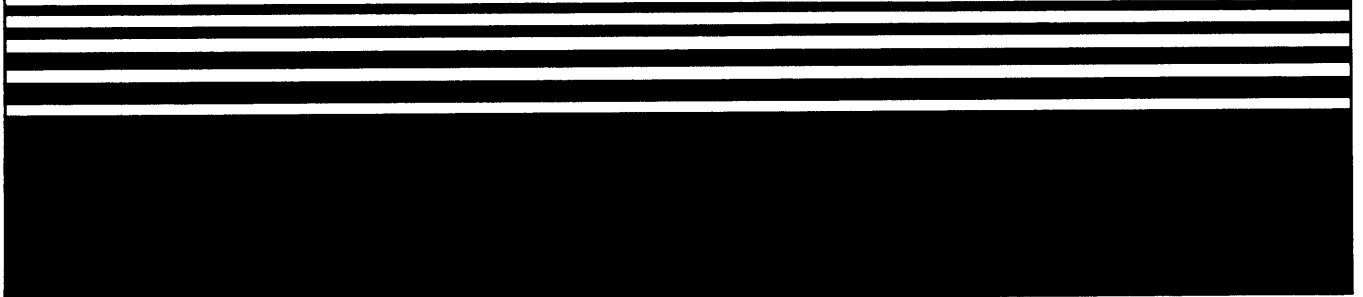


DNOS DNCS Nucleus *Object Installation*

Part No. 2302660-9701 *C
February 1985



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Printed in U.S.A.

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|
| READ THIS DOCUMENT BEFORE ATTEMPTING TO USE THE OBJECT KIT.
| THIS DOCUMENT DESCRIBES RELEASE 1.3.0 OF THE DNCS NUCLEUS
| OBJECT INSTALLATION MEDIA, PART NUMBER 2276803-1601 (DISK OR
| TAPE), 2276803-1602 (DISKETTE), 2276803-1603 (DISKETTE), AND
| 2276803-1604 (DISKETTE). REFER TO THE RELEASE INFORMATION,
| PART NUMBER 2276805-9901, FOR ADDITIONAL INFORMATION.
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Section 1

Introduction

1.1 GENERAL INFORMATION

This document describes the installation of the Distributed Network Communication System (DNCS) nucleus object under the Distributed Network Operating System (DNOS).

Make a backup copy of the released object before executing the installation procedures. For copy procedures, refer to the DNOS Operations Guide, part number 2270502-9701.

Consult the DNOS DNCS Nucleus Release Information, release 1.3.0, part number 2276805-9901, for additional information concerning the current release.

This installation document presents many System Command Interpreter (SCI) commands in batch format. You can execute these commands either by entering the entire command as shown, or by entering only the command keyword and responding to the interactive prompts. For a discussion of the batch command format, refer to the DNOS System Command Interpreter (SCI) Reference Manual, part number 2270503-9701.

1.2 MEDIA DEFINITION

Product shipments are made in the following formats:

- * Disk -- A DS10, DS50, DS80, DS200, DS300, or CD1400 disk containing the object
- * Diskette -- Three double-sided, double-density (DSDD) diskettes containing the object
- * Magnetic Tape -- A cartridge tape or an 800 or 1600 bits-per-inch (bpi) magnetic tape containing the object
- * Add-On -- A disk containing the object and one or more other products

1.3 INSTALLATION OVERVIEW

The installation process described in this document provides the steps required to prepare the DNCS nucleus object media, generate a DNOS system that includes DNCS communications support, and install the DNCS product tasks required by your DNCS configuration. These procedures are outlined as follows:

- * Prepare the DNCS nucleus object media.
- * Prepare other DNCS product object media.
- * Install the DNCS communications support.
- * Generate the DNOS system.
- * Assemble and link the DNOS system.
- * Patch the DNOS system.
- * Generate the DNCS configuration.
- * Assemble and link the DNCS configuration.
- * Patch and install the DNCS configuration.

If your network configuration requires that DNCS serve as a gateway, an additional step is required. The DNCS client software must be installed on each client requiring gateway access.

1.4 SYSTEM REQUIREMENTS

To perform these installation procedures successfully, you must have a DNOS operating system (Release 1.2.1 or later) running on a Business System 300, 600, or 800 Computer with at least 512K bytes of memory.

Consult the DNOS DNCS Nucleus Release Information, release 1.3.0, part number 2276805-9901, for additional information concerning memory needed to satisfactorily execute your DNCS configuration.

1.5 NON-DNCS COMMUNICATIONS PRODUCTS

The DNCS nucleus uses the DNOS Common Communications Device Service Routine Software (DNCSMO). DNCSMO is located on the DNOS system disk in the directory .S\$OSLINK.DNCSMO. DNCSMO, in addition to supporting the DNCS nucleus, also currently supports the following non-DNCS communications products: 3270 Interactive Communications Software (ICS), 3780/2780 Emulators, and Remote Terminal Subsystem (RTS).

If you want to include any of these communications products along with DNCS in your system, review the object installation guides for these products before beginning the DNCS nucleus installation procedure.

1.6 RESERVED NAMES

The directory names S\$DGU\$ and S\$DNCS are used during DNCS generation and installation. These names are reserved and must not exist prior to the initial installation of DNCS. The directory S\$DNCS is also created at a client site during client installation. It must not exist at a client site prior to initial installation at that client site.

DNCS procedures assign and delete various synonyms during execution. All such synonyms contain the character \$. To avoid possible conflict, the user should not define synonyms containing the character \$.

Section 2

Preparing for Installation

2.1 GENERAL

The DNCS nucleus object is supplied on various media and must be prepared prior to installation. The media must be restored to disk (if supplied on magnetic tape), copied to disk (if supplied on diskette), or used directly (if supplied on disk). This section describes how to prepare each type of media.

After completing the nucleus media preparation, you must then complete media preparation for each DNCS product as described in each object installation guide.

Media preparation requires that all DNCS product object packages be available on or copied to a single DNCS parts volume. You must define the DNCS parts volume during nucleus media preparation as described in this section. Since the DNCS parts volume must be large enough to hold all DNCS-related products, the disk volume must be a CD1400 or larger.

2.2 DSDD DISKETTE FORMAT

When you receive the object on DSDD diskettes, perform the following steps:

1. Enable the write protection for the DNCS nucleus object diskettes DCFWOF1, DCFWOF2, and DCFWOF3 by carefully removing the silver sticker from each diskette.
2. Create the DNCS nucleus object directory on an available disk by using the Create Directory File (CFDIR) command as follows:

```
CFDIR P=<dncsvolume>.DCFWD, M=50
```

where:

<dncsvolume> is the name of the disk where you create the directory. It is also now the name of the DNCS parts volume.

