DECnet/SNA Gateway-CT

Installation (ULTRIX)

Order Number: AA-PHKZA-TE

This document contains instructions for installing and configuring DECnet/SNA Gateway-CT on the ULTRIX operating system. This document applies to DECnet/SNA Gateway-CT Version 2.1 and subsequent maintenance updates.

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Preface

Purpose of This Guide

This guide describes how to install DECnet/SNA Gateway for Channel Transport software (called DECnet/SNA Gateway-CT or Gateway-CT in this manual) on both VAX and RISC processors that are running the ULTRIX operating system.

The installation procedure creates Gateway-CT directory structures subordinate to the `/usr/lib` directory and loads Gateway-CT subsets to these directories. The installation also loads Gateway-CT man pages to the standard man page directory structures.

Keep this document with your distribution kit. You can use it to install maintenance updates or to reinstall Gateway-CT for any other reason.

At the back of this document is a Reader's Comments form. If you have any comments about this document, fill out the form and mail it; your comments are considered for subsequent installation guides.

Intended Audience

The audience for this guide is the person who installs DECnet/SNA Gateway-CT software on either an ULTRIX VAX or ULTRIX RISC system as follows:

- A system manager who manages a node-specific system
- A Diskless Management Services (DMS) manager who manages a DMS server area
- A Remote Installation Services (RIS) manager who manages a RIS server area
- A system manager who expects to install Gateway-CT from the RIS server area of a remote system

Structure of this Document

This manual is organized as follows:

- Chapter 1, which describes the operating system and hardware requirements for Gateway-CT installation and related procedures that you complete before installing the Gateway-CT software.
- Chapter 2, which describes the installation procedures for local, server, and client installations.
- Chapter 3, which describes the installation verification and the initial configuration of DECnet/SNA Gateway-CT.
- Appendix A, which describes the pathnames and directories of the installed files for Gateway-CT.
- Appendix B, which contains sample listings for Gateway-CT installation.
- Appendix C, which provides a Gateway Configuration Worksheet

Manuals in the DECnet/SNA Gateway-CT Documentation Set

In addition to this guide, the Gateway-CT documentation set includes the following material:

- *DECnet/SNA Gateway-CT and Gateway-ST Management (ULTRIX)*
- *DECnet/SNA Gateway-CT Problem Solving (VMS and ULTRIX)*
- *DECnet/SNA Gateway-CT Guide to IBM Parameters*
- DECnet/SNA Gateway-CT release notes
- DECnet/SNA Gateway-CT man pages

Related Manuals

DECnet/SNA Gateway-CT hardware documentation:

- *DEC ChannelServer Hardware Installation Guide*
- *DEC ChannelServer II Installation*
- *DEC ChannelServer Hardware Troubleshooting Guide*
- *DEC ChannelServer II Problem Solving*

ULTRIX system management documentation

- *ULTRIX Guide to Server Setup*

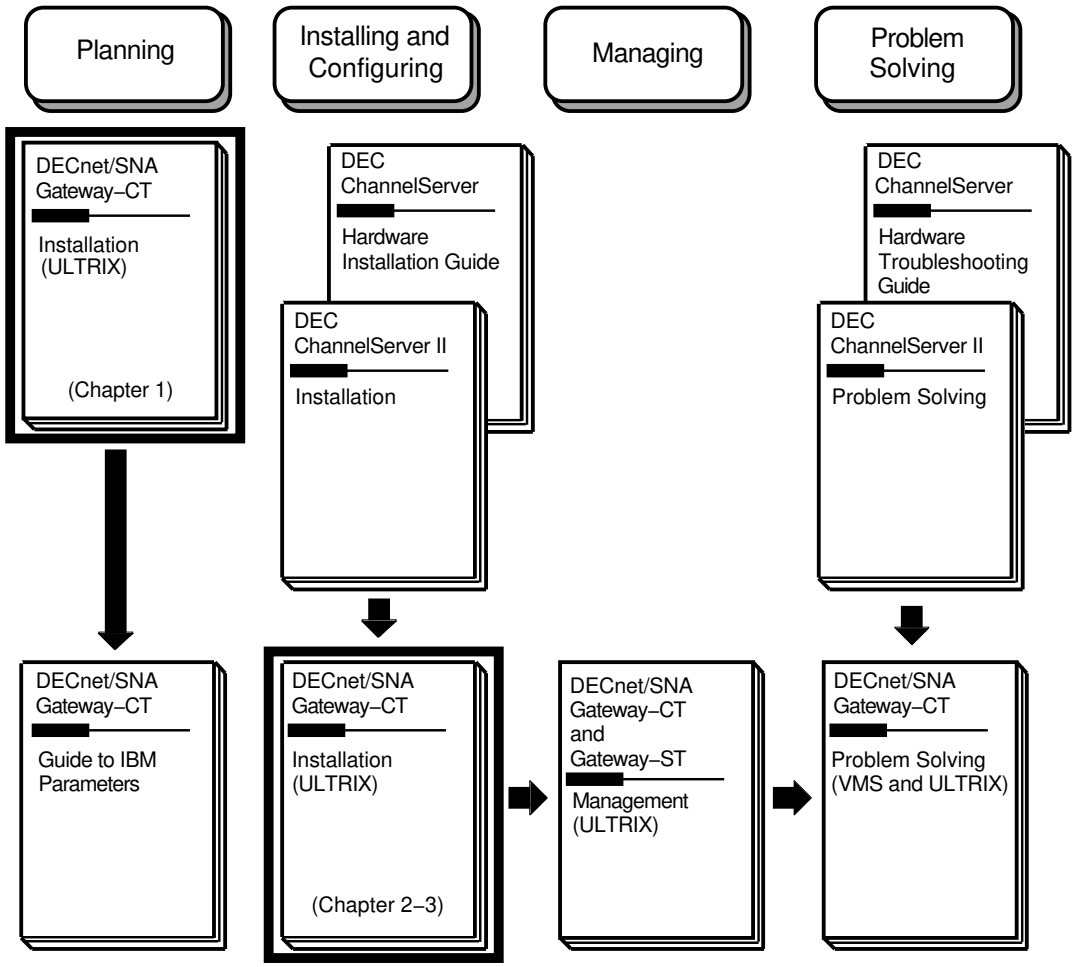
- *ULTRIX Guide to Diskless Management Services*
- *ULTRIX Guide to Remote Installation Services*

DECnet-ULTRIX documentation

- *DECnet-ULTRIX NCP Command Reference*
- *DECnet-ULTRIX Network Management*
- *DECnet-ULTRIX Use*

Figure 1 lists the Gateway-CT manuals according to the major tasks that they describe. The arrows in the figure indicate a logical order in which to use the manuals. The shaded manual in the figure indicates the manual you are currently reading.

Figure 1 Gateway-CT Manuals



LKG–4888–91R

A primary reference source for DECnet/SNA Gateway-CT is the online man pages (reference pages). They are installed at these locations in `/usr/man`: `sna_gm(7)`, `snap(8)`, `snaconfig(8)`, `snancp(8)`, and `snatrace(8)`.

The DECnet/SNA Gateway-CT release notes contain information that is not included in the printed manuals or the online documentation.

Conventions

These conventions apply to this installation guide:

`ULTRIX terms`	Indicates, in the running text, ULTRIX commands, options, arguments, pathnames, files, and directories.
`ncp> trigger node` *`node-id`*	Indicates ULTRIX command syntax and command examples. Note that you can enter some arguments for Gateway-CT utilities in uppercase as well as lowercase. `Red type` indicates user input in command examples. *`Italic type`* denotes variables in command examples, command syntax, and directory structures. The user or the system supplies a value at that point.
`?`	Denotes a single-character variable in an ULTRIX pathname.
%	Indicates the prompt in ULTRIX command lines.
#	Indicates the superuser prompt.
Return	Indicates that you press the enclosed key.
Ctrl/*x*	Indicates that you hold down the Ctrl key while you press another key represented by *x*.

Abbreviations and Acronyms

This manual uses some or all of the following abbreviations and acronyms:

ACF/NCP	Advanced Communications Function with Network Control Program (also referred to as IBM NCP)
API	DECnet/SNA VMS Application Programming Interface
APPC/LU6.2	DECnet/SNA VMS APPC/LU6.2 Programming Interface
CICS/VS	Customer Information Control System/Virtual Storage (also referred to as CICS)
DECnet NCP	Digital's Network Control Program (also referred to as NCP)
DDXF	DECnet/SNA VMS DISOSS Document Exchange Facility
DHCF	DECnet/SNA VMS Distributed Host Command Facility
DSPRINT	MVS/TSO/VTAM Data Set Print Facility
DTF	DECnet/SNA Data Transfer Facility
EDE	External Document Exchange with DISOSS
GAS	Gateway Access Server
IBM NCP	IBM's Network Control Program
IMS/VS	Information Management System/Virtual Storage (also referred to as IMS)
JES2	Job Entry Subsystem 2
JES3	Job Entry Subsystem 3
LU	Logical unit
LU1	Logical unit type 1
LU2	Logical unit type 2
LU3	Logical unit type 3
LU6.2	Logical unit type 6.2
MVS	IBM's Multiple Virtual Storage operating system
MR/S	VAX Message Router/S Gateway
MR/P	VAX Message Router/P Gateway
NCP	Network Control Program. This manual uses NCP to refer to the Digital product and IBM NCP to refer to the IBM product.
PLU	Primary logical unit
PrE	DECnet/SNA VMS Printer Emulator
PU	Physical unit
PU2	Physical unit type 2

RH	Request/response header
RJE	DECnet/SNA VMS Remote Job Entry
RU	Request/response unit
SDLC	Synchronous Data Link Control
SLU	Secondary logical unit
SNA	IBM's Systems Network Architecture
SNANCP	DECnet/SNA Gateway Network Control Program
SNAP	DECnet/SNA Gateway Management display utility
SNATRACE	DECnet/SNA Gateway Management protocol trace utility
SSCP	System services control point
3270 DS	DECnet/SNA VMS 3270 Data Stream Programming Interface
3270 TE	DECnet/SNA VMS 3270 Terminal Emulator
TH	Transmission header
TSO	IBM's Time Sharing Option
VM	IBM's Virtual Machine operating system
VSE/SP	Virtual Storage Extended/System Package
VTAM	Virtual Telecommunications Access Method

1

Preparing for Installation and Configuration

Before starting the installation procedures in Chapter 2, you should complete the preparation requirements outlined in this chapter. The sections in this chapter provide the necessary information to make your installation run smoothly. You need to know about and be aware of your installation options and information related to the installation procedure. This chapter helps you determine the following:

- Whether you need to read the release notes
- Whether you are installing DECnet/SNA Gateway-CT from distribution media or using the ULTRIX Remote Installation Service (RIS)
- Whether you are installing Gateway-CT locally or into a Diskless Management Services (DMS) server area for diskless clients
- How to register your License Product Authorization Key (PAK)
- If installing Gateway-CT from media, whether your distribution kit includes all the components listed on the Bill of Materials (BOM)
- Whether you need superuser privileges for the system on which you install Gateway-CT
- If the system on which you install Gateway-CT meets the Gateway-CT hardware, software, and disk space requirements
- Which optional Gateway-CT subsets you should install
- How much disk space you need
- Whether you have to back up your system disk

1.1 Reading Release Notes

Your documentation includes the DECnet/SNA Gateway-CT release notes, which you should read before using Gateway-CT. Gateway-CT provides online release notes, which are stored in `/usr/lib/snagwy/snacsa210.release_notes`. The release notes may contain information about changes to the DECnet/SNA Gateway-CT software and its documentation.

Your documentation may also include the DECnet/SNA Gateway-CT cover letter (see your Bill of Materials). This letter discusses information that is important for you to know before installing Gateway-CT; information that may not be included either in this installation guide or the release notes.

1.2 Installing from RIS as a Client

If you expect to install Gateway-CT subsets from a Remote Installation Services (RIS) server area of a remote system, check with your site system administrator to make sure that:

- A Gateway-CT kit is installed in the RIS server area and is available for use
- Your system is registered as an RIS client

If Gateway-CT subsets are available to you on a RIS server system, you need the name of that system to start the installation procedure described in this guide.

