

Severity: Error

Explanation: Device firmware version info was not in the ELMS response.

User Action: Call developers.

DLU_SET - Error during set DLU switch

Severity: Error

Explanation: Could not set ELMS DLU switch.

User Action: Check if box is running.

ERR_DLU_FALSE - Error during clear DLU switch

Severity: Error

Explanation: Could not disable DLU switch.

User Action: Check box.

IMAGE_NEEDED - Image file must be specified

Severity: Error

Explanation: Target image file must be specified in command line.

User Action: Re–enter command line with controller.

IMAGE_NOT_CLOSE - Could not close image file

Severity: Error

Explanation: Image file specified could not be closed.

User Action: Check filename and directory.

IMAGE_NOT_OPEN - Could not open image file

Severity: Error

Explanation: Image file specified could not be opened.

User Action: Check filename and directory.

IMAGE_READ - Error reading image file)

Severity: Error

Explanation: Image file specified could not be read.

User Action: Check filename and directory.

INS_NCP_LOG - Insufficient NCP log

Severity: Error

Explanation: NCP log doesn't contain all we need.

User Action: Check network driver.

INV_ELMS_PARAM - Invalid ELMS parameter value)

Severity: Error

Explanation: ELMS parameter unknown to target.

User Action: Is target a supported device for NDU?

INV_ITEM_LIST - Invalid item list in MSG_FORMAT

Severity: Fatal

Explanation: Invalid item list.

User Action: Call developers.

INV_PASSWORD - Invalid password

Severity: Error

Explanation: Invalid ELMS password given.

User Action: Try again with valid password for box product.

MAX_BLK_RETRIES - Maximum block retries reached

Severity: Error

Explanation: Error with target.

User Action: Check if target is running.

MAX_RETRIES - Maximum complete retries reached

Severity: Error

Explanation: Error with target.

User Action: Check if target is running.

MEMLD_Error - Error during memory load message

Severity: Error

Explanation: Trouble while sending MOP memory load message.

User Action: See following Error.

MGMT_SW_OFF - Management switch is OFF

Severity: Error

Explanation: Physical management switch is OFF.

User Action: Set to ON.

NCP_SET_STATE - Setting Circuit Service State

Severity: Informational

Explanation: Setting NCP circuit service state for MOP downline load.

User Action: None

NCP_SRV_ENA - NCP circuit service enabled

Severity: Informational

Explanation: Circuit service enable.

User Action: None

NET_DEV_BUSY - Network device not available

Severity: Error

Explanation: Device portal is taken already.

User Action: Somebody else is using NDU maybe. Try again later.

NORESP_ERR - No response from target

Severity: Error

Explanation: Target device did not respond to message.

User Action: Try again and check target.

NOT_MOP_RESP - Wrong MOP response, not PROG_REQ

Severity: Error

Explanation: MOP Program Request was the expected response.

User Action: Call developers.

NOT_NET_DEV - Not network device

Severity: Error

Explanation: Network device specified for controller is invalid.

User Action: Re–enter command with valid device.

NO_NCP_COM - Could not open NCP command

Severity: Error

Explanation: NCP command for spawn process could not be opened.

User Action: Check privs and directory.

NO_NCP_LOG - Could not open NCP logfile

Severity: Error

Explanation: NCP logfile from spawn process could not be opened.

User Action: Check privs and directory.

NO_WORK - Nothing to do

Severity: Error

Explanation: Nothing to do. You must UPDATE, SHOW VERSION, or SHOW DEVICE.

User Action: Check command line.

PARAMLD_Error - Error during parameter load message

Severity: Error

Explanation: Trouble while sending MOP parameter load message.

User Action: See following Error.

PROTO_VIO - Protocol violation

Severity: Fatal

Explanation: QIO Error.

User Action: Call developers.

RCV_ERR - Receive Error

Severity: Error

Explanation: Error with DLL receive.

User Action: Try again.

READ_DEVICE - Error during read device

Severity: Error

Explanation: Could not do an ELMS read device.

User Action: Check next Error.

SEND_ELMS_RDDEV - Sending ELMS read device message

Severity: Informational

Explanation: Sending message.

User Action: None

SET_DLU_FALSE - Setting ELMS DLU switch to FALSE

Severity: Informational

Explanation: SET DLU switch to disabled.

User Action: None

SET_DLU_TRUE - Setting ELMS DLU switch to TRUE

Severity: Informational

Explanation: SET DLU switch to enabled.

User Action: None

SOCK_SHARE - Can't set socket to share

Severity: Error

Explanation: Need to set socket in share mode.

User Action: Must be superuser.

SPWNNCP_CIR - Spawning NCP subprocess to show circuits

Severity: Informational

Explanation: Spawn subprocess to handle NCP commands.

User Action: None

SPWNNCP_LINE - Spawning NCP subprocess to show lines

Severity: Informational

Explanation: Spawn subprocess to handle NCP commands.

User Action: None

START_DLU - Beginning MOP downline load

Severity: Informational

Explanation: Beginning to send image data.