3. Assign the synonym DCFWO to the DNCS nucleus object directory by using the Assign Synonym (AS) command as follows:

```
AS S=DCFWO, V=<dncsvolume>.DCFWO
```

where:

<dncsvolume> is the name of the DNCS parts volume.

4. Load diskette DCFWOF1 in an available drive and make it ready.
5. Install the diskette volume by using the Install Volume (IV) command as follows:

```
IV U=<dsxx>, V=DCFWOF1
```

where:

<dsxx> is the name of the drive where the diskette is loaded.

6. Copy the contents of the diskette to the DNCS nucleus object directory by using the Copy Directory (CD) command as follows:

```
CD I=DCFWOF1, O=DCFWO, L=.LISTING
```

The file .LISTING contains a listing of the directory copied from diskette. Check this file for errors by using the Show File (SF) or Print File (PF) command.

7. Unload the diskette volume by using the Unload Volume (UV) command as follows:

```
UV V=DCFWOF1
```

8. Remove diskette DCFWOF1 from the drive. Load diskette DCFWOF2 in the drive and make it ready.

9. Install the diskette volume by using the IV command as follows:

```
IV U=<dsxx>, V=DCFWOF2
```

where:

<dsxx> is the name of the drive where the diskette is loaded.

10. Copy the contents of the diskette to the DNCS nucleus object directory by using the CD command as follows:

```
CD I=DCFWOF2, O=DCFWD, L=.LISTING
```

The file .LISTING contains a listing of the directory copied from diskette. Check this file for errors by using the SF or PF command.

11. Unload the diskette volume by using the UV command as follows:

```
UV V=DCFWOF2
```

12. Remove diskette DCFWOF2 from the drive. Load diskette DCFWOF3 in the drive and make it ready.

13. Install the diskette volume by using the IV command as follows:

```
IV U=<dsxx>, V=DCFWOF3
```

where:

<dsxx> is the name of the drive where the diskette is loaded.

14. Copy the contents of the diskette to the DNCS nucleus object directory by using the CD command as follows:

```
CD I=DCFWOF3, O=DCFWD, L=.LISTING
```

The file .LISTING contains a listing of the directory copied from diskette. Check this file for errors by using the SF or PF command.

15. Unload the diskette volume by using the UV command as follows:

```
UV V=DCFWOF3
```

16. Remove diskette DCFWOF3 from the drive.

17. Proceed to paragraph 2.6 to continue the installation.

2.3 DISK FORMAT

When you receive the object on disk, perform the following steps:

1. Load the DNCS nucleus object disk DCFWO in an available drive and make it ready. Disable the disk write protection.
2. Install the disk volume by using the Install Volume (IV) command as follows:

```
IV U=<dsxx>, V=<dncsvolume>
```

where:

<dsxx> is the name of the drive where the disk is loaded.

<dncsvolume> is DCFWO, which is also now the name of the DNCS parts volume.

3. Proceed to paragraph 2.6 to continue the installation.

2.4 MAGNETIC TAPE FORMAT

When you receive the object on magnetic tape, copy it to a disk as follows:

1. Create the DNCS nucleus object directory on an available disk by using the Create Directory File (CFDIR) command as follows:

```
CFDIR P=<dncsvolume>.DCFWD, M=50
```

where:

<dncsvolume> is the name of the disk where you create the directory. It is also now the name of the DNCS parts volume.

2. Assign the synonym DCFWD to the DNCS nucleus object directory by using the Assign Synonym (AS) command as follows:

```
AS S=DCFWD, V=<dncsvolume>.DCFWD
```

where:

<dncsvolume> is the name of the DNCS parts volume.

3. Enable the magnetic tape write protection. Then mount the tape on an available tape drive and make it ready.
4. Copy the contents of the tape to the DNCS nucleus object directory by using the Restore Directory (RD) command as follows:

```
RD S=<mtxx>, D=DCFWD, L=.LISTING
```

where:

<mtxx> is the name of the drive where the tape is mounted.

The file .LISTING contains a listing of the directory restored from magnetic tape. Check this file for errors by using the Show File (SF) or Print File (PF) command.

5. Unload the tape.
6. Proceed to paragraph 2.6 to continue the installation.

2.5 ADD-ON FORMAT

When you receive the object as an add-on, perform the steps in either paragraph 2.5.1 or 2.5.2 depending on whether the add-on is received on the DNOS system disk or on a secondary disk.

2.5.1 DNOS System Disk Add-On

If you receive the DNCS nucleus object add-on on the DNOS system disk and the system is running under that disk, perform the following steps:

1. Assign the synonym DCFWO to the DNCS nucleus object directory by using the Assign Synonym (AS) command as follows:

```
AS S=DCFWO, V=<dncsvolume>.DCFWO
```

where:

<dncsvolume> is the name of the DNOS system disk. It is also now the name of the DNCS parts volume.

2. Proceed to paragraph 2.6 to continue the installation.

2.5.2 Secondary Disk Add-On

If you receive the DNCS nucleus object add-on on a secondary disk, perform the following steps:

1. Load the disk on which you received the add-on in an available drive and make it ready. Disable the disk write protection.
2. Install the disk volume by using the Install Volume (IV) command as follows:

```
IV U=<dsxx>, V=<dncsvolume>
```

where:

<dsxx> is the name of the drive where the disk is loaded.

<dncsvolume> is the volume name of the add-on disk. It also becomes the name of the DNCS parts volume.

3. Assign the synonym DCFWO to the DNCS nucleus object directory by using the Assign Synonym (AS) command as follows:

```
AS S=DCFWO, V=<dncsvolume>.DCFWO
```

where:

<dncsvolume> is the name of the DNCS parts volume.

4. Proceed to paragraph 2.6 to continue the installation.

2.6 MEDIA PREPARATION COMPLETION

Before proceeding to the next section, you must prepare each DNCS product media for installation as described in each object installation guide.

When you have prepared the last DNCS product media, proceed to Section 3 to continue the installation.

Section 3

Installing the DNCS Communications Support

3.1 GENERAL

The procedures in this section describe how to install the DNCS communications support.

3.2 INSTALLING DNCS COMMUNICATIONS DSR LINKABLE PARTS

The DNCS nucleus object directory DCFWO.DNCMO contains the required DNCS communications Device Service Routine (DSR) linkable parts. These parts must be installed on the directory .S\$OSLINK.DNCMO.

Perform the following steps to install the DNCS Communications DSR linkable parts:

1. Enter the following command to access the DNCS Communications DSR installation SCI procedures:

```
.USE DCFWO.RELEASE.PROC,.S$CMDS
```

2. Install the DNCS Communications DSR installation procedures by using the Install Communications Commands (ICC) command as follows:

```
[ ]ICC
```

```
INSTALL COMMUNICATIONS COMMANDS  
DNCS NUCLEUS DIRECTORY: DCFWO  
SYSGEN DATA VOLUME:
```

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The proper response is DCFWO.