1.3 Installing Into an RIS Server Area

If you manage a Remote Installation Services (RIS) server area and intend to install Gateway-CT into your server area, read the following sections of this guide:

- Section 1.6 for information about contents of the media kit
- Section 1.7 for hardware and software requirements, for the names and numbers of software subsets, and for disk space requirements
- Sections 2.1.2.1 and 2.1.2.2 explain the displays and prompts that are specific to Gateway-CT installations

To install Gateway-CT on an RIS server system and register client nodes, use the `ris` utility (See Section 2.2). Do not use the `setld` command. You use `setld` subsequently on a client node to install the software from the RIS server.

1.4 Installing into a DMS Server Area

If you manage a DMS server area and want to install Gateway-CT into a DMS server area, read the following sections of this guide:

- Section 1.6 for information about contents of the media kit
- Section 1.7 for hardware and software requirements, the names and numbers of software subsets, and for disk space requirements
- Sections 2.1.2.1 and 2.1.2.2 explain the displays and prompts that are specific to Gateway-CT installations

To start the installation procedure, do not use the `setld` command. Use the `dms` utility (see Section 2.2).

In a local (node-specific) installation, the system on which you are installing Gateway-CT uses its own disks when Gateway-CT is run. A local (node-specific) installation procedure loads Gateway-CT files on the disks that belong to the system where you perform the installation. When Gateway-CT is run, its executable files are mapped into memory on the same system.

In a diskless client environment, the system on which you are installing Gateway-CT is a server for Diskless Management Services (DMS) and provides the disks for client systems running Gateway-CT software. This installation environment is referred to as "diskless" because the system uses Gateway-CT software accessed through the network by Network File System (NFS) software. When Gateway-CT is run by users logged into a client system, Gateway-CT executables are mapped into memory on the client system rather than the server system. From the perspective of the client node, Gateway-CT installation is handled entirely by the manager of the DMS server area.

Note

The diskless server area does not provide Gateway-CT software to users logged in to the server system itself. Installing Gateway-CT into the diskless environment provides Gateway-CT software only to client systems. Therefore, if users at your site need to use Gateway-CT when logged in to the local server system, you must perform a local (node-specific) installation of Gateway-CT in addition to the diskless installation.

1.5 Registering your License

DECnet/SNA Gateway-CT includes support for the ULTRIX License Management Facility (LMF). A License Product Authorization Key (License PAK) must be registered in the License Database (LDB) in order to use Gateway-CT on a newly-licensed node. The License PAK may be shipped along with the kit if you ordered the license and media together; otherwise, it is shipped separately to a location based on your license order.

To register a license under ULTRIX, first log in as superuser. Then, before installing Gateway-CT, edit an empty PAK template with the `lmf register` command as follows. Include all the information on your License PAK:

```
#  lmf register
```

After you register your license, use the following `lmf reset` command to copy the license details from the License Database (LDB) to the kernel cache.

```
#  lmf reset
```

For complete information on using the ULTRIX License Management Facility, see the *ULTRIX Version 4.0 Guide to Software Licensing* or the `lmf(8)` reference page.

1.6 Checking the Media Software Distribution Kit

For installations from media, use the Bill of Materials (BOM) to check the contents of your software distribution kit.

The kit includes this installation guide, the rest of the documentation set and one of the following:

- The TK50 tape cartridge, labeled DECnet/SNA Gateway-CT V2.1, for systems with TK50 or TK70 tape cartridge drives
- The 9-track magnetic tape (MT9), labeled DECnet/SNA Gateway-CT V2.1, for systems with magnetic tape drives

Your distribution kit also includes a cover letter titled *DECnet/SNA Gateway-CT*. This letter contains information that is important for you to know before installing Gateway-CT ; information that may not be included in this installation guide or in the release notes. You should locate the cover letter and read it now.

1.7 Installation Procedure Requirements

This section discusses various requirements for installing Gateway-CT.

1.7.1 Time Requirements

A local installation requires 5 to 10 minutes once the media is mounted; a DMS server installation, approximately 20 to 25 minutes; an RIS server installation, approximately 20 to 25 minutes. Installation times depend upon the type of media and your system configuration. Installation time for an RIS client might vary from 5 to 20 minutes because it is dependent on network configuration and load. If the network is not active, you should expect an RIS installation time roughly equal to a local installation.

Running each of the three Installation Verification Procedures (IVPs) on your system takes 1 to 2 minutes.

1.7.2 Login Privileges

You must be able to log in as superuser on the system where you are installing Gateway-CT. Only the superuser has sufficient privileges to install the Gateway-CT software.

1.7.3 Hardware Requirements

To perform the installation, you need the following hardware:

- Software distribution device (if installing from media)

  You need a distribution device that corresponds with the software distribution media. For example, if you have a TK50 software kit, you need a TK50 or TK70 tape drive. You must know how to load the media supplied with the software distribution kit on the appropriate drive. The documentation for the tape or disk drive that you are using explains how to load media.

- Terminal

  You can use either a hardcopy or video terminal to communicate with the operating system and respond to prompts from the installation procedure for Gateway-CT.

1.7.4 Software Requirements

1.7.4.1 Preparing the IBM SNA Environment

You must prepare certain software components in the IBM environment before you can use the Gateway-CT software. The *DECnet/SNA Gateway-CT Guide to IBM Parameters* explains which IBM parameters must be correctly defined for successful communication between the IBM host and your Gateway-CT. Section 3.2 explains how IBM parameter settings can affect parameter settings for various Gateway components.

You should view the Digital documentation as an adjunct to the IBM documentation; the IBM documentation remains the authoritative source for IBM software concepts and procedures.

Note

Since IBM system programmers reconfigure and generate their systems according to a set schedule, try to give them as much advance notice as possible to prepare for the Gateway-CT.

1.7.4.2 Preparing the DECnet Environment

Do the following to prepare your DECnet environment:

1. Verify the status of the load host's Ethernet line and circuit with the following NCP commands:

   ```
   ncp> show line line-id status
   ncp> show circuit circuit-id status
   ```

   where

line-id	UNA-*n*, QNA-*n*, BNA-*n*, and SVA-*n*, depending on your system.
circuit-id	UNA-*n*, QNA-*n*, BNA-*n*, or SVA-*n* depending on your system.

   The line and circuit must both be ON. If they are not, use the `ncp set line` and `set circuit` commands to set them to the ON state.

2. Check the DECnet definition of the load host's Ethernet line and circuit with the following `ncp` commands:

   ```
   ncp> show line line-id characteristics
   ncp> show circuit circuit-id characteristics
   ncp>  show node node-id characteristics
   ```

where

line-id UNA-*n*, QNA-*n*, SVA-*n*, or BNA-*n*, depending on your system.

circuit-id UNA-*n*, QNA-*n*, SVA-*n*, or BNA-*n*, depending on your system.

The preceding commands display parameters for the line and circuit you specify. Table 1–1 shows the default values for some of these parameters. If the parameters for your line and circuit do not correspond to the values shown, you can change these values with NCP commands.

Table 1–1 Ethernet Line and Circuit Characteristics

Line Characteristics	
Protocol	ETHERNET
Circuit Characteristics	
Type	ETHERNET
Node Characteristics	
Service	ENABLED

3. Enable event logging at the DECnet load host if not already enabled. Event logging records all system and network events or errors. Event logging is also used to diagnose problems that might occur with the Gateway. Use the `ncp set logging` command to enable event logging. For complete information on DECnet event logging, refer to *DECnet-ULTRIX Network Management*.

1.7.4.3 Preinstallation ULTRIX Software

DECnet/SNA Gateway-CT Version2.1 requires that ULTRIX Version 4.2 be installed. In addition, Gateway-CT requires the following ULTRIX software subsets to be loaded on the system where you install Gateway-CT:

- `UDTBASE4??` (for RISC) or `ULTBASE4??` (for VAX), which is named "ULTRIX Base System"
- `DNPBASE4??` (for RISC) or `DNUBASE4??` (for VAX), which is DECnet Phase IV
- `UDTMOP4??` (for RISC) or `ULTMOP4??` (for VAX), which is Maintenance Operations Protocol software

To install the optional Gateway-CT manual pages, the following ULTRIX software subsets must be installed on the system where you install Gateway-CT:

- UDTDCMT4?? (for RISC) or ULTDCMT4?? (for VAX) which is named "Document Preparation Software"

If you are installing Gateway-CT in a local (node-specific) environment, perform the following steps to determine whether the preceding ULTRIX subsets are loaded:

1. Log in to the system where you plan to install Gateway-CT.
2. Enter the following commands:

```
%  /etc/setld -i | grep BASE4
%  /etc/setld -i | grep DCMT4
%  /etc/setld -i | grep MOP4
```

Check the displayed rows for the relevant subset names and for any related patch names. The word installed appears in a row after the subset identifier code when a subset is loaded. If the word installed does not appear (the second column in a row is blank), the subset or patch is not loaded. In this case, you must load the missing ULTRIX software before installing Gateway-CT.

1.7.5 Determining Which Subsets to Load

You must choose the Gateway-CT subsets you want to load. The Gateway-CT subsets have the following titles and descriptions:

- CTVBASE210 for VAX/ULTRIX
  CTRBASE210 for RISC/ULTRIX

  This subset includes the Gateway-CT image and online release notes. It is loaded to and runs in the remote Gateway node.

- CTVGM100 for VAX/ULTRIX
  CTRGM100 for RISC/ULTRIX

  This subset contains the gateway management software. This software runs on the load host, and you use the software to configure and manage Gateway-CT nodes.

- CTVMAN100 for VAX/ULTRIX
  CTRMAN100 for RISC/ULTRIX

This subset includes the Gateway-CT man pages (reference pages). The man pages are located on the load host and can be accessed from the ULTRIX shell by using the `man` command.

- `CTVDIAG210` for VAX/ULTRIX
  `CTRDIAG210` for RISC/ULTRIX

  This subset contains the Gateway-CT diagnostics images. The images are loaded to and run in the remote Gateway-CT node.

1.7.6 Determining Disk Space Requirements

The disk space requirements discussed in this section apply to the disks where you load the Gateway-CT subsets.

Tables 1–2 and 1–3 list the disk space requirements for loading Gateway-CT software subsets on ULTRIX VAX and ULTRIX RISC systems. These tables specify disk space requirements by file system for the convenience of those doing installations on systems where these file systems are mount points for different disk partitions.

Table 1–2 Worksheet for Subset Sizes (Kilobytes Required) on RISC Systems

Subset Name	/usr/lib /snagwy	/usr/lib /snagwy/bin	/usr/lib /snagwy/etc	/usr/man	/usr/bin	/usr/etc	/var/mop
CTRBASE210	490	0	0	0	0	0	0
CTRGM100	139	1056	477	0	3	3	0
CTRMAN100	0	0	0	20	0	0	0
CTRDIAG210	817	0	0	0	0	0	2
Totals:	(——)	(——)	(—-)	(——)	(——)	(——)	(——)

Table 1–3 Worksheet for Subset Sizes (Kilobytes Required) on VAX Systems

Subset Name	/usr/lib /snagwy	/usr/lib /snagwy/bin	/usr/lib /snagwy/etc	/usr/man	/usr/bin	/usr/etc	/var/mop
CTVBASE210	490	0	0	0	0	0	0
CTVGM100	139	648	349	0	3	3	0
CTVMAN100	0	0	0	20	0	0	0
CTVDIAG210	817	0	0	0	0	0	2
Totals:	(—)	(—)	(—-)	(—)	(—)	(—)	(—)

Using the disk space requirements table for a VAX or a RISC system that applies to your system, total the values for the subsets that you plan to load in each file system.

Compare the space required for subsets with the free space currently on the disks where Gateway-CT files will reside.

1.7.6.1 Checking Disk Space for Installation on a Local Node

To determine the current amount of free space for a directory path, log in to the system where you plan to install Gateway-CT.

You can check which file systems are mounted and where they are by displaying the file `/etc/fstab`. For example:

```
#   more /etc/fstab
/dev/rd0a:/:rw:1:1:ufs::
/dev/rd0g:/usr:rw:1:2:ufs::
/usr/staff/r1/leslie@bigsys:/usr/staff/r1/leslie:rw:0:0:nfs:bg:
/usr/man@bigsys:/usr/man:ro:0:0:nfs:bg:
```

This display indicates that the system has only one local disk drive, `/dev/rd0`, and that `/usr` is mounted to the `g` partition on that disk drive. So `/dev/rd0g` is the mount point for `/usr` and for the Gateway-CT files that are subordinate to `/usr`. The files are to reside in the `g` partition of the disk.