User Action: None

TARGET_FIRMWARE_VER - Firmware Rev   V!ZL.!ZL!AS

Severity: Informational

Explanation: Target firmware version for a SHOW DEVICE command.

User Action: None

TARGET_NAME - Name   !AS

Severity: Informational

Explanation: Name of device for a SHOW DEVICE command.

User Action: None

TARGET_NEEDED - Target must be specified

Severity: Error

Explanation: Target must be specified in command line.

User Action: Re–enter command line with controller.

TARGET_VERSION - Target device is a !AS version !ZL.!ZL!AS

Severity: Informational

Explanation: Target version info.

User Action: None

UNK_CIRCUIT - Unknown circuit

Severity: Error

Explanation: Unknown NCP circuit.

User Action: Check your Network driver.

UNK_DLU_SW_ERR - Unrecognized set DLU switch Error

Severity: Error

Explanation: Unknown ELMS status during DLU switch setting.

User Action: Is box supported by NDU?

UNK_SET_DLU_SW - Unrecognized set DLU switch Error

Severity: Error

Explanation: ELMS status unknown.

User Action: Call developers.

VERSION - Network Device Upgrade Utility T1.0

Severity: Informational

Explanation: Version info.

User Action: None

WAIT_BOX - Waiting for box to come back on–line

Severity: Informational

Explanation: Waiting for FLASH to be written and reboot.

User Action: None

XMT_ERR - Transmit Error

Severity: Error

Explanation: Error with DLL transmit.

User Action: Try again.

C

Sample Procedures

Sample Output of VMSINSTAL

```
$ @sys$update:vmsinstal ndut001 mua0:
           VAX/VMS Software Product Installation Procedure V5.1

It is 14-AUG-1990 at 17:14.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
           PARISEAU
           DECW$WM_1
           DECW$TE_1
* Do you want to continue anyway [NO]? y
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:

  NDUT V0.1

           Beginning installation of NDUT V0.1 at 17:14

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

           NDU T0.1-0 Installation is commencing ...

* Do you want to run the IVP after the installation [YES]?
* Do you want to purge files replaced by this installation [YES]?

           Product:      DECNDU-V
           Producer:     DEC
           Version:      1.0
           Release Date: 1-OCT-1990

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

```
    All the questions regarding the installation have
    now been asked.  The installation will continue
    for about another 8-12 minutes.

Adding the verb DEVICE_UPGRADE to the DCL command table

Starting build of executable installed image.

NDU image build complete.


NDU T0.1-0 Installation is completed.


The NDU T0.1-0 kit includes :

SYS$SYSTEM:NDU$MAIN.EXE                 [new]
SYS$STARTUP:NDU$STARTUP.COM             [new]
SYS$TEST:NDU$IVP.COM                    [new]


    Please be sure to read the product Release Notes
    and the Software Installation manual for proper
    operation of this product. In addition, please add
    the following line to your site specific startup.com
    command procedure:
           $ @SYS$STARTUP:NDU$STARTUP.COM


    The installation verification procedure for this
    product is NDU$IVP.COM and is located in the
    SYS$TEST directory. It may be executed by
    typing the following command:
           $ @SYS$TEST:NDU$IVP.COM

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

           NDU T0.1-0  Installation Verification Procedure commencing ...

Successfully located NDU$MAIN.EXE in SYS$SYSTEM
Successfully located NDU$STARTUP.COM in SYS$MANAGER

           NDU T0.1-0 Installation Verification Procedure
              completed successfully.

           Installation of NDUT V0.1 completed at 17:18

           VMSINSTAL procedure done at 17:18

$
```

Sample Output of DECndu Upgrade (VMS)

```
$ DEVICE LOAD 08-00-2B-14-13-91 MOM$LOAD:DEFCN023.SYS/CONT=ESA0/CONFIRM/LOG

%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-TARGET_VERSION, Target device is a DEFCN version 2.3

Do you wish to continue? (y/n) y

%NDU-I-SET_DLU_TRUE, Setting ELMS DLU switch to TRUE
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show lines
%NDU-I-SPAWN_NCP_SHOW_, spawning NCP subprocess to show circuits
%NDU-I-NCP_SRV_ENA, NCP circuit service enabled
%NDU-I-CIR_ENABLED, Circuit service enabled.  Must be disabled.

Do you wish to continue? (y/n) y

%NDU-I-NCP_SET_STATE, setting circuit service state
%NDU-I-START_DLU, Beginning MOP downline load
%NDU-I-WAIT_BOX, Waiting for box to come back on-line
%NDU-I-SEND_ELMS_RDDEV, Sending ELMS read device message
%NDU-I-DEV_BACK, Device back on line
%NDU-I-TARGET_VERSION, Target device is a DEFCN version 2.3
%NDU-I-SET_DLU_FALSE, Setting ELMS DLU switch to FALSE
%NDU-I-NCP_SET_STATE, setting circuit service state
$
```

D
Associated Documentation

VMS Developer's Guide to VMSINSTAL AA–LA99E–TE

Describes the VMSINSTAL comamnd procedure and gives developers information about using VMSINSTAL to design their own installation procedures.