SYSGEN DATA VOLUME

Enter the access name of the volume or directory containing the DNCS system generation parts directory (.S\$OSLINK). The response to this prompt must be the same volume name that will be entered in response to the DATA DISK/VOLUME prompt in the Execute System Generation Utility (XSGU) command. The response cannot be a device name, such as DS01.

3. Wait for ICC to complete by using the Wait for Background Task to Complete (WAIT) command as follows:

```
[ ]WAIT
```

4. When ICC completes, the following message appears:

```
BATCH SCI HAS COMPLETED
```

Press the Return key to receive the following additional message:

```
x ERRORS IN ICC BATCH STREAM
```

If the number of errors reported is nonzero, examine the batch file listing <DCFWD>.BL.ICC to determine the cause of the error(s). Correct the error(s) and start again with step 1.

3.3 INSTALLING DNCMD COMMUNICATIONS UTILITY COMMANDS

DNCMD provides common communications utility commands that you update by using the Install Communications Utilities Commands (IUC) command. Install the updated utility commands by performing the following steps:

1. Enter the following command to access the DNCMD utility commands installation SCI procedures:

```
.USE <sysgen volume>.$OSLINK.DNCMD.$CMDS
```

where:

<sysgen volume> is the access name of the volume or directory containing the DNOS system generation parts directory (. \$OSLINK).

2. Install the DNCMD utility command updates by using the IUC command as follows:

```
[ ]IUC
```

```
INSTALL COMMUNICATIONS UTILITIES COMMANDS  
SYSGEN DATA DISK/VOLUME:  
LISTING DIRECTORY NAME:
```

SYSGEN DATA DISK/VOLUME

Enter the access name of the volume or directory containing the DNOS system generation parts directory (.S\$OSLINK). The response to the prompt must match the response to the SYSGEN DATA VOLUME prompt in the ICC command.

LISTING DIRECTORY NAME

Enter the directory pathname to be used for listings. IUC creates this directory and further creates the batch listing subdirectory .BL. The recommended pathname is DCFWO.

3. When IUC completes, the following message appears:

BATCH SCI HAS COMPLETED

Press the Return key to receive the following additional message:

x ERRORS IN PATCH STREAM <directory>.BL.DNPPCOMM

where:

<directory> is the pathname entered in response to the LISTING DIRECTORY NAME prompt of the IUC command.

If the number of errors reported is nonzero, examine the batch listing file to determine the cause of the error(s). Correct the error(s) and start again with step 1.

NOTE

IUC executes the following command to change the SCI installation procedures library for the remaining commands in this section:

.USE <sysgen volume>.S\$OSLINK.DNCMD.S\$CCMDS..S\$CMDS

3.4 INSTALLING DNCMD COMMUNICATIONS CONTROLLER UTILITIES

DNCMD provides common communications controller utilities which you install by using the Install Utility Tasks (IUT) command.

3.4.1 Installing the Utilities

Install the download utilities by using the IUT command as follows:

```
[ ]IUT
```

INSTALL UTILITY TASKS

SYSGEN DATA DISK/VOLUME:

TARGET DISK/VOLUME:

BATCH LISTING ACCESS NAME:

SYSGEN DATA DISK/VOLUME

Enter the access name of the volume or directory containing the DNOS system generation parts directory (.S\$OSLINK). The response to this prompt must match the response to the DATA DISK/VOLUME prompt in the XSGU command.

TARGET DISK/VOLUME

Enter the access name of the disk where the newly generated system resides. This disk must already be installed. The response to this prompt must match the response to be entered for the TARGET DISK/VOLUME prompt in the ALGS command.

BATCH LISTING ACCESS NAME

Enter the pathname of the file designated to hold the batch listing generated by the utility task installation process. The recommended pathname is DCFWD.BL.IUTLST.

When you enter the response to the last prompt, the utility task installation process begins. When IUT completes, the following message appears:

```
BATCH SCI HAS COMPLETED
```

Press the Return key to receive the following additional message:

```
x ERRORS REPORTED IN BATCH UTLINS
```

If the error count is nonzero, examine the batch listing file to determine the cause of the error(s). Then take the appropriate corrective action and reenter the IUT command.

3.4.2 Patching the Utility Tasks

Patch the utility tasks by using the Patch Utility Tasks (PUT) command as follows:

[PUT

PATCH UTILITY TASKS

SYSGEN DATA DISK/VOLUME:

TARGET DISK/VOLUME:

BATCH LISTING ACCESS NAME:

SYSGEN DATA DISK/VOLUME

Enter the access name of the volume or directory containing the DNOS system generation parts directory (.S\$OSLINK). The response to this prompt must match the response to the DATA DISK/VOLUME prompt in the XSGU command.

TARGET DISK/VOLUME

Enter the access name of the disk where the utility tasks are installed. The tasks located on this disk are on the program file .S\$COMM.S\$COMMDN. The response to this prompt must match the response to be entered for the TARGET DISK/VOLUME prompt in the ALGS command.

BATCH LISTING ACCESS NAME

Enter the pathname of a file designated to hold the batch listing generated by the patch utility process. The recommended pathname is DCFWD.BL.PUTLST.

When you enter the response to the last prompt, the patching process begins. When PUT completes, the following message appears:

x ERRORS IN UTLPAT PATCH STREAM

If the error count is nonzero, examine the batch listing file to determine the cause of the error(s). Then take the appropriate corrective action and reenter the PUT command.

3.5 INSTALLING NON-DNCS COMMUNICATIONS DSR LINKABLE PARTS

If the system you are building is to include non-DNCS communications products (such as 3780/2780, 3270 ICS, or RTS), you must complete the Install Communications Command (ICC) procedures for each product before DNOS ALGS. At this time, execute the installation procedures for each additional communications product.

When you have completed these installation procedures, proceed to Section 4 to continue the installation.

Section 4

Generating a DNOS System with DNCS Communications Support

4.1 GENERAL

The procedures in this section describe how to generate a DNOS system with DNCS communications support. If a DNOS system already exists with the proper support, proceed to Section 5 to continue the installation.

4.2 PLANNING THE DNCS SYSTEM

You must have completed your DNCS configuration planning before continuing with this section. Planning a DNCS configuration involves deciding which resources to make available to DNCS and recording their characteristics on DNCS planning forms. Refer to the DNCS System Generation Reference Manual, part number 2302648-9701, for a description of this process.

4.3 GENERATING THE DNOS SYSTEM

To generate the DNOS operating system, you use the Execute System Generation Utility (XSGU) command. The DNOS System Generation Reference Manual, part number 2270511-9701, documents this process. Before you generate the DNOS system, refer to the DNCS System Generation Reference Manual, part number 2302648-9701, for an overview of the relationship between the DNOS and DNCS system generation processes.