Enter the `df` command to determine total space and free space for the file system where Gateway-CT files will reside. The previous display of the `/etc/fstab` file shows that only `/usr` is a mount point, and you only need to inspect free space in the `/usr` file system:

```
#   df /usr
Filesystem   Total    kbytes   kbytes   %
node         kbytes   used     free     used  Mounted on
/dev/rd0g     122598   54447   55892    49%   /usr
```

This display indicates that there are 55892Kb free. This free space must accommodate subset requirements listed in Tables 1–2 and 1–3 for the /usr/lib/snagwy/bin, /usr/lib/snagwy/etc, /usr/lib/snagwy, /usr/man directory structures.

On systems where you load the Gateway-CT files to devices other than /usr, enter the following command:

```
#  df [filesystem...]
```

The free space must accommodate subset requirements listed in Tables 1–2 and 1–3 for the /usr/lib/snagwy/bin, /usr/lib/snagwy/etc, /usr/lib/snagwy, /usr/man directory structures.

1.7.6.2 Checking Disk Space for Installation into a Diskless Environment

For Gateway-CT installations into the diskless environment, the disks where Gateway-CT subsets reside are on a server system. Therefore, for installations into diskless environments, log in to the server system to check disk space requirements.

Inspect the free space in the following locations:

- /dlenv?/root0.mips/usr (root area for ULTRIX RISC installations) or /dlenv?/root0.vax/usr (root area for ULTRIX VAX installations)
- /dclient?/client?.root (client area)

For installations into a diskless environment, the disk space requirements specified in Table 1–2 and Table 1–3 for the noted file systems are requirements for both the root area and each client area. If multiple root areas serve the Gateway-CT software, each root area requires space for all the installed subsets.

For more information about installing into a diskless environment, see *ULTRIX Guide to Diskless Management Services*.

1.7.6.3 Increasing Disk Space for Gateway-CT Installation

If you find that there is insufficient disk space for the Gateway-CT subsets, and know that you have additional space on alternative disks or disk partitions for your system, you can take the following steps before installing Gateway-CT:

1. Log in as superuser.
2. Create this directory: /usr/lib/snagwy.

3. Specify in the /etc/fstab file that one or more of the newly created directories are mount points to new disk partitions where there is additional space.
4. Enter the mount -a command so that the new mount points take effect.

1.8 Backing Up Your System Disk

Digital recommends that you back up your system disk before installing any software. Use the backup procedures established at your site. For details on performing a system disk backup, see your ULTRIX documentation.

1.9 Stopping the Installation

You can stop the installation procedure at any time by using Ctrl/c. After doing so, use setld -i to inventory the Gateway-CT subsets and their contents. Then you can execute setld -d to delete each of the subsets, and rm to delete installed files.

1.10 Recovering from Errors

If errors occur during the installation, the system displays failure messages.

Errors can occur during the installation if any of the following conditions exist:

- The operating system version is incorrect
- The prerequisite software version is incorrect
- The system parameter values for successful installation are insufficient

For descriptions of error messages generated by these conditions, refer to diagnostics portion of the man pages for setld. If you are notified that any of these conditions exist, take the action noted in the man page description. For information on system requirements, see Section 1.7.4.

If an error occurs while using DECnet/SNA Gateway-CT and you believe the error is caused by a problem with DECnet/SNA Gateway-CT, take one of the following actions:

- If you have a basic or DECsupport Software Agreement, call your Customer Support Center (CSC). The CSC provides telephone support for high-level advisory and remedial assistance.
- If you have a Self-Maintenance Software Agreement, you can submit a Software Performance Report (SPR).

- If you purchased DECnet/SNA Gateway-CT within the last 90 days and you think the problem is caused by a software error, you can submit an SPR.

If you find an error in the DECnet/SNA Gateway-CT documentation, fill out and submit one of the Reader's Comments forms at the back of the document containing the error. Please include the section and page number where the error occurred.

1.11 Preparing for Configuration

You can configure the Gateway-CT in one of two ways:

- During the installation procedure; in response to the last question in the base software installation
- Separate from the installation procedure; by running `/usr/etc/snaconfig`

Either method uses default information and information you provide to generate the initial configuration. The configuration has three parts:

- **Part 1:** Defines the Gateway node in the load host's DECnet database.
- **Part 2:** Creates a shell script that configures the SNA database in the Gateway.
- **Part 3:** Creates a shell script that configures the DECnet database in the Gateway.

Appendix C contains a worksheet that you should copy and use as you prepare to configure the Gateway-CT. The sections that follow explain the information you need to record on the worksheet.

1.11.1 Part 1: Information About the Gateway Definition in the Load Host

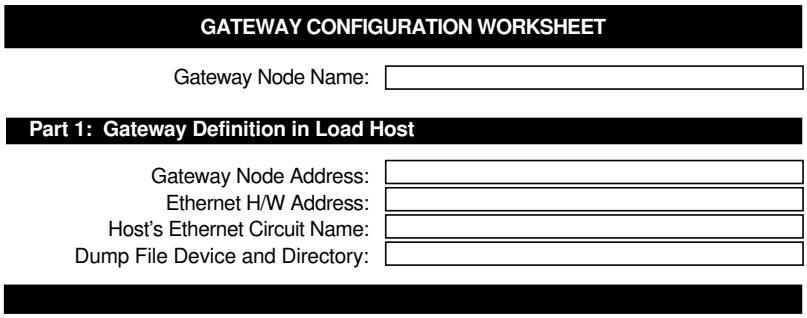
In Part 1 of the configuration procedure, you define information about the Gateway node in the DECnet database on the load host. This information is used for loading and dumping. This part of the configuration also defines the `snaini` object and creates a DECnet entry proxy for the Gateway-CT initialization. The proxy entry maps the remote username, *gateway_name*::`sna$go`, to a daemon process on the load host.

Note

If you are upgrading the Gateway-CT software (not performing the initial installation), you only need to complete Part 1 of the configuration to change the Gateway load file. The procedure will determine the current settings and display those settings as the defaults.

Figure 1–1 shows Part 1 of the Gateway-CT Configuration Worksheet.

Figure 1–1 Gateway-CT Configuration Worksheet, Part 1



The sections that follow explain the information you need to record in Part 1 of the worksheet.

Gateway Node Name

The name of the Gateway-CT node (1 to 6 alphanumeric characters). The name must be unique within the DECnet network.

DECnet Address of the Gateway Node

The DECnet address of the Gateway node in the format *aa.nnnn* where *aa* is the (optional) DECnet area number ranging from 1 to 63 (decimal) and *nnnn* is the DECnet node number ranging from 1 to 1023 (decimal).

Ethernet Hardware Address

The Ethernet hardware address of the Ethernet port for the Gateway node. Enter this address either as 12 hexadecimal digits or as six pairs of hexadecimal digits separated by hyphens. For example, the following expressions specify the same address:

08002B08CCB3 or 08-00-2B-08-CC-B3

If this is a new node or if the Ethernet controller in the node has been changed, you can find the address on the label on the DELQA or the DESQA (on the back of the DEC ChannelServer or the DEC ChannelServer II, respectively). You can also find the address for both the DEC ChannelServer and the DEC ChannelServer II by entering the following at the console prompt:

```
>>> E/P/W/N:5 20001920
  P 20001920 FF08
  P 20001922 FF00
  P 20001924 FF2B
  P 20001926 FF0F
  P 20001928 FF5B
  P 2000192A FF96
>>>
```

You derive the Ethernet address by taking the last two hexadecimal digits of the lines displayed (08-00-2B-0F-5B-96 in the example).

In addition, you can find the address for the DEC ChannelServer II by entering the following at the console prompt:

```
>>> SHOW ETHERNET
Ethernet Adapter 0 (774440)
-XQA0 (08-00-2B-0F-5B-96)
>>>
```

Note

The SHOW ETHERNET command works with the DEC ChannelServer II only.

Host's Ethernet Circuit

The name of the Ethernet circuit that connects the load host to the Gateway-CT. The Gateway node makes service requests for loading and dumping on this circuit.

Enter the circuit-id for this node using the syntax *dev-c* where *dev* is the Ethernet controller type (QNA, BNA, SVA, etc.) and *c* is a decimal number (0 or a positive integer) that designates the hardware controller number for the device.

Dump File Directory

The directory on the load host which will contain the dump file should the Gateway node perform an up-line dump. The dump file is not created until it is required.

The default directory is `/var/snagwy`. Ensure that the device partition where the file system is mounted has enough free space for the dump file. The size of your Gateway's dump file depends upon your hardware platform (the amount of memory your system has):

- If you have a DEC ChannelServer (with 5 megabytes of memory), the dump file can be a maximum of 5120 Kbytes.
- If you have a DEC ChannelServer II (with 16 megabytes of memory), the dump file can be a maximum of 16384 Kbytes.

If fewer than 4096 Kbytes of free space is available, the system issues a warning message.

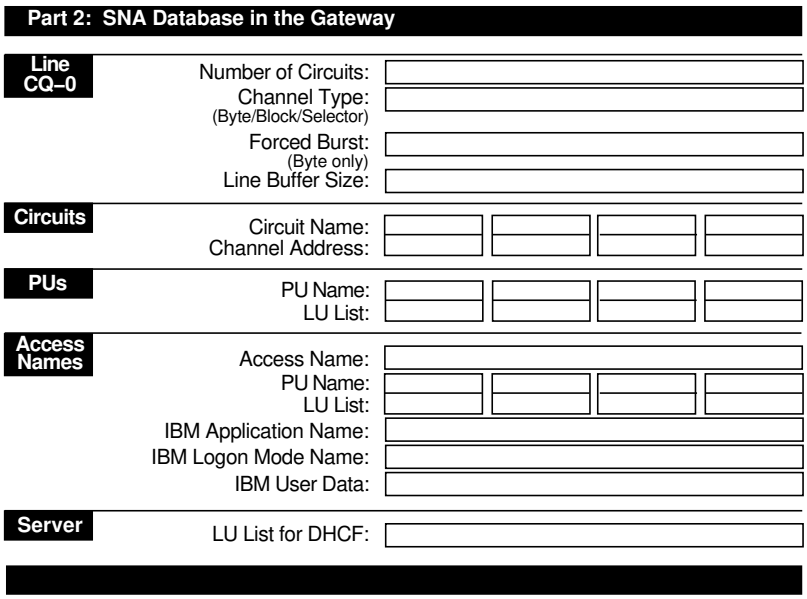
1.11.2 Part 2: Information About the SNA Database in the Gateway

In Part 2 of the configuration procedure, you define the following Gateway components:

- Lines
- Circuits
- Physical units (PUs)
- Access names
- Servers

Figure 1–2 shows Part 2 of the Gateway-CT Configuration Worksheet.

Figure 1–2 Gateway-CT Configuration Worksheet, Part 2



The sections that follow explain the information you need to record in Part 2 of the worksheet.

1.11.2.1 Defining the Channel-Attached Line

The information in this section is used to define the channel-attached line, CQ-0.

Number of Circuits

The number of circuits to be configured for the line. Each circuit corresponds to a channel address on the line; you should specify the same number of circuits as there are channel addresses defined on the IBM side for this line. The default is 1.

Channel Type

The type of channel used. The channel type can be block multiplexer, byte multiplexer, or selector. Ask your IBM system programmer for the type of channel to specify. The default is block multiplexer.

Forced Burst

The type of transfer mode used on a byte multiplexer channel. Enter Y if forced-burst mode is to be enabled for the line or N if forced-burst mode is to be disabled. This information is only required if you specify a byte multiplexer channel.

Line Buffer Size

The maximum size of buffers used to receive request/response units (RUs) transmitted by the IBM host. Determine the buffer size by adding 9 bytes to the maximum RU size the IBM host will send to the Gateway. The default is 8201 which allows RUs up to 8192 bytes.

1.11.2.2 Defining Channel-Attached Circuits

Information in this section is used to define each channel-attached circuit.

Circuit Name

The circuit name in the format CHAN-*n* where *n* is an integer ranging from 1 to 4.

Channel Address

The channel address of the Gateway-CT specified as three hexadecimal digits. Obtain the channel address from your IBM system programmer. There is no default channel address.

1.11.2.3 Defining Physical Units

The information in this section is used to define the PUs for the channel-attached circuit(s); you define one PU for each circuit. Physical units (PUs) provide the SNA physical unit services for the Gateway node.

LU list

The logical units (LUs) that are defined for the PU. Specify the available LU addresses as a list of decimal number ranges from 1-255. For example, define LUs 1 through 75, LUs 101 through 200, and LU 215 as follows:

```
1-75,101-200,215
```

DECnet/SNA access routines can use only those LUs defined in the list. Any request for communication with an LU not in the list will be rejected. Also, the LUs listed must correspond with the LU addresses defined in the LOCADDR parameter for the IBM ACF/VTAM LU macro; your IBM system programmer can supply you with these addresses.

1.11.2.4 Defining Access Names

The information in this section is used to define access names. Access names are a convenient way to pass information about the type of session being requested when an LU-LU session is being established. *DECnet/SNA Gateway-CT and Gateway-ST Management (ULTRIX)* explains access names in greater detail.

The following information should be completed for each access name that you want to define.

Access Name
The access name specified as 1 to 16 alphanumeric characters; for example, CICS.

PU Name
The PU used to access the IBM system. Enter the PU in the format SNA-*n*, for example, SNA-0. You can define more than one PU per access name. You are required to enter at least one PU per access name.

LU List
The list of LUs, for a given PU, that can use this access name. Enter a list of numbers and/or number ranges separated by commas. For example, the following list specifies LUs 1 through 50, LUs 100 through 150, and LU 160:

```
1-50,100-150,160
```

IBM Application Name
The name of the IBM application for the access name. Enter 1 to 8 alphanumeric characters. Sessions established with this access name connect to the designated IBM application. If you need to specify this parameter, ask the IBM system programmer for the name.

IBM Logon Mode Name
The IBM ACF/VTAM Logon Mode Table entry that is used at the start of each session. Enter 1 to 8 alphanumeric characters. The Logon Mode Table entry can specify the protocol rules for the session. If you specify no logon mode name, the default entry for the LU address, as defined on the IBM system, is used. The name should correspond with the operand label of an IBM ACF/VTAM MODEENT macro.

IBM User Data
An optional string of user data, which will be passed to the session partner. Enter 1 to 32 characters. The format of the data is specific to the IBM application acting as the session partner. Check with the IBM system programmer for the requirements of this field.

1.11.2.5 Defining Servers

The information in this section is used to define the DHCF server.

The system automatically defines all parameters for the SNA-ACCESS and RJE servers. The configuration procedure will also define all parameters for the DHCF server except for the LU list information.

LU List for DHCF
A list of LUs to be allocated to the DHCF server. Enter a list of numbers and/or ranges separated by commas, for example, 20–30.

1.11.3 Part 3: Information About the DECnet Database in the Gateway

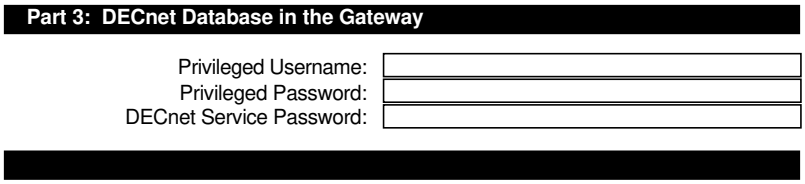
In Part 3 of the configuration procedure you provide information for the DECnet database in the Gateway-CT, which initializes the DECnet database components in the Gateway-CT each time the gateway is loaded. You can edit this file to customize your configuration.

Each time the Gateway software is loaded, the Gateway node performs the following steps to initialize the database:

- Reads all the nodes defined in the DECnet database on the load host.
- Selects the nodes that are in its area (that is, nodes that have the same DECnet area number as the Gateway node).
- Defines all the nodes in the same DECnet area in the Gateway node's DECnet database.
- Requests that the load host execute the command procedure that is created in this part of the configuration procedure. This file specifies the privileged username and password for access control of the Gateway-CT.

Figure 1–3 shows Part 3 of the Gateway-CT Configuration Worksheet.

Figure 1–3 Gateway-CT Configuration Worksheet, Part 3



Part 3: DECnet Database in the Gateway

Privileged Username:	
Privileged Password:	
DECnet Service Password:	

Here is what you need to record in Part 3 of the worksheet.

Privileged Username and Password

The privileged username and password (both 1-16 alphanumeric characters in length) that control access to the following Gateway functions:

- `ncp clear, loop, set, zero` commands
- `snancp clear, loop, set, show lu` (for authorization information), and `zero` commands
- `snatrace` commands

DECnet Service Password

The password required to trigger the bootstrap mechanism on the target node. The password can be up to 16 hexadecimal digits. For Ethernet circuits, the password ranges from
0 to FFFFFFFFFFFFFFFF. If you choose the default, no password is set.

Note

Digital Equipment Corporation recommends that you select a service password that is at least 6 hexadecimal digits long.

2

Installing DECnet/SNA Gateway-CT

This chapter describes the installation procedures for DECnet/SNA Gateway-CT. Before you start, read Chapter 1 which describes the general options and requirements that apply to installing Gateway-CT.

Gateway-CT can be installed in a number of ways:

- Locally from tape, cartridge, or from Remote Installation Services (RIS) media (for RIS clients). Section 2.1 explains how to do a local installation.
- Remotely into a Diskless Management Services (DMS) or RIS server area for future client use. Note that these installation procedures assume that you have already created your server environment and are ready to add Gateway-CT to it. Section 2.2 explains how to do a DMS and RIS server installation.

2.1 Installing Locally

This installation procedure loads Gateway-CT files on a disk that belongs to the system where you perform the installation. When Gateway-CT is run, its executable images are mapped into memory on this system.

This section explains how to start a local installation procedure and how to respond to installation procedure prompts.

2.1.1 Starting the Installation Procedure

If you are installing Gateway-CT from tape media, start with Section 2.1.1.1.

If you are installing Gateway-CT on a client system using a RIS kit, start with Section 2.1.1.2

2.1.1.1 Using TK50 or Magnetic Tape Distribution Media

If you are installing Gateway-CT from tape media, start the installation procedure as follows:

1. Mount the media on the appropriate tape drive.
2. Log in as superuser (login name `root`) to the system where you are installing Gateway-CT.
3. Make sure that you are at the root (/) directory by entering the following command:

   ```
   #  cd /
   ```

4. Enter a `setld` command that specifies the `-l` (load) function and the device special file name for the tape drive where the media is mounted. For example, if you load a magnetic tape on tape unit 0, enter the following command:

   ```
   #  setld -l /dev/rmt0h
   ```

   The installation procedure displays the following information and prompt:

   ```
   Please make sure your installation tape is mounted and on-line.
   Are you ready (y/n)?
   ```

5. After all tape rewind and wind operations are complete and the tape drive indicates online status, enter y.

Go to Section 2.1.2 to continue the installation.

2.1.1.2 Installing from an RIS Server

To install Gateway-CT from a Remote Installation Services (RIS) server to a RIS client you must first install Gateway-CT in your RIS server environment. See your RIS manager if Gateway-CT is not already installed in the RIS server.

To install Gateway-CT subsets that reside in an `/var/adm/ris` distribution area on a remote system, start the installation procedure as follows:

1. Log in as superuser (login name `root`) to the system where you are installing Gateway-CT.
2. Make sure that you are at the root (/) directory by entering the following command:

   ```
   #  cd /
   ```

3. Enter a `setld` command that requests the load function and identifies the system where Gateway-CT subsets are located. For example, if you are loading Gateway-CT subsets from a RIS distribution area on node BIGSYS, enter the following command:

```
# setld -l bigsys:
```

If you receive an error, verify that you correctly followed the preparation steps in Section 1.2.

See Section 2.1.2 to continue the installation.

2.1.2 Responding to Installation Procedure Prompts

This section explains the installation procedure prompts and displays.

2.1.2.1 Selecting Subsets

After you enter the `setld` command for local (node-specific) installations or after you start the `dms` or `ris` utility for server installations, the installation procedure displays descriptions of Gateway-CT subsets and asks you to specify the subsets that you want to load. Note that the order in which the subsets appear depends upon the installation media. This section and Appendix B describe installations from tape distribution media.

When installing from tape:

```
*** Enter Subset Selections ***

The subsets listed below are optional:
 1) DECnet/SNA Gateway Management          2) DECnet/SNA Gateway-CT Base Software
 3) DECnet/SNA Gateway Mgmt Man Pages      4) DECnet/SNA Gateway-CT Diagnostics
 5) All of the Above
 6) None of the Above
 7) Exit without installing subsets

 Enter your choice(s):
```

When installing from a RIS server, note that the subset numbers may vary depending on what products are available in the RIS area.

If you specify more than one number at the prompt, separate each number with a space, not a comma.

Next, the script lets you verify your choice. For example, for an installation from tape, if you enter 4 in response to the previous prompt, you see the following display:

```
You are installing the following subsets:

    DECnet/SNA Gateway Management        DECnet/SNA Gateway-CT Base Software
    DECnet/SNA Gateway Mgmt Man Pages    DECnet/SNA Gateway-CT Diagnostics

Is this correct? (y/n):
```

If the displayed subsets are not the ones you intended to choose, enter n. In this case, the subset selection menu reappears, and you can correct your choice of optional subsets.

If the displayed subsets are the ones you want to load, enter y.

2.1.2.2 Monitoring Displays During the Subset Loading Process

The procedure displays a message that the installation is starting. The following appears for a VAX/ULTRIX system, during installation from tape. Note that the order in which these messages appear is different for installation from disk (see the note below).

```
Copying DECnet/SNA Gateway Management (CTVGM100) from tape
Verifying DECnet/SNA Gateway Management (CTVGM100)

Copying DECnet/SNA Gateway-CT Base Software (CTVBASE120) from tape
Verifying DECnet/SNA Gateway-CT Base Software (CTVBASE120)

Copying DECnet/SNA Gateway Mgmt Man Pages (CTVMAN100) from tape
Verifying DECnet/SNA Gateway Mgmt Man Pages (CTVMAN100)

Copying DECnet/SNA Gateway-CT Diagnostics (CTVDIAG210) from tape
Verifying DECnet/SNA Gateway-CT Diagnostics (CTVDIAG210)

Beginning DECnet/SNA Gateway Management V1.0 installation
© Digital Equipment Corporation. 1991. All Rights Reserved.
```

Note

If you install from disk and choose `All of the Above`, the procedure may install the Gateway-CT base software before the gateway management software. When this happens, the following lines appear prior to the `Copying...` and `Verifying...` messages:

```
DECnet/SNA Gateway-CT V2.1 Base Software is not viable until DECnet/SNA
Gateway Management is installed.

Do you wish to continue? (y|n) [y]:
```

Enter either y or Return and continue with the installation.

After the Copying... and Verifying... messages, the installation procedure continues with queries about verifying the installation and configuring your Gateway. You can carry out these tasks during the installation or do them separately. Chapter 3 discusses verification and configuration.

If, during the course of the installation, you encounter errors from the setld utility, see the Diagnostics section of the setld(8) reference page for an explanation of the error and the appropriate action to take.

If the verification process fails, you can look in the file /usr/var/adm/fverifylog to find information that can help you diagnose the problem. You might also find useful information in the file /etc/setldlog.

2.2 Installing into a Server Environment

This section explains how to start the installation procedure and load software subsets when you are installing Gateway-CT into an environment controlled by DMS (Diskless Management Services) or RIS (Remote Installation Services).

For installation from TK50 and MT9 media kits, mount the media on the appropriate device of the server node. You are prompted later to enter the name of the special file for that device.

Section 2.2.1 explains how to install Gateway-CT into a DMS server environment. Section 2.2.2 explains how to install Gateway-CT into a RIS server environment.

2.2.1 DMS Server Installations

The following procedure lets you install Gateway-CT with the ULTRIX Version 4.0 dms utility into the diskless server area. The examples in this section show how to install the subsets to /dlenv0/root0.mips. for RISC/ULTRIX clients. For VAX/ULTRIX clients, the root directories are /dlenv?/root?.vax. Your dms server may have other diskless server areas dlenv? and other root directories root?.mips shared by clients within each area.