4.3.1 Site Name

During DNOS system generation you will be prompted for SITE NAME. This name identifies the installation for which you are performing this system generation that includes DNCS communications support. You must remember this name because it must be entered again in response to the GATEWAY SITE NAME prompt defined in the next section.

4.3.2 DNCS IPC Support Definition

The DNCS nucleus requires the DNCS interprocess communication (DNCS IPC) facility for communications with DNCS/SNA Emulators, DNCS X.25 RFT, DNCS XCI, and X.25 NIO. Each of these functions requires separate DNCS IPC facilities. You include DNCS IPC support during the DNOS system generation process. The system generation responses for defining DNCS IPC as a communication device are:

```
ENTITY? DVC
DEVICE TYPE? COM
BOARD TYPE? DIPC
CHANNEL NUMBER 00 PROTOCOL? CMNS
CHANNEL NUMBER 01 PROTOCOL? CMNS
NUMBER OF SESSIONS? <integer>
```

where:

<integer> is the maximum number of concurrent sessions for the DNCS IPC channel. The initial value for <integer> is 10, and the valid range is 1 through 255. The value you enter should match the number of sessions you plan to have on the DNCS IPC device CMxx (where xx equals the device number). Your completed DNCS generation planning forms provide this information.

For a CIPC circuit, the number of sessions should be the same as the number of stations. The CI, RFT, and NIO circuits require only one session each.

4.3.3 DNCS Communications Device Support Definition

The DNCS nucleus requires the DNOS Common Communications DSRs to support communication devices. You include this support during the DNOS system generation process.

The system generation responses for including a CP503 (four channel communications controller (FCCC)) board with all four channels used for DNCS communications are:

```
ENTITY? DVC
DEVICE TYPE? COM
BOARD TYPE? CP503
TILINE ADDRESS? <address>
CHANNEL NUMBER 00 PROTOCOL? <protocol>
CHANNEL NUMBER 01 PROTOCOL? <protocol>
CHANNEL NUMBER 02 PROTOCOL? <protocol>
CHANNEL NUMBER 03 PROTOCOL? <protocol>
INTERRUPT? <interrupt>
```

where:

<address> is the TILINE address of the CP503.

<protocol> is either COMA or SDLC. COMA designates a download protocol. SDLC designate a DSR protocol.

<interrupt> is the interrupt level of the board.

When you enter COMA as a channel protocol, the following prompt appears:

ACU CRU ADDRESS?

DNCS does not support an ACU. Accept the default value >FFFF by pressing the Return key.

The system generation responses for including a CP501 bit-oriented/character-oriented/asynchronous interface module (BCAIM) board, CP502 (X.21 BCAIM) board, or CI421 (ALPHA) board for DNCS communications are:

ENTITY? DVC
DEVICE TYPE? COM
BOARD TYPE? <board>
CRU ADDRESS? <address>
CHANNEL NUMBER OO PROTOCOL? <protocol>
INTERRUPT? <interrupt>

where:

<board> is CP501, CP502, or CI421.

<address> is the CRU address of the board.

<protocol> is SDLC or LAP.

<interrupt> is the interrupt level of the board.

4.4 ASSEMBLING AND LINKING THE DNOS SYSTEM

Assemble and link the DNOS system by using the Assemble and Link Generated System (ALGS) command as explained in the DNOS System Generation Reference Manual, part number 2270511-9701. When this phase completes successfully, proceed to patch the DNOS system and the communications DSRs as described in the next paragraph.

4.5 PATCHING THE DNOS SYSTEM AND THE COMMUNICATIONS DSRs

After successfully assembling and linking the system, apply the necessary patches to the DNOS system and the communications DSRs. Use the Patch Generated System (PGS) command as explained in the DNOS System Generation Reference Manual, part number 2270511-9701 to apply both the DNOS system patches and the Communications DSR patches.

4.6 INSTALLING THE DNOS SYSTEM

Install the generated system by using the Test Generated System (TGS) and Install Generated System (IGS) commands as explained in the DNOS System Generation Reference Manual, part number 2270511-9701.

After entering TGS (or IGS), the DNOS system with DNCS communications support is ready for IPL. The IPL step is executed after completing the DNCS configuration installation explained in Section 5.

Proceed to Section 5 to continue the installation.

Section 5

Generating and Installing DNCS Configurations

5.1 GENERAL

The procedures in this section describe how to generate, patch, and install tasks that support your DNCS configuration. Before you attempt this section, make sure that the appropriate DNCS system generation planning forms have been completed.

5.2 GENERATING THE DNCS CONFIGURATION

Perform the following steps to generate the DNCS configuration:

1. Verify that the DNCS nucleus volume DCFWO is installed or the synonym DCFWO is assigned to the DNCS nucleus object directory as explained in Section 2.
2. Verify that the other required DNCS product media synonyms DCEMO, DCRFTO, and DC9140 exist as a result of media preparation explained in Section 2. The values for these three synonyms are the pathnames of the directories containing the SNA emulators, X.25 RFT, and 914A object media respectively.
3. Enter the following command to access the DNCS configuration object installation SCI procedures:

.USE DCFWO.RELEASE.PROC..S\$CMDS

4. Patch the DNCS generation utility by using the Patch DNCS Generation Utility (PDGU) command as follows:

[]PDGU

PATCH DNCS GENERATION UTILITY
 DNCS NUCLEUS DIRECTORY: DCFWO
 DNOS SYSTEM VOLUME:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The proper response is DCFWO.

DNOS SYSTEM VOLUME

Enter the volume name of the DNOS system disk.

The following messages appear after you enter PDGU. Respond to each message by pressing the Return key.

BATCH LISTING FILE WILL BE...:

'<dcfwo>.PATCH.LSTGEN':

where:

<dcfwo> is the value entered for the DNCS NUCLEUS DIRECTORY prompt (synonym expanded).

5. Wait for PDGU to complete by using the WAIT command as follows:

[]WAIT

6. When PDGU completes, the following message appears:

x ERRORS IN DNCSGEN PATCH STREAM:

If the number of errors reported is nonzero, examine the batch file listing <dcfwo>.PATCH.LSTGEN to determine the cause of the error(s). Correct the error(s) and reenter PDGU.

7. Execute the DNCS generation utility by using the Execute DNCS Generation Utility (XDGU) command as follows:

[]XDGU

EXECUTE DNCS GENERATION UTILITY
DNCS NUCLEUS DIRECTORY: DCFWO
DNCS GENERATION DIRECTORY:
INPUT CONFIGURATION:
OUTPUT CONFIGURATION:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWO, the value entered in the PDGU command.

DNCS GENERATION DIRECTORY

Enter the volume name or existing directory pathname desired for the DNCS configuration files. The directory .S\$DGU\$ is created under this directory to hold the configuration files.

INPUT CONFIGURATION

Enter the name of the DNCS configuration to be modified, if desired. Otherwise, no name is required.