1. Log in and become the superuser.
2. To invoke the dms utility, enter the following command:

```
# /etc/dms
```

3. Select the Install Software option from the following menu by typing i:

```
DISKLESS MANAGEMENT SERVICES (DMS) UTILITY MENU

        a -  Add Client Processor
        m -  Modify Client Parameters
        r -  Remove Client Processor
        l -  List Registered Clients
        s -  Show Products in Diskless Environments
        i -  Install Software
        c -  Create Diskless Area on Disk
        k -  Kernel Rebuild or Copy
        e -  Exit

Enter your choice:   i
```

4. Choose option 2 in the following menu:

```
The menu below offers you two software installation alternatives:

   1)  You can install an operating system to a new diskless area.

   2)  You can install additional software to an existing diskless
       area that already contains an operating system.

Diskless Area Software Installation Menu:

        1  Install Operating System to New Area
        2  Add Software to Existing Area
        3  Return to Previous Menu

Enter your choice:   2
```

5. The following message lists the available installation directories:

```
You have chosen to install additional software into an existing diskless
environment.  These are the available installation directories:
```

If there is more than one installed `root?.mips` directory in the diskless server area, choose the appropriate directory from the menu that lists existing `root?.mips` directories. For example:

```
     1.  /dlenv0/root0.mips
     2.  /dlenv0/root1.mips
     3.  /dlenv0/root0.vax

Enter your choice:   1
```

6. You are next prompted for an input device name:

```
Enter the device special name or mount point of the distribution
media, for example, /dev/rmt0h:   /dev/rmt0h
```

7. If you want all registered clients to automatically have access to Gateway-CT, enter y to the following question:

```
The product software will automatically be propagated to every
registered client. Is this alright? (y/n):   y
```

   If you answer n, DMS returns you to the main menu.

8. If your distribution media is tape, a message appears asking you to confirm that the tape is ready and on line. If it is, type y.

```
Please make sure your installation tape is mounted and on-line.
Are you ready (y/n)?   y
Positioning Tape
```

9. The next message lists the software subsets you select for automatic installation. See Section 2.1.2.1 to specify the subsets you want to load. See Section 2.1.2.2 to monitor the displays during the subset load process and to complete the installation procedure.

Repeat these installation procedures for each for each `root?.mips` directory shared by clients that will need access to the Gateway-CT software. Refer *ULTRIX Guide to Diskless Management Services* for additional detail.

The `dms` main menu appears for your next selection.

2.2.2 RIS Server Installations

The following sample session describes how to add the Gateway-CT product to the `ris0.mips` area:

1. Log in and become the superuser.
2. Invoke the `ris` utility by entering the following command:

```
#   /etc/ris
```

3. Select the Install Software option from the Remote Installation Services (RIS) Menu by typing i.

```
REMOTE INSTALLATION SERVICES (RIS) MENU

        a -  Add Client
        r -  Remove Client
        s -  Show Products in Remote Installation Environments
        m -  Modify Client
        i -  Install Software
        e -  Exit

Enter your choice:   i
```

4. Choose option 2 from the RIS Software Installation Menu:

```
The menu below offers you two software installation alternatives:

        1) You can create a new area to serve either RISC or VAX clients
           by installing a software product.  The ris utility automatically
           creates the new area.

        2) You can install additional software to an existing area
           that serves either RISC or VAX clients.

RIS Software Installation Menu:

        1  Install Software to a New Area.
        2  Add Software to an Existing Area.
        3  Return to Previous Menu

Enter your choice:   2
```

5. A list of available environments appears from which you might select `ris0.mips`:

```
You have chosen to add a new product into an existing environment.

Select the remote installation environment:

1  /var/adm/ris/ris0.mips
    ULTRIX V4.0/ULTRIX WS V4.0 MANDATORY SUPPORTED (RISC)

2  /var/adm/ris/ris0.vax
    ULTRIX V4.0/ULTRIX WS V4.0 SUPPORTED (VAX)


Enter your choice:   1
```

6. You are next prompted for an input device name:

```
Enter the device special file name or the path of the directory where the
software is located, for example, /dev/rmt0h:  /dev/rmt0h
```

7. If your distribution media is tape, a message appears asking you to confirm that the tape is ready and on line. If it is, type y:

```
Please make sure your installation tape is mounted and on-line.
Are you ready (y/n)?   y
Positioning Tape
```

8. The next message lists the software subsets you select for automatic installation. See Section 2.1.2.1 to specify the subsets you want to load. See Section 2.1.2.2 to monitor the displays during the subset load process and to complete the installation procedure.

9. After the subsets are installed, the following message appears:

```
Media extraction complete.
```

10. Repeat the following steps, a through f, for each RIS client allowed to install Gateway-CT.

    a. The `ris` main menu appears for your next selection. Select the Modify Client option from the Remote Installation Services (RIS) Menu by typing m.

```
REMOTE INSTALLATION SERVICES (RIS) MENU

        a -  Add Client
        r -  Remove Client
        s -  Show Products in Remote Installation Environments
        m -  Modify Client
        i -  Install Software
        e -  Exit

Enter your choice:   m
```

    b. Enter the name of the client to be modified from the list of available clients:

```
The following clients are available to modify:

clienta clientb

Enter the client processor's hostname:   clienta
```

    c. Verify the client processor's hardware Ethernet address. Press Return to choose the address assigned ([*default address*]) when the client was added to the RIS environment.

```
Enter the client processor's hardware Ethernet address, for
example, 08-00-2b-02-67-e1 [08-00-2b-14-ac-d1]:   Return
```

    d. Choose the products for which you want this client to have access. You are shown the client's currently selected RIS environment and the products that the selected client can already access. At the prompt, enter the products you would like this client to be able to install including Gateway-CT. Separate each choice with a space.

```
The existing environment is /usr/var/adm/ris/ris0.mips.

The client currently can install the following products
from /usr/var/adm/ris/ris0.mips:

    'ULTRIX V4.0/ULTRIX WS V4.0 MANDATORY SUPPORTED (RISC) '

Select one or more products for the client to install
from /usr/var/adm/ris/ris0.mips:
```

```
Product    Description
 1    'ULTRIX V4.0/ULTRIX WS V4.0 MANDATORY SUPPORTED (RISC) '
 2    'DECnet/SNA Gateway-CT'

Enter one or more choices, for example, 1 2:   1 2
```

e. If the list of products available to this client is correct, type y. If the list is not correct, type n to return to step d and reenter the products.

```
You chose the following products:

 1    'ULTRIX V4.0/ULTRIX WS V4.0 MANDATORY SUPPORTED (RISC) '
 2    'DECnet/SNA Gateway-CT'

Is that correct (y/n)? [y]:   y
```

f. After modifying the client's records with the new list of installable products available, the following confirmation message appears:

```
clienta has been modified
```

3

Completing the Installation: Verifying, Configuring, Loading

This chapter explains what you need to do after the software is copied from the installation media to make DECnet/SNA Gateway-CT ready for use. Note that you can carry out these tasks (except for loading the software) either as part of the interactive installation procedure (see Chapter 2) or separate from it.

3.1 Running IVPs

You should run the Installation Verification Procedures (IVPs) to be sure that Gateway-CT is correctly installed. There is an IVP for each of these Gateway-CT subsets:

- Base software subset
- Gateway management subset
- Diagnostics subset

There is no IVP for the man pages subset.

When you are installing the Gateway-CT subsets, the installation procedure asks if you wish to run the IVP for each subset (see Section 2.1.2.1). You can also run any of the IVPs after the installation to verify that the software is available on your system. In addition, you can execute the IVPs after a system failure to be sure that users can access Gateway-CT.

To run an IVP after an installation, enter the following command:

```
#  setld -v subsetname
```

For VAX systems choose `CTVBASE210`, `CTVGM100` or `CTVDIAG210` for *subsetname*. For RISC systems choose `CTRBASE210`, `CTRGM100`, or `CTRDIAG210` for *subsetname*.

For complete samples of Gateway-CT Installation Verification Procedures, see Appendix B.

3.2 Configuring your Gateway

3.2.1 Understanding the snaconfig utility

After installing the Gateway-CT software on the load host, you must configure the Gateway-CT system. Be sure to carry out the steps outlined in Section 1.11 before you configure your Gateway.

Digital Equipment Corporation provides a program, `snaconfig`, to assist you with the initial configuration. You can do this as part of the interactive installation procedure (see Appendix B) after you copy the base software subset from the media. Alternatively, you can run `snaconfig` separately as described here.

The `snaconfig` utility performs the following steps by using both default information and information that you provide:

1. Defines the Gateway node and `snaini` object in the load host's DECnet database. A copy of the commands you need to define the gateway node is saved in the following script file:

   `/var/snagwy/define_`*`gateway-node-name`*`_on_`*`load-host-node-name`*

   This script file remains on the system should you need to reexecute the commands in the future, for example if you reconfigure DECnet-ULTRIX.

2. Creates and displays a command procedure that configures the SNA components in the Gateway database. This script contains `snancp` commands and has the following file specification:

   `/var/snagwy/snagateway_`*`gateway-node-name`*`_sna`

   This script is used every time the Gateway-CT is reloaded.

3. Creates and displays a script file that configures DECnet components in the Gateway-CT database. This script contains `ncp` commands and `snancp` commands, and has the following file specification:

   `/var/snagwy/snagateway_`*`gateway-node-name`*`_dna`

   This script is used every time the Gateway-CT is reloaded.

After the Gateway-CT is initially configured and loaded, you can customize the configuration for your site. Use `snancp` and `ncp` commands to interactively change the behavior of the Gateway. *DECnet/SNA Gateway-CT and Gateway-ST Management (ULTRIX)* describes the `snancp` commands and selected `ncp` commands. *DECnet-ULTRIX NCP Command Reference* describes the complete `ncp` command set.

When you enter commands interactively, the definitions or changes you make take effect immediately. However, these definitions or changes stay in effect only while the Gateway-CT is running. When the Gateway-CT is reloaded, the values used are those in the script files that you created during the initial configuration.

3.2.2 Using snaconfig

On the following pages, a sample `snaconfig` dialogue appears on consecutive left-hand pages with text highlighted by callout numbers. Explanations of the highlighted material appears with the corresponding callouts on the right-hand pages.

The procedure begins with the `snaconfig ct` command. You must be the superuser to execute the command. The `ct` option signifies the Gateway-CT. Default answers to the `snaconfig` queries appear in brackets following the queries. You can enter a question mark (?) at any time for help, and you can stop the procedure with Ctrl/c.

```
# snaconfig ct

  DECnet/SNA Gateway-CT V2.1 Configuration Procedure.
  (c) Digital Equipment Corporation. 1991.  All Rights Reserved.

  The configuration is divided into three parts:

   Part 1: Defining the Gateway node in the load host's
     DECnet database.

   Part 2: Creating a script file that is used to
     configure the SNA database in the Gateway
    each time it is loaded.

   Part 3: Creating a script file that is used to
     configure the DECnet database in the Gateway
    each time it is loaded.

  This configuration procedure prompts you to see if you want to
  run each of the three parts.  All parts must be completed before
  the Gateway can be loaded.  Enter "?" at any time for help.

DECnet/SNA Gateway-CT node name []: caine  ❶

================================================================================
  Part 1: Defining the Gateway node in the load host DECnet database
================================================================================

Do you wish to create this script file? (y/n) [y]:  ❷

DECnet node address of caine (aa.nnnn) []:  ❸
```

❶ `DECnet/SNA Gateway-CT node name []:`

Enter the Gateway node name (1 to 6 alphanumeric characters) and press Return. The name must be unique within the DECnet network.

❷ `Do you wish to create this script file? (y/n) [y]:`

If you press Return to accept the default, the system prompts you for the information that follows. If the Gateway node, the `snaini` object, and the proxy login information have already been defined on the load host and no changes need to be made, enter n and press Return. The system skips to Part 2 of the configuration procedure.

❸ `DECnet node address of` *`gateway-node-name`*`? (aa.nnnn) []:`

If this node is already defined, the previous definition appears as the default. Press Return to accept the default. If this is a new configuration or if you want to change the default address, enter a unique DECnet node address in the format [*aa.*]*nnnn* and press Return. Your network manager can assign such a unique address.

```
Ethernet hardware address of caine? (12 hex digits) []: aa-bb-cc-11-22-33 ❹
Directory for dump file on the load host? [/var/snagwy]: ❺
Load host's ethernet circuit name? (circuit-id) [qna-0]: ❻
All questions for Part 1 have been answered.
```

❹ `Ethernet hardware address of gateway-node-name? (12 hex digits) []:`

Enter the Ethernet hardware address of the Ethernet port for the Gateway node (either 12 hexadecimal digits or six pairs of hexadecimal digits separated by hyphens) and press Return. If this node has already been defined, the previous definition appears as the default. Press Return to accept the default. If this is a new node or if the Ethernet controller in the node has been changed, enter the new Ethernet hardware address and then press Return.

❺ `Directory for dump file on the load host? [/var/snagwy]:`

Specify the directory on the load host where the dump file is written when the Gateway node performs an up-line dump and press Return. The dump file is not created until it is required. The device partition you specify must have enough free space for the dump file. If fewer than 4096Kbytes are available, a warning message appears.

The default is `/var/snagwy`. Press Return to accept the default.

❻ `Load host's ethernet circuit name? (circuit-id) [dev-c]:`

Enter the name of the Ethernet circuit (in the format *dev-c*) that connects the load host to the Gateway-CT and press Return. The Gateway node makes service requests for loading and dumping on this circuit.

If the name has already been defined, the previous definition appears as the default. Press Return to accept the default.

```
The following ncp commands will be used to define the Gateway node and ❼
snaini object in the load host's DECnet database.  In addition, a proxy login
will be established for the Gateway Initialization process.

#! /bin/sh5 -v
#------------------------------------------------------------------------------
# Start of file: /var/snagwy/define_caine_on_netsea
# DECnet/SNA Gateway-CT V2.1, Load Host Database Setup
# Created: Thu Apr  4 21:44:55 1991 by snaconfig
# Host node: netsea,  User: jpjones
#------------------------------------------------------------------------------

NUL=/dev/null
ncp purge object snaini all 2> $NUL
ncp clear object snaini all 2> $NUL

ncp purge node 4.567 all 2> $NUL
ncp purge node caine all 2> $NUL
ncp clear node 4.567 all 2> $NUL
ncp clear node caine all 2> $NUL

ncp <<exit

define object snaini number 39 \
    file /usr/etc/snaini

define node 4.567 name caine
define node caine \
    hardware address aa-bb-cc-11-22-33 \
    service circuit QNA-0 \
    load file /usr/lib/snagwy/snacsa210.sys \
    dump file /var/snagwy/caine.dmp

define executor incoming proxy enabled
set node caine all
set object snaini all
set executor incoming proxy enabled
exit
#------------------------------------------------------------------------------
# End of file: /var/snagwy/define_caine_on_netsea
#------------------------------------------------------------------------------

Are you satisfied with these answers? (y/n) [y]:  ❽
```

❼ `The following ncp commands will be used to define...`

The `snaconfig` utility creates and displays the following script file:

`define_`*gateway-node-name*`_on _`*load-host-node*

This file contains `ncp` commands that define the Gateway node and `snaini` object in the load host's DECnet database. When executed, the commands in the file perform the following functions:

- Remove existing definitions, if any, of the Gateway node and `snaini` in both the permanent and volatile databases.
- Define the `snaini` object.
- Define the Gateway node using the name, addresses, circuit, and files you specified.
- Enable the load host to accept incoming connections via proxy accounts.
- Enable the circuit you specified as a service circuit (for loading the Gateway software).
- Set the above `snaini`, Gateway node, and circuit definitions in the volatile database.

❽ `Are you satisfied with these answers? (y/n) [y]:`

If you are satisfied with the answers you gave to the five prompts at the beginning of Part 1 (Gateway node name, DECnet address, hardware address, Ethernet circuit-id, and dump file location), press Return. The following occurs:

- A DECnet proxy entry is created on the load host for the Gateway node. A message appears indicating this.
- The command procedure is run, executing the `ncp` commands. The script file appears as it runs.

  If you answer n and press Return, this part of the configuration is run again, allowing you to provide different values for the items.

```
Creating proxy login for caine::sna$go

#! /bin/sh5 -v
#------------------------------------------------------------------------------
# Start of file: /var/snagwy/define_caine_on_netsea
# DECnet/SNA Gateway-CT V2.1, Load Host Database Setup
# Created: Thu Apr  4 21:44:55 1991 by snaconfig
# Host node: netsea,  User: jpjones
#------------------------------------------------------------------------------

NUL=/dev/null
ncp purge object snaini all 2> $NUL
ncp clear object snaini all 2> $NUL

ncp purge node 4.567 all 2> $NUL
ncp purge node caine all 2> $NUL
ncp clear node 4.567 all 2> $NUL
ncp clear node caine all 2> $NUL

ncp <<exit

define object snaini number 39 \
    file /usr/etc/snaini

define node 4.567 name caine
define node caine \
    hardware address aa-bb-cc-11-22-33 \
    service circuit QNA-0 \
    load file /usr/lib/snagwy/snacsa210.sys \
    dump file /var/snagwy/caine.dmp

define executor incoming proxy enabled
set node caine all
set object snaini all
set executor incoming proxy enabled

exit

#------------------------------------------------------------------------------
# End of file: /var/snagwy/define_caine_on_netsea
#------------------------------------------------------------------------------

Do you wish to redo Part 1? (y/n) [n]:  ❾

The script file you have created has been saved in:
/var/snagwy/define_caine_on_netsea

This script file may be used to redefine the Gateway node and snaini
object in the load host's DECnet database, should you need to do so
at some future time.
```

❾ `Do you wish to redo Part 1? (y/n) [n]:`

If you answer y and press Return, this part of the configuration is run again, allowing you to provide different values for the items.

Press Return to accept the default n.

```
================================================================================
   Part 2: Creating a script file to configure the SNA database in the Gateway
================================================================================

Do you wish to create this script file? (y/n) [y]:  ❿

This product supports a single line

   +---------------+
   |   Line CQ-0   |
   +---------------+

Number of circuits to be configured for CQ-0? (1-4) [1]: 2  ⓫

What type of channel will be used? (Block/Byte/Selector) [Block]:  ⓬

Line buffer size (maximum RU size plus 9)? (bytes) [8201]:  ⓭

   +---------------+
   | Circuit CHAN-0|
   +---------------+

Channel address? (3 hex digits) []: e11  ⓮

   +---------------+
   |    PU  SNA-0  |
   +---------------+

Enter the list of available LU addresses (number or range) [1-255]:  ⓯

   +---------------+
   | Circuit CHAN-1|
   +---------------+

Channel address? (3 hex digits) []: e12

   +---------------+
   |    PU  SNA-1  |
   +---------------+

Enter the list of available LU addresses (number or range) [1-255]:
```

❿ `Do you wish to create this script file? (y/n) [y]:`

If you press Return to accept the default y, you are prompted to define line information. If you answer n and press Return, the configuration process proceeds to Part 3.

⓫ `Number of circuits to be configured for CQ-0? (1-4) [1]:`

Enter the number of circuits to be configured for the line and press Return. Each circuit corresponds to a channel address on the line; specify the same number of circuits as there are channel addresses defined on the IBM side for this line. Press Return to accept the default 1.

⓬ `What type of channel will be used? (Block/Byte/Selector) [Block]:`

Enter the type of channel used (block multiplexer, byte multiplexer, or selector) and press Return. Ask your IBM system programmer for the channel type. The default is block multiplexer. The following prompt appears only if you specified a byte multiplexer channel:

```
Enable forced-burst operation? (Y/N) [N]:
```

You can specify whether the line operates in forced-burst mode or not. Enter y and press Return to enable forced-burst mode or press Return to accept the default and disable forced-burst mode.

⓭ `Line buffer size (maximum RU size plus 9)? (bytes) [8201]:`

Enter the maximum size of buffers used to receive RUs transmitted by the IBM host and press Return. To determine the buffer size, add 9 bytes to the maximum RU size. The default is 8201, which allows RUs up to 8192 bytes. You should set the line buffer size to be large enough to accept the largest RU that is sent by the IBM host.

⓮ `Channel address? (3 hex digits) []:`

Enter the channel address(es) of the Gateway-CT as three hexadecimal digits and press Return. Ask your IBM system programmer for the channel address. There is no default channel address.

⓯ `Enter the list of available LU addresses (number or range) [1-255]:`

The LU list specifies the logical units (LUs) that are defined for the PU. Enter the LUs as a list of decimal number ranges and press Return. DECnet/SNA access routines can use only those LUs defined in the list. Any request for communication with an LU not in the list is rejected. Also, the LUs listed must correspond with the LU addresses defined in the LOCADDR parameter for the IBM ACF/VTAM LU macro. Your IBM system programmer can supply you with these addresses.

```
   +--------------+
   | Access names |
   +--------------+

This section asks for information about one or more access names. ⓰
Press RETURN  when you have no more to enter.

Access name? (1-16 chars) []: netview ⓱

IBM application name? (1-8 chars) []: netview ⓲

IBM logon mode name? (1-8 chars) []: xt3278m2 ⓳

IBM user data? (1-32 chars) []: ⓴

You will now be prompted for one or more PU/LU pairs.
Press <RETURN> when you have no more to enter.

PU name? (SNA-n) []: sna-0 ㉑

LU list? (number or range) [1-255]:

PU name? (SNA-n) []:

Access name? (1-16 chars) []: tso

IBM application name? (1-8 chars) []: tso1

IBM logon mode name? (1-8 chars) []: mcauto

IBM user data? (1-32 chars) []:

You will now be prompted for one or more PU/LU pairs.

Press <RETURN> when you have no more to enter.

PU name? (SNA-n) []: sna-0

LU list? (number or range) [1-255]:

PU name? (SNA-n) []: sna-1

LU list? (number or range) [1-255]: 1,7

PU name? (SNA-n) []:

Access name? (1-16 chars) []:
```

⓰ `This section asks for information about one or more access names.`

Access names are a convenient way to pass information about the type of session being requested when an LU-LU session is being established. If you know what access names your site uses, you can define them now. You can define them at a later time by editing the configuration script created in Part 2.

When you are finished defining access names, press Return at the access name prompt. The configuration procedure then proceeds to request information about servers.

⓱ `Access name? (1-16 chars) []:`

Enter the access name (1-16 characters) and press Return.

⓲ `IBM application name? (1-8 chars) []:`

Enter the name of the IBM application for the access name (1-8 characters) and press Return. Sessions established with this access name connect to the designated IBM application. If you need to specify this parameter, ask your IBM system programmer for the name.

⓳ `IBM logon mode name? (1-8 chars) []:`

Enter an IBM ACF/VTAM Logon Mode Table entry (1-8 characters) to use at the start of each session and press Return. This entry can specify the protocol rules for the session. If you specify no logon mode name, the default entry for the LU address as defined on the IBM system is used. The name should correspond with the operand label of an IBM ACF/VTAM MODEENT macro.

⓴ `IBM user data? (1-32 chars) []:`

Enter the optional string of user data (1-32 characters), which is passed to the session partner and press Return. The format of the data is specific to the IBM application acting as the session partner. Check with your IBM systems programmer for the requirements of this field.

㉑ `PU name? (SNA-n) []:`

`LU list? (number or range) [1-255]:`

You are prompted for one or more PU/LU pairs. Press Return when you have no more to enter. The PU name specifies the PU used to access the IBM system. Enter the PU in the format SNA-*n*. You can define more than one PU per access name.