OUTPUT CONFIGURATION

Enter the name of the DNCS configuration to be built. The names RFTOBJ and S\$CLIENT are reserved and should not be used.

NOTE

Refer to the DNCS System Generation Reference Manual, part number 2302648-9701, for a complete description of the XDGU process.

8. Upon normal termination of the DNCS generation utility, the following prompt appears:

VERIFY CONFIGURATION?:

Verify the DNCS configuration by entering YES.

9. Wait for verification to complete by using the WAIT command as follows:

[JWAIT

10. When verification completes, the following message appears:

BATCH SCI HAS COMPLETED

Press the Return key to receive one of the following additional messages:

CONFIGURATION BUILT SUCCESSFULLY

The verification process has completed successfully. Proceed to assemble and link the DNCS configuration as described in the next paragraph.

ERROR DETECTED IN CONFIGURATION DEFINITION
SEE LISTING FILE <pathname>

Press the Return key to get the second line of the message. Then inspect the listing file to determine the nature of the error(s). Refer to the DNCS System Generation Reference Manual, part number 2302648-9701, for a complete explanation of verification errors. Reenter XDGU and make the necessary corrections.

CONFIGURATION BUILD ABORTED

An abnormal condition exists that prevents completion of the verification process. Reenter XDGU, terminate the session normally, and verify the configuration again. If the verification does not complete successfully, call your customer representative.

5.3 ASSEMBLING AND LINKING THE DNCS CONFIGURATION

Perform the following steps to assemble and link the DNCS configuration:

1. Assemble and link the DNCS configuration by using the Assemble and Link DNCS Configuration (ALDC) command as follows:

[]ALDC

ASSEMBLE AND LINK DNCS CONFIGURATION
 DNCS NUCLEUS DIRECTORY: DCFWD
 DNCS GENERATION DIRECTORY:
 CONFIGURATION:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWD, the value entered in the XDGU command.

DNCS GENERATION DIRECTORY

Enter the directory pathname where the DNCS configuration files reside. The default is the value entered in the XDGU command. Otherwise, enter the directory pathname containing the .S\$DGU\$ directory.

CONFIGURATION

Enter the name of the DNCS configuration. The default is the value entered for the CONFIGURATION prompt in the XDGU command.

After you enter the configuration name, the following prompts appear if you include RFT, SNA Emulators, or 914A Terminal Support in the configuration:

DNCS X.25 RFT DIRECTORY: DCRFTO
 DNCS/SNA EMULATOR DIRECTORY: DCEMO
 DNCS 914A DIRECTORY: DC9140

DCRFTO is the proper response for the X.25 RFT directory, DCEMO is the proper response for the SNA

Emulator directory, and DC9140 is the proper response for the 914A directory.

The following messages appear after you enter ALDC. Respond to each message by pressing the Return key.

BATCH STATUS FILE WILL BE...:

'<custom>.LIST.ERRLOGxx':

where:

<custom> is the pathname defined by the concatenation of the DNCS GENERATION DIRECTORY response, the value .S\$DGU\$, and the CONFIGURATION response.

xx is the station ID.

2. Wait for ALDC to complete by using the WAIT command as follows:

[]WAIT

3. When ALDC completes, the following message appears:

BATCH SCI HAS COMPLETED

Press the Return key to receive the following additional message:

==>x ERRORS IN ALDC BATCH STREAM

If the number of errors is nonzero, examine the files <custom>.LIST.ERRLOGxx and <custom>.LIST.ALDC to determine the cause of the error(s). Correct the error(s) and reenter ALDC.

The ALDC process uses the <custom> directory for staging the DNCS installable parts. This allows multiple configurations to be created on the same disk. Refer to appendix A for more information on how to manage multiple configurations.

The next paragraph describes how to patch the configuration and install a selected configuration. Refer to Appendix A for additional information on this procedure.

Proceed to paragraph 5.4 to continue the installation.

5.4 PATCHING/INSTALLING THE DNCS CONFIGURATION

Perform the following steps to patch and install the DNCS configuration:

1. Patch/Install the DNCS configuration by using the Patch/Install DNCS Configuration (PIDC) command as follows:

```
[ ]PIDC
```

```
PATCH/INSTALL DNCS CONFIGURATION
CONFIGURATION:
    PATCH?: YES
    INSTALL?: YES
    CLIENT FILES?: NO
```

CONFIGURATION

Enter the name of the DNCS configuration. The default is the name entered in the ALDC command.

PATCH?

Enter YES to apply configuration patches. Patches must be applied to the configuration before it can be installed for execution.

INSTALL?

Enter YES to install the configuration for execution.

CLIENT FILES?

Enter NO if you are building a DNCS system which will not be used to support client sites. Files for client installation will not be built in this case. Enter YES if you are building a DNCS system which will be used to support client sites. Files for client installations will be built in this case.

After you answer the above questions as indicated, the following prompts appear:

```
GATEWAY PARAMETERS
    GATEWAY SITE NAME: <site name>
    GATEWAY USER ID:
    GATEWAY PASSCODE:
    GATEWAY ACCOUNT ID:
```

GATEWAY SITE NAME

Enter the DNOS site name for this DNCS configuration. The default is the site name of the executing DNOS system. Otherwise, enter the site name of the DNOS system that includes DNCS communications support for this configuration.

GATEWAY USER ID

Enter a valid user ID at the gateway computer. Various functions associated with DNCS require the initiation of a job at the gateway computer. This user ID will be used for those jobs. The user ID must have a privilege level of 7 and allow use of SCI primitives.

GATEWAY PASSCODE

Enter the passcode (if any) associated with the previous user ID. The passcode will not be displayed as it is entered for security purposes.

GATEWAY ACCOUNT ID

Enter the account ID (if any) associated with the previous user ID.

After the response to the last prompt is entered, the following additional prompts appear. The configuration name assigned is shown as <name> below.

```
PATCH/INSTALL CONFIGURATION '<name>':
  DNCS NUCLEUS DIRECTORY: DCFWD
  DNCS GENERATION DIRECTORY:
  DNCS COMMAND DIRECTORY:
  DNOS SYSTEM VOLUME:
  DNOS RELEASE:
```

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWD, the value entered in the ALDC command.

DNCS GENERATION DIRECTORY

Enter the directory pathname where the DNCS configuration files reside. The default is the value entered in the ALDC command. Otherwise, enter the directory pathname containing the .S\$DGU\$ directory.

DNCS COMMAND DIRECTORY

Enter the directory pathname where the DNCS SCI command procedures are to be installed, for example, .S\$CMDS. The directory pathname must already exist and contain at least 80 available entries.

DNOS SYSTEM VOLUME

Enter the volume name where the target DNOS system .S\$UTIL program file resides. The DNCS system configuration directory .S\$DNCS will be created on this volume.

DNOS RELEASE

Enter the DNOS release number (1.2 or 1.3) of the target DNOS system.