The LU list identifies which LUs, for a given PU, can use this access name. Enter a list of numbers and/or number ranges separated by commas and press Return.

```
   +--------------+
   |    Servers   |
   +--------------+

Server SNA-ACCESS (22)
No questions for this server.

Server RJE
No questions for this server.

Server DHCF (23)
This section requests a list of LUs allocated to DHCF for each PU.
Press <RETURN> if you do not wish to define any LU for a given PU.

LU list allocated to DHCF for PU SNA-0? (number or range) []: 31,32 (24)

LU list allocated to DHCF for PU SNA-1? (number or range) []: 21-23

All questions for Part 2 have been answered.

The following SNANCP commands will be used to set the SNA database (25)
in the Gateway each time it is loaded.

#------------------------------------------------------------------------------
# Start of file: /var/snagwy/snagateway_caine_sna
# DECnet/SNA Gateway-CT V2.1, SNA Configuration File
# Created: Thu Apr  4 22:01:25 1991 by snaconfig
# Host node: netsea,  User: jpjones
#------------------------------------------------------------------------------

/usr/bin/snancp <<exit

set line CQ-0 \
    receive buffers 128 \
    buffer size 8201 \
    protocol channel block \
    forced burst disabled \
    logging informational

set circuit CHAN-0 \
    channel address E11 \
    line CQ-0 \
    logging informational

set PU SNA-0 \
    circuit CHAN-0 \
    LU list 1-255 \
    segment size 8201 \
    logging warning

set circuit CHAN-0 state on
```

❷❷
```
Server SNA-ACCESS
No questions for this server.

Server RJE
No questions for this server.
```

The system automatically defines all parameters for the SNA-ACCESS and RJE servers. (After the initial configuration, use `snancp` commands to modify any server information.)

❷❸
```
Server DHCF
This section requests a list of LUs allocated to DHCF for each PU.
Press <RETURN> if you do not wish to define any LU for a given PU.
```

After you define all your lines and their associated PUs, LUs, and access names, the configuration procedure prompts you for information about the DHCF server.

If you are not using a DHCF server, press Return at the prompt.

❷❹
```
LU list allocated to DHCF for PU SNA-n? (number or range) []:

LU list allocated to DHCF for PU SNA-m? (number or range) []:
```

The configuration procedure also defines all parameters for the DHCF server except for the LU list information. The configuration procedure prompts you for this optional DHCF information.

Enter a list of LUs to be allocated to the DHCF server, for example, 31, 32 or 21-23, and then press Return.

Press Return if you do not wish to define any LU for a given PU.

❷❺
```
The following SNANCP commands will be used to set the SNA database
in the Gateway each time it is loaded.
```

The system then displays the `snancp` commands in the configuration script file.

The file that is displayed contains both information you specified for the SNA components and default system information.

```
set circuit CHAN-1 \
    channel address E12 \
    line CQ-0 \
    logging informational
set PU SNA-1 \
    circuit CHAN-1 \
    LU list 1-255 \
    segment size 8201 \
    logging warning
set circuit CHAN-1 state on
set line cQ-0 state on
set access name netview \
    application netview \
    logon mode xt3278m2
set access name netview \
    pu SNA-0 \
    lu list 1-255
set access name tso \
    application tso1 \
    logon mode mcauto
set access name tso \
    pu SNA-0 \
    lu list 1-255
set access name tso \
    pu SNA-1 \
    lu list 1,7
set server SNA-ACCESS \
    logging warning \
    note "Gateway Access Server" \
    state on
set server RJE \
    logging warning \
    note "Remote Job Entry" \
    state on
set server DHCF \
    pu sna-0 lu list 31,3.d
set server DHCF \
    pu sna-1 lu list 21-2
set server DHCF \
    state on \
    logging warning \
    note "Host Command Facility"

exit
#-------------------------------------------------------------------------------
# End of file: /var/snagwy/snagateway_caine_sna
#-------------------------------------------------------------------------------

Do you wish to redo Part 2? (y/n) [n]:  ❷❻
```

❷❻ `Do you wish to redo Part 2? (y/n) [n]:`

If you answer y and press Return, Part 2 of the configuration is run again. You can provide different values at the prompts.

Press Return to accept the default n. The configuration procedure continues as shown.

```
The script file you have created has been saved in:
/var/snagwy/snagateway_caine_sna

You can edit this script file to change the configuration of the
SNA database in the Gateway. Any changes you make will take effect
the next time the Gateway is reloaded.
================================================================================
  Part 3: Creating a script file to configure the DECnet database in the Gateway
================================================================================
Do you wish to create this script file? (y/n) [y]:  (27)
Privileged username? (1-16 chars) []: sysqueeg  (28)

Privileged password? (1-16 chars) []: syscaine

DECnet service password? (up to 16 hex digits) [none]: 123456789abcdef  (29)

All questions for Part 3 have been answered.

The following commands will be used to set the DECnet database
in the Gateway each time it is loaded.
#-------------------------------------------------------------------------------
# Start of file: /var/snagwy/snagateway_caine_dna
# DECnet/SNA Gateway-CT V2.1, DECnet Configuration File
# Created: Thu Apr  4 22:08:31 1991 by snaconfig
# Host node: netsea,  User: jpjones
#-------------------------------------------------------------------------------
```

㉗ `Do you wish to create this script file? (y/n) [y]:`

Press Return to accept the default y if you want the system to create the script that configures the DECnet database in the Gateway.

Enter n and press Return if you do not want the system to create this file.

㉘ `Privileged username? (1-16 chars) []:`

`Privileged password? (1-16 chars) []:`

Enter the privileged username (1-16 alphanumeric characters) and press Return. Then enter the privileged password (1-16 alphanumeric characters) and press Return.

The privileged user name and password control access to the following Gateway functions:

- `ncp clear, loop, set` and `zero` commands
- `snancp clear, loop, set, show lu` (for authorization information), and `zero` commands
- `snatrace` commands

㉙ `DECnet service password? (up to 16 hex digits) [none]:`

Enter the password that triggers the bootstrap mechanism on the target node and press Return.

The password can be up to 16 hexadecimal digits. For Ethernet circuits, the password ranges from 0 to FFFFFFFFFFFFFFFF. If you choose the default, no password is set.

Note

Digital Equipment Corporation recommends that you select a service password that is at least 6 hexadecimal digits long.

```
[ "$CONSOLE" ] &&
    echo "$CONSOLE SET PASSWORD 123456789ABCDEF"\\c

/usr/bin/snancp <<exit
    use system caine
    set system privileged user sysqueeg password syscaine
exit

SNAGM_GATEWAY=caine/sysqueeg/syscaine
export SNAGM_GATEWAY

/usr/bin/ncp <<exit
    set executor node caine/sysqueeg/syscaine
exit
#------------------------------------------------------------------------------
# End of file: /var/snagwy/snagateway_caine_dna
#------------------------------------------------------------------------------
Do you wish to redo Part 3? (y/n) [n]:  (30)

The script file you have created has been saved in:
/var/snagwy/snagateway_caine_dna

You can edit this script file to change the configuration of the
DECnet database in the Gateway.  Any changes you make will take
effect the next time the Gateway is reloaded.

================================================================================
    Configuration Complete
================================================================================

You have now completed the three parts of the Gateway configuration
procedure.  The files you have created are used to configure the
Gateway each time it is loaded.

End of snaconfig.

# exit
```

30 `Do you wish to redo Part 3? (y/n) [n]:`

If you answer y and press Return, Part 3 of the configuration is run again; you can provide different values at the prompts.

Press Return to accept the default n. The configuration continues as shown.

3.3 Loading Your Gateway

This section explains how to load the Gateway-CT software from the load host into the ChannelServer hardware unit.

After you complete the installation (see Chapter 2) and configuration (see Section 3.2), load the Gateway-CT software into the ChannelServer by doing one of the following:

- For the initial software load, plug in and power up the ChannelServer. As part of its power-up sequence, the hardware unit requests a software load from the load host.
- For subsequent software loads, enter an `ncp trigger node` command, invoke the `trigger` utility (`/etc/trigger`), or issue a remote console BOOT command from the load host. (Ensure that the ChannelServer is powered up.)

Loading should take about 3 minutes, but could vary according to the type of CPU and disks on the load host, the amount of other work the load host is processing, and the volume of traffic on the local area network (LAN).

3.3.1 Before Loading the Software

Before you load the Gateway-CT software, do the following:

- **Install the Gateway-CT software**
  Chapter 2 explains how to install Gateway-CT V2.1.
- **Configure the Gateway-CT system.**
  Section 3.2 explains how to configure the Gateway-CT.
- **Inspect the Ethernet cable to the load host.**
  Check that the cable is connected.
- **Verify that the load host's Ethernet line and the circuit are set properly.**

  Enter the following `ncp` commands to check the state and characteristics of the load host's Ethernet line and circuit (over which the software will be loaded); and the characteristics for the Gateway node:

  ```
  ncp> show line line-id characteristics
  ncp> show circuit circuit-id characteristics
  ncp> show node gateway-node-id characteristics
  ```

  where *line-id* is the device name of the Ethernet line, *circuit-id* is the device name of the Ethernet circuit, and *gateway-node-id* is the gateway node name. The parameters for the line, circuit, and node will be displayed.

Table 3–1 shows the default values for several parameters.

Table 3–1 Ethernet Line and Circuit Characteristics

LINE CHARACTERISTICS:	Parameter	Value
	Protocol	Ethernet
CIRCUIT CHARACTERISTICS:	**Parameter**	**Value**
	Type	Ethernet
NODE CHARACTERISTICS:	**Parameter**	**Value**
	Service	Enabled

If the parameters for your line, node, and circuit do not correspond to the values shown, use the appropriate ncp commands to change these values:

- The line and circuit must both be ON. If they are not, use the `ncp set line` and `set circuit` commands to set them to the ON state.
- The service on the node must be ENABLED. If it is not, use the `ncp set node service` command to enable service on the circuit.

- **Verify that the ChannelServer installation has been completed.**
  See the *DEC ChannelServer II Installation* or the *DEC ChannelServer Hardware Installation Guide* for details.
- **Enable event logging at the DECnet load host.**
  By default, all DECnet events are logged to the default console (`/dev/console`). SNA events are also sent by default to this device, and Digital recommends that you refer to the console device for event information. If you do not have a suitably configured console device, you can enable DECnet event logging to a terminal connected to the load host.

Note

To enable logging at a terminal connected to the load host, you need to be the superuser.

The following command sets up event logging at a special file for the terminal ttyp0. The events are logged in ASCII format.

```
ncp>  set logging console known events name /dev/ttyp0
```

For more information about DECnet event logging, see *DECnet-ULTRIX Network Management*.

- **Manage SNA event logging on the load host**
  By default, the Gateway sends all SNA-specific events to the snaevl (SNA event logger) utility on the load host, and snaevl logs them to the default console device /dev/console. You can direct the logging elsewhere if you do not have a suitably configured console device or if you wish to log SNA events somewhere else at load time. Do this by editing your SNA configuration script to include, as the first snancp command, a command like the following:

  ```
  set logging console name /dev/ttyp0 state on
  ```

  This command directs SNA event logging to the terminal ttyp0 as well as to the console device. (Note that you miss SNA events that are sent before the SNA configuration script is executed.)

3.3.2 Loading the Software

Use the ncp trigger node command or the trigger utility to start loading the Gateway-CT software. This section shows how to use ncp trigger node. For details about the trigger utility, type man trigger to see trigger man page.

Note

If you use the ncp load node command, a communications error will occur between the load host and the Gateway-CT. Use the ncp trigger node command instead.

If your terminal is logged into the load host, issue the ncp trigger node command using the following format:

```
ncp> trigger node node-id
```

where *node-id* identifies the name of the Gateway node. If a service password was defined for the Gateway node, include the password in the ncp trigger node command.

For example:

```
ncp> trigger node star service password ie3c41eab32d3bcd
```

The ncp trigger node command and the trigger utility set off a bootstrap mechanism in the ChannelServer that causes the unit to send a request-to-load message to all hosts on the Ethernet LAN. Gateway load hosts are configured to receive the message. The first load host that responds to the request-to-load message loads the Gateway-CT software into the Gateway node.

If no errors occur during loading, the event-logging terminal displays the following DECnet/SNA event messages, The exact messages and sequence might vary. These messages apply to a Gateway-CT node for which two circuits have been configured for line CQ-0.

```
DECnet/SNA event 266.10, Logging sink state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Logging sink type = monitor,  Severity = informational
Sink node = 4.576 (TIAMAT)
New state = on, old state = off

DECnet/SNA event 266.0, Gateway initialization
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Management,  Severity = informational
Started, DECnet/SNA Gateway-CT V2.1 BLn

DECnet/SNA event 266.2, Initialization message
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Management,  Severity = informational
Default node database loaded

DECnet/SNA event 266.2, Initialization message
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Management,  Severity = informational
Setting gateway DECnet configuration

DECnet/SNA event 266.2, Initialization message
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Management,  Severity = informational
Setting gateway SNA configuration
```

```
DECnet/SNA event 257.0, Circuit state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Circuit CHAN-0,  Severity = informational
New state = on-starting, old state = off

DECnet/SNA event 257.0, Circuit state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Circuit CHAN-1,  Severity = informational
New state = on-starting, old state = off

DECnet/SNA event 256.0, Line state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Line CQ-0,  Severity = informational
New state = on-starting, old state = off

DECnet/SNA event 256.0, Line state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Line CQ-0,  Severity = informational
New state = on, old state = on-starting
```

After the software has been loaded and initialized without errors, you should see the following display:

```
DECnet/SNA event 266.0, Gateway initialization
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Management,  Severity = informational
Complete, status = success

DECnet/SNA event 257.0, Circuit state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Circuit CHAN-0,  Severity = informational
New state = on, old state = on-starting

DECnet/SNA event 257.0, Circuit state change
From node 4.752 (STAR), dd-mmm-yyyy hh:mm:ss.cc
Circuit CHAN-1,  Severity = informational
New state = on, old state = on-starting
```

All initialization messages, whether errors or not, are reported to the DECnet/SNA event log. *DECnet/SNA Gateway-CT and Gateway-ST Management (ULTRIX)* lists and explains all initialization messages generated by the Gateway-CT software.

If you use `ncp trigger node` or the `trigger` utility at any node on the Ethernet LAN, and the Gateway node fails to start, *DECnet/SNA Gateway-CT Problem Solving (VMS and ULTRIX)* can help you find the source of failure. You can also try to power up the ChannelServer hardware unit to induce a downline load (see Section 3.3).

3.3.3 Checking the Connection Between the Gateway Node and the Load Host

After the Gateway-CT software loads, check the connection between the Gateway node and the load host. After the Gateway node starts up, verify that the link from the load host to the DECnet node is working properly, as follows:

- Ensure that the load host can communicate with the Gateway node; issue the `ncp` command `set executor node` with the Gateway node as the node name. If you receive an error message after entering this command, see *DECnet/SNA Gateway-CT Problem Solving (VMS and ULTRIX)* for help.
- Check the results of the `ncp set executor node` command; issue the following command:

  ```
  ncp> show executor status
  ```

  If you receive an error message after this command, see *DECnet/SNA Gateway-CT Problem Solving (VMS and ULTRIX)*. Also, check the event log for a message showing circuit activity with the DECnet node since the Gateway-CT was booted.

A

Files Installed on Your System

Table A–1 Installed DECnet/SNA Gateway-CT Files

Pathname	Description
/usr/lib/snagwy/snacsa210.sys	Gateway-CT image
/usr/lib/snagwy/snacsa210.release_notes	Gateway-CT release notes
/usr/lib/snagwy/snancp.hlbu	snancp help text
/usr/lib/snagwy/snatrace_tratbl	snatrace EBCDIC/DMCS translation table
/usr/lib/snagwy/msg394.plib	snancp message file
/usr/lib/snagwy/msg395.plib	snaevl message file
/usr/lib/snagwy/msg516.plib	snatrace message file
/usr/lib/snagwy/SNACSA_DESNX	Channel diagnostics
/usr/lib/snagwy/SNACSA_MDM	MicroVAX Diagnostics Monitor
/var/mop/SNACSA_DESNX	link to SNACSA_DESNX
/var/mop/SNACSA_MDM	link to SNACSA_MDM
/usr/lib/snagwy/bin/snatrace	tracing utility
/usr/lib/snagwy/bin/snancp	SNA Network Control Program
/usr/lib/snagwy/bin/snap	resource utilization monitor
/usr/bin/snancp	link to snancp
/usr/bin/snatrace	link to snatrace
/usr/bin/snap	link to snap

(continued on next page)

Table A–1 (Cont.) Installed DECnet/SNA Gateway-CT Files

Pathname	Description
/usr/lib/snagwy/etc/snaevl	event logging utility
/usr/lib/snagwy/etc/snaconfig	Gateway configuration utility
/usr/lib/snagwy/etc/snaini	Gateway initialization procedure
/usr/etc/snaconfig	link to snaconfig
/usr/etc/snaevl	link to snaevl
/usr/etc/snaini	link to snaini

B

Sample Listings for Installation and Verification

This appendix provides a listing of the following:

- An installation from tape media (without IVPs) of all the DECnet/SNA Gateway-CT subsets on a VAX/ULTRIX system. It is assumed that Gateway-CT has not been installed on the system earlier.
- An Installation Verification Procedure (IVP) for the Gateway-CT gateway management software
- An Installation Verification Procedure (IVP) for the Gateway-CT base software (the Gateway-CT image)
- An Installation Verification Procedure (IVP) for the Gateway-CT diagnostics

B.1 Installation of DECnet/SNA Gateway-CT on a VAX/ULTRIX System Using Tape Media

These notes apply to this section:

- Installation from a disk can generate a different order in the subset lists, and corresponding differences in system output and queries.
- If you choose to install a single subset, the system output and queries differ from those shown.
- The installation listing does not include Gateway-CT configuration. Chapter 3 has an example dialogue of the configuration procedure.

```
# cd /
# setld -l /dev/rmt0h

 *** Enter Subset Selections ***

 The subsets listed below are optional:
  1) DECnet/SNA Gateway Management        2) DECnet/SNA Gateway-CT Base Software
  3) DECnet/SNA Gateway Mgmt Man Pages    4) DECnet/SNA Gateway-CT Diagnostics

  5) All of the Above
  6) None of the Above
  7) Exit without installing subsets

 Enter your choice(s): 5

 You are installing the following subsets:
    DECnet/SNA Gateway Management           DECnet/SNA Gateway-CT Base Software
    DECnet/SNA Gateway Mgmt Man Pages       DECnet/SNA Gateway-CT Diagnostics

 Is this correct? (y/n): y

 Copying DECnet/SNA Gateway Management (CTVGM100) from tape
 Verifying DECnet/SNA Gateway Management (CTVGM100)

 Copying DECnet/SNA Gateway-CT Base Software (CTVBASE210) from tape
 Verifying DECnet/SNA Gateway-CT Base Software (CTVBASE210)

 Copying DECnet/SNA Gateway Mgmt Man Pages (CTVMAN100) from tape
 Verifying DECnet/SNA Gateway Mgmt Man Pages (CTVMAN100)

 Copying DECnet/SNA Gateway-CT Diagnostics (CTVDIAG210) from tape
 Verifying DECnet/SNA Gateway-CT Diagnostics (CTVDIAG210)

 Beginning DECnet/SNA Gateway Management Installation.
 (c) Digital Equipment Corporation. 1991. All Rights Reserved.

 The procedure now prompts you to run the IVP as part of this installation.
 However, you can invoke the IVP at any time by executing the command:

       setld -v CTVGM100

 Do you wish to run the IVP for DECnet/SNA Gateway Management? (y/n) [y]: n

 Ending DECnet/SNA Gateway Management installation with success.

 Beginning DECnet/SNA Gateway-CT V2.1 Base Software Installation.
 (c) Digital Equipment Corporation. 1991. All Rights Reserved.

 The procedure now prompts you to run the IVP as part of this installation.
 However, you can invoke the IVP at any time by executing the command:

        setld -v CTVBASE210

 Do you wish to run the IVP for DECnet/SNA Gateway-CT? (y/n) [y]: n

 Ending DECnet/SNA Gateway-CT V2.1 Base Software installation with success.

 Do you wish to configure your DECnet/SNA Gateway-CT node? (y/n) [y]: n
```

```
If you decide to configure the DECnet/SNA Gateway-CT node later,
execute the following command:

       /usr/etc/snaconfig ct

Beginning DECnet/SNA Gateway Management Man Pages V1.0 installation
© Digital Equipment Corporation. 1991. All Rights Reserved.

Ending DECnet/SNA Gateway Management Man Pages V1.0 installation with success

Beginning DECnet/SNA Gateway-CT V2.1 Diagnostics Installation.
(c) Digital Equipment Corporation. 1991. All Rights Reserved.

The procedure now prompts you to run the IVP as part of this installation.
However, you can invoke the IVP at any time by executing the command:

        setld -v CTVDIAG210

Do you wish to run the IVP for DECnet/SNA Gateway-CT Diagnostics? (y/n) [y]: n

Please note that although the Gateway-CT diagnostics images installed on
an ULTRIX load host are identical to those installed on a VMS load host,
their names are different.  For an ULTRIX load host the underscore
character (_) replaces the dollar sign character ($).  The ULTRIX
load host diagnostics image names are SNACSA_DESNX and SNACSA_MDM.

Ending DECnet/SNA Gateway-CT V2.1 Diagnostics installation with success.
```

B.2 Installation Verification for DECnet/SNA Gateway-CT on a VAX/ULTRIX System

B.2.1 IVP for the Gateway Management Subset Software

```
# setld -v CTRGM100
Checking setld data files.

Beginning DECnet/SNA Gateway Management IVP.

The IVP ensures that the required files have been correctly installed from
the kit and that the management utilities are functioning properly.

Files ok...
snaini ok...
snaconfig ok...
snap ok...
snancp ok...
snatrace ok...

Ending DECnet/SNA Gateway Management IVP with success.
```

B.2.2 IVP for Base Software

```
# setld -v CTVBASE210
Checking setld data files.

Beginning DECnet/SNA Gateway-CT V2.1 IVP.

The IVP ensures that the required files have been correctly installed
from the kit, that the proxy authorization file dnet_proxy exists, and
that the directory /var/snagwy exists for creating DECnet/SNA Gateway-CT
configuration files.

Files ok...
Proxy file ok...
Directory ok...

Ending DECnet/SNA Gateway-CT V2.1 IVP with success.
```

B.2.3 IVP for Diagnostics Software

```
# setld -v CTVDIAG210
Checking setld data files.

Beginning DECnet/SNA Gateway-CT V2.1 Diagnostics IVP.

The IVP ensures that the required files have been correctly installed
from the kit.

Files ok...

Ending DECnet/SNA Gateway-CT V2.1 Diagnostics IVP with success.
```

C

Gateway-CT Configuration Worksheet

This appendix contains a blank configuration questionnaire for you to copy and use when preparing to configure the Gateway-CT. Chapter 1 describes the information you need to complete the questionnaire.

GATEWAY CONFIGURATION WORKSHEET

Gateway Node Name: _____

Part 1: Gateway Definition in Load Host

Gateway Node Address: _____
Ethernet H/W Address: _____
Host's Ethernet Circuit Name: _____
Dump File Device and Directory: _____

Part 2: SNA Database in the Gateway

Line CQ–0

Number of Circuits: _____
Channel Type: _____
(Byte/Block/Selector)
Forced Burst: _____
(Byte only)
Line Buffer Size: _____

Circuits

Circuit Name: _____ _____ _____ _____
Channel Address: _____ _____ _____ _____

PUs

PU Name: _____ _____ _____ _____
LU List: _____ _____ _____ _____

Access Names

Access Name: _____
PU Name: _____ _____ _____ _____
LU List: _____ _____ _____ _____
IBM Application Name: _____
IBM Logon Mode Name: _____
IBM User Data: _____

Server

LU List for DHCF: _____

Part 3: DECnet Database in the Gateway

Privileged Username: _____
Privileged Password: _____
DECnet Service Password: _____

GATEWAY CONFIGURATION WORKSHEET

Access Names

Access Name:	
PU Name:	
LU List:	
IBM Application Name:	
IBM Logon Mode Name:	
IBM User Data:	

Access Name:	
PU Name:	
LU List:	
IBM Application Name:	
IBM Logon Mode Name:	
IBM User Data:	

Access Name:	
PU Name:	
LU List:	
IBM Application Name:	
IBM Logon Mode Name:	
IBM User Data:	

Access Name:	
PU Name:	
LU List:	
IBM Application Name:	
IBM Logon Mode Name:	
IBM User Data:	

Access Name:	
PU Name:	
LU List:	
IBM Application Name:	
IBM Logon Mode Name:	
IBM User Data:	

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