After the response to the last prompt is entered, the following prompts appear respectively if RFT, SNA Emulators, or 914A terminal support is included in the configuration:

DNCS X.25 RFT DIRECTORY: DCRFTD
DNCS/SNA EMULATOR DIRECTORY: DCEMO
DNCS 914A DIRECTORY: DC9140

DCRFTD is the proper response for the X.25 RFT directory, DCEMO is the proper response for the SNA Emulator directory, DC9140 is the proper response for the 914A directory.

The following messages appear after you enter all the PIDC prompts. Respond to each message by pressing the Return key.

BATCH LISTING FILE WILL BE...:

'<custom>.LIST.PIDC':

where:

<custom> is the pathname defined by the concatenation of the DNCS GENERATION DIRECTORY response, the value .S\$DGU\$, and the CONFIGURATION response.

2. Wait for PIDC to complete by using the WAIT command as follows:

[J]WAIT

3. When PIDC completes, the following message appears:

BATCH SCI HAS COMPLETED

Press the Return key to receive the following configuration-dependent messages:

x ERRORS ON DNCS PATNUC PATCH STREAM
x ERRORS ON DNCS PATRFT PATCH STREAM
x ERRORS ON DNCS PATEMU PATCH STREAM
x ERRORS ON DNCS PAT914 PATCH STREAM
z ERRORS IN BUILDING CLIENT FILES
y ERRORS ON DNCS PIDC BATCH STREAM

where:

x is the number of errors in the individual patch batch stream.

y is the total number of errors in the PIDC patch/install batch stream.

z is the number of errors in the batch stream building client site data files.

If the number of errors is not zero, examine the file <custom>.LIST.<batlst> (where <batlst> is the batch stream listing containing the errors) to determine the cause of the error(s). Correct the error(s) and reenter PIDC.

5.5 COMPLETING THE DNCS CONFIGURATION INSTALLATION

To complete the DNCS configuration installation, perform an initial program load (IPL) to load the DNCS configuration memory-resident tasks into memory.

Proceed to Section 6 to continue the installation.

Section 6

Executing the DNCS Nucleus Job

6.1 GENERAL

The procedures in this section describe how to start and stop the DNCS nucleus job.

6.2 EXECUTING THE DNCS NUCLEUS JOB

Execute the DNCS nucleus job by entering the XDNCS command. The XDNCS command has no prompts.

6.3 TERMINATING THE DNCS NUCLEUS JOB

Terminate the DNCS nucleus job by entering the TDNCS command. The following display appears at the station:

```
[ ]TDNCS
```

```
TERMINATE DNCS  
ARE YOU SURE?: NO  
DNCS PASSWORD:
```

ARE YOU SURE?

Enter YES to terminate the DNCS job. The initial value is NO.

DNCS PASSWORD

Enter the currently defined DNCS password. If no password is currently defined, the response to this prompt will be ignored.

For a more detailed discussion of use of the XDNCS and TDNCS commands refer to the DNCS Operations Guide part number 2302662-9701.

If client site(s) are to be installed for a gateway/client system, proceed to section 7 for instructions in executing this installation.

Section 7

Installing DNCS on a Client Computer

7.1 GENERAL

The procedures in this section describe how to install the DNCS software on a client computer in a client/gateway system. In order to install DNCS software on a client computer it is necessary to have created the files used in client installation. This is done by responding YES to the prompt CLIENT FILES? when performing PIDC.

Three basic methods of installing client files are available:

1. Downloading the needed files from the gateway site to the client site.
2. Copying required files from the master directory .S\$DGU\$ to another directory .S\$DGU\$ on a disk pack at the gateway, manually transporting that disk pack to the client site, and performing the installation using the client computer.
3. Manually transporting an appropriate disk pack from the client site to the gateway, installing the needed files on that disk, and transporting the disk pack back to the client site. If this disk pack is not used as the system disk at the client site, the directory <volume>.S\$DNCS must be copied from the disk pack to the client computer system volume as a final step.

All three methods use the same sequence of steps. Most differences are handled by the installation software. However, method one is preferred because it guarantees that the software update history records are properly maintained. See Appendix B for additional considerations pertaining to software update history.

It is not necessary to have the DNCS nucleus volume DCFWD on line in order to do the installation of a client site. All data needed for this installation is saved in .S\$DGU\$ during execution of PIDC to patch and install DNCS at the gateway site.

Client DNCS data files must be installed at a client site to enable that client site to access DNCS at the gateway. After the initial installation, it may or may not be necessary to update

the files at a client when the gateway DNCS is updated. For guidelines on making this determination, see Appendix C.

7.2 SPECIAL CONSIDERATIONS

If you chose to use method two above, the following is the minimum set of files which must be copied from <directory>.S\$DGU\$ and transported to the client site.

1. <configuration>.BUDC
2. <configuration>.BUDP
3. <configuration>.S\$DNCS.UPA.<gateway name>
4. All files contained in the directory S\$CLIENT

These files must be contained in a directory named .S\$DGU\$ on the disk pack transported to the client site. This directory .S\$DGU\$ must have the same subdirectory structure as the master .S\$DGU\$ directory.

7.3 INSTALLING DNCS

If the client files are downloaded using Distributed Network I/O (DNIO), then DNIO must be running at both sites. If the client files are downloaded through an X.25 link, then a DNCS system generated to support X.25 DNIO must be running at both sites. Otherwise DNCS may or may not be operating at the gateway during installation of client data. DNCS at a client site must not be used during download of that client for any purpose other than support of the download process.

If using methods one or three to perform the installation, the steps described below are performed at the gateway computer. If using method two, the steps described are performed at the client computer.

Perform the following steps to install DNCS on a client computer. Repeat the steps for each client computer requiring installation. Concurrent installation on more than one client is not allowed. If this is attempted, errors in one or more installations will generally occur. If multiple client installations are to be performed, they must be executed sequentially.

1. Verify that the disk pack containing the directory .S\$DGU\$ is properly installed.
2. If not downloading client files, verify that the client

disk pack to receive DNCS files is properly installed at the local site. If downloading, verify that it is properly installed at the client site.

3. If downloading, verify that DNIO and (if using X.25 for the download) DNCS are operational at both sites and DNCS is not being otherwise used at the client site.
4. Enter the following command to access the DNCS client computer installation SCI procedures:

```
.USE <directory>.S$DGU$.S$CLIENT.PROC..S$CMDS
```

where:

<directory> is the directory containing the .S\$DGU\$ directory. Normally it is the value entered for DNCS GENERATION DIRECTORY during execution of PIDC at the gateway site.

5. Initiate the installation by using the Install DNCS on Client Computer (IDCC) command as follows:

```
[ ]IDCC
INSTALL DNCS ON CLIENT COMPUTER
GATEWAY DNCS GEN DIRECTORY:
GATEWAY CONFIGURATION:
CLIENT DNOS SYSTEM VOLUME:
CLIENT DNCS CMD DIRECTORY:
CLIENT SITE NAME:
```

GATEWAY DNCS GEN DIRECTORY

Enter the directory pathname where the DNCS configuration files reside. The default is the value entered in the PIDC command in response to DNCS GENERATION DIRECTORY. Otherwise, enter the directory pathname containing the .S\$DGU\$ directory

GATEWAY CONFIGURATION

Enter the name of the DNCS configuration. The default is the value entered as part of the PIDC command.

CLIENT DNOS SYSTEM VOLUME

Enter the volume name where the target DNOS system .S\$UTIL file and .S\$DNCS directory reside. If downloading the client site via DNIO, enter only the volume name without the site name. If building the client files on a local disk drive, this response will be the volume name of the local volume to receive the DNCS client files.

CLIENT DNCS CMD DIRECTORY

Enter the directory pathname where the DNCS SCI command procedures are to be installed. If downloading the client site via DNIO, enter only the directory name without the site name. If building the client files on a local disk drive, this response will be a directory on that disk volume. The directory pathname must exist and contain at least 80 available entries.

CLIENT SITE NAME

Enter the site name of the client site for which DNCS client files are to be created.

After entering responses to these prompts the following additional prompt will appear:

DNIO DOWNLOAD?:

Enter YES if the client site is to be downloaded using DNIO. This indicates CLIENT DNCS SYSTEM VOLUME and CLIENT DNCS CMD DIRECTORY are pathnames at the client site. Enter NO if the build is to be performed locally. In this case CLIENT DNCS SYSTEM VOLUME and CLIENT DNCS CMD DIRECTORY are assumed to be local resources. The default is YES.

If the response to this prompt is YES, the following additional information is prompted:

CLIENT USER ID:
CLIENT PASSCODE:
CLIENT ACCOUNT ID:

CLIENT USER ID

Enter a valid user ID at the client computer. A portion of the installation requires initiating a batch job at the client computer. This user ID will be used for that batch job. This user ID must exist at the client site prior to execution of this command.

CLIENT PASSCODE

Enter the passcode (if any) associated with the previous user ID. The passcode will not be displayed as it is entered for security purposes.

CLIENT ACCOUNT ID

Enter the account ID (if any) associated with the previous user ID.

The following messages appear after you enter all the IDCC prompts. Press the Return key to continue.

BATCH LISTING FILE WILL BE
<directory>.S\$DGU\$.S\$CLIENT.IDCCLxx

where:

<directory> is the response entered to GATEWAY DNCS GEN DIRECTORY. xx is the station ID.

The remainder of the installation process will run as a background process on this computer and (if downloading) the client computer.

6. Wait for IDCC to finish the local processing by using the WAIT command as follows:

[]WAIT

7. When the local processing finishes, the following message appears:

BATCH SCI HAS COMPLETED

Press the Return key to receive one of the following messages, where <site name> is the client site name:

<site name> CLIENT INSTALLATION JOB STARTED

The first portion of the installation has completed successfully. The second portion executes as a batch job at the client computer.

<site name> FILE TRANSFER ERROR

IDCC was unable to transfer the DNCS client files to the target disk volume CLIENT DNOS SYSTEM VOLUME. Examine the file <directory>.S\$DGU\$.S\$CLIENT.IDCCLxx which is a batch stream listing identifying the error(s). Correct the error(s) and reenter IDCC.

<site name> CLIENT INSTALLATION JOB ERROR

IDCC was unable to start the batch job which is the second portion of the installation process. Examine the file <directory>.S\$DGU\$.S\$CLIENT.IDCCLxx which is a batch stream listing identifying the error(s). Correct the error(s) and reenter IDCC.

<site name> CLIENT INSTALLATION SUCCESSFUL

The installation did not involve download via DNIO. The installation has completed successfully.

<site name> CLIENT INSTALLATION UNSUCCESSFUL
SEE FILE <volume>.S\$DNCS.WORK.CLIENTL

Press the Return key a second time to see the second line of the error message. <volume> is the volume name entered for CLIENT DNOS SYSTEM VOLUME. Examine this file which is a batch stream listing identifying the error(s). Correct the error(s) and reenter IDCC.

8. If the client site is downloaded via DNIO, the final step is executed as a batch job at the client site. When this portion of the installation process has been completed, a message will be returned to the station using the Business System mail facility. To enable the mail facility to display a message, press the Return key. If the second portion of the installation process is still active, nothing will be displayed. If it has completed, one of the following messages will be displayed.

<site name> CLIENT INSTALLATION SUCCESSFUL

The DNCS client files are now available for use.

<site name> CLIENT INSTALLATION UNSUCCESSFUL
SEE FILE <volume>.S\$DNCS.WORK.CLIENTL

Press the Return key a second time to see the second line of the error message. Examine the indicated file which is a batch stream listing identifying the error(s). Correct the error(s) and reenter IDCC.

Appendix A

Managing Multiple Configurations

A.1 GENERAL

The following information is presented as an aid to the network administrator who may have the requirement for keeping multiple configurations of DNCS on a single system.

A.2 XDGU

The XDGU process creates the directory structure <volume>.S\$DGU\$. <configuration> for each configuration defined. This directory is referred to as the custom directory because it contains information unique to the named configuration. Whenever XDGU is terminated with VERIFY CONFIGURATION?=YES, the following files and directories are automatically built under the custom directory:

1. CONFIG -- Input source file for XDGU.
2. TEXTCONF -- Input source file for verification.
3. VDCLST -- Verified configuration file.
4. S.<files> -- Directory containing configuration dependent source files.

If XDGU is terminated with VERIFY CONFIGURATION?=NO, the VDCLST and S.<files> are not created.

A.3 ALDC

The ALDC process assembles the S.<files> created by XDGU and links that object with other required object modules contained on the object installation disk. Then, ALDC stages the configuration under the custom directory for later patching and installation. ALDC automatically builds the following files and directories under the custom directory:

1. O -- Directory of assembled object from S.<files>.
2. LIST -- Directory of assembled listing from S.<files>.
3. LINKMAP -- Directory of linkmaps for DNCS configurable tasks.
4. LINKOBJ -- Directory of linked object for DNCS configurable tasks.
5. S\$DNCS -- DNCS system directory.
6. S\$UTIL -- Dummy program file containing installed DNCS tasks that must be copied to the system disk's .S\$UTIL.
7. D\$CMDS -- Directory of DNCS command procedures.

A.4 PIDC

The PIDC process optionally patches and installs the staged configuration created by ALDC. The four options are as follows:

PATCH=YES, INSTALL=NO

This option can be used to bring one or more configurations up to current patch level. It can also be used to apply patches received at a later date. It is not necessary to terminate DNCS because the patches are being applied to the staged directory.

PATCH=NO, INSTALL=YES

This option can be used to install a previously patched configuration. The configuration selected should be the one that you intend to execute. The custom directory files S\$DNCS, S\$UTIL, and D\$CMDS are copied from the staged directory to the target volumes. When PIDC successfully completes, the system must be IPL'D before XDNCS is entered.

NOTE

Installation on a target volume where DNCS is currently executing is not allowed. PIDC exits with the message DNCS FILES IN USE ON <custom> if such an attempt is made.

It is recommended that the DNCS COMMAND DIRECTORY be .S\$CMDS under the DNOS SYSTEM VOLUME. This selection will minimize disk space requirements whenever alternate configurations are put into execution because the same S\$CMDS directory is reused. In addition, after the installation is complete, the <custom> directory may be taken offline to further conserve on disk space if desired.

PATCH=YES, INSTALL=YES

This option combines both patching and installation in one step and can be used as long as DNCS is not executing from the target directory. This option is useful when building and installing a DNCS system for the first time or when creating DNOS system disks with installed DNCS systems. If errors are detected in patching, the installation process is not executed.

PATCH=NO, INSTALL=NO

This option is the null case and causes no processing to occur.

If PATCH=YES is selected, PIDC also generates files containing gateway unique information and adds these files to the .S\$DNCS and .D\$CMDS directories previously described.

A.5 CLIENT DOWNLOAD

In addition to the data structures described in the preceding sections, PIDC optionally builds files used in client installation if PATCH=YES. These files are built if the response to the prompt CLIENT FILES? is YES. Otherwise they are not built. When DNCS is being used in a gateway/client environment, it is recommended that the client files always be rebuilt whenever patches are re-applied.

If client installation files are requested, two files are saved under the custom directory. These are:

1. BUDC -- A backup directory file containing the .D\$CMDS directory
2. BUDP -- A backup directory file containing those portions of the .S\$DNCS directory required at a client site

If client installation files are specified to be built, PIDC also builds a directory <volume>.S\$DGU\$.S\$CLIENT. This directory contains client installation files which are independent of the configuration. The directory contains:

1. GATEB -- A batch stream executed at the gateway during download.
2. CLIENTB -- A batch stream executed at the client during download.
3. PROC -- A directory of commands used during download.
4. S\$SYSTEM -- A directory containing a single file (.S\$HSTRY) which contains a historical record of client installation activity in a format compatible with the List Software Configuration (LSC) command.

Appendix B

Managing Client Configurations

B.1 GENERAL

The following information is presented as an aid to the network administrator responsible for a system consisting of a gateway and one or more client systems.

The PIDC command discussed in Section 5 optionally builds files used to perform client installations. The IDCC command discussed in Section 7 is used to install DNCS support on a client system. The capabilities of the client are exactly the same as those of the gateway. That is, any command executable at the gateway is executable at the client.

B.2 SECURITY

It may not be desirable in some installations to allow client systems to have the full capability of the gateway system. All or some of the following may be appropriate in this case:

1. Delete commands from the client command directory which the client is not allowed to use.
2. Establish a DNCS password to limit access to the DNCS Command Interpreter.
3. Carefully control the number of virtual terminals and assignment of user IDs at the various sites in order to prevent a user at one site from remotely logging on at a different site which has capabilities not normally available to that user.

B.3 CLIENT CONFIGURATION RECORDS

The following paragraphs provide information on maintaining client configuration history files.

B.3.1 Software History Files

PIDC and IDCC make entries in software configuration history files which are useful in managing the configuration installed at clients. The files are:

1. <volume>.S\$DGU\$.S\$CLIENT.S\$SYSTEM.S\$HSTRY. This file is the primary management tool. Normally it will contain records identifying the status of the last built client master files and the last version of client files installed on each client supported by the gateway. One situation in which this file may lose its integrity is described later. <volume> is the volume at the gateway which contains the .S\$DGU\$ directory.
2. <volume>.S\$SYSTEM.S\$HSTRY. This file is updated on the CLIENT DNOS SYSTEM VOLUME during IDCC if present. These records identify the version of the DNCS client files installed at that client.

To examine the data in these files, use the LIST SOFTWARE CONFIGURATION command, LSC. LSC is described in DNOS System Command Interpreter (SCI) Reference Manual part number 2270503-9701.

Specify <volume>.S\$DGU\$.S\$CLIENT as the HISTORY FILE VOLUME NAME when executing LSC to examine the first file above. The following information is provided:

1. SOFTWARE PACKAGE -- The most recently built client master files at the gateway are identified as DNCS CLIENT MASTER. The last installation at a particular client is identified as DNCS CLIENT AT <site name>.
2. REVISION -- The release of DNCS.
3. RELEASE DATE -- The release date of that revision.
4. INSTALL DATE -- For DNCS CLIENT MASTER, the date built. For DNCS CLIENT AT <site name>, the date of the installation.
5. PATCH DATE -- The date the DNCS client data was patched.
6. LAST PATCH -- The highest numbered patch associated with the CLIENT MASTER or particular client installation.

Note that when DNCS is rebuilt to change the gateway configuration or make some other update, it is frequently not necessary to update the various client sites. The main consideration is the LAST PATCH entry. Client sites which have

DNCS client files at the same patch level as the DNCS CLIENT MASTER do not need to be updated.

Note also that many patches in the DNCS patch files do not apply to software installed at client sites. Therefore, even if the gateway DNCS is being updated to incorporate new patches, it may not be necessary to update client sites. If, after incorporating new DNCS patches at the gateway, it is observed that the CLIENT MASTER now has a higher numbered LAST PATCH, then it will be necessary to update clients.

LSC may be used to inspect the client site software history file also. Specify the Client DNOS System Volume for the prompt HISTORY FILE VOLUME NAME. Scan the report for the SOFTWARE PACKAGE named DNCS CLIENT OF <gateway site name>. The information on this line is as previously described. Information about installations of other software products at the client site will also be listed.

B.3.2 Other Client Update Criteria

In addition to the patch level criteria just described, client site DNCS files should be updated in the following cases:

1. One of the following capabilities was not previously present at the gateway but has been added:
 - a. DNCS SNA
 - b. DNCS RFT
 - c. DNCS support of DNID via X.25
2. A new release of DNCS has been installed at the gateway.

B.3.3 Downloading a Client vs. Local Build

The history files will be consistently maintained as described previously if downloading is always used to install DNCS client files at a client site.

If files from the .S\$DGU\$ directory are transported to a client site and used at that client site to perform the update, the file <volume>.S\$DGU\$.S\$CLIENT.S\$SYSTEM.S\$HSTRY will be updated as described on the disk pack transported to the client site. If this copy of the .S\$DGU\$ files is not the only one used to make client installations, the record of client installations can easily become fragmented.

If the client installation is done using a disk pack installed at the gateway and later transported to the client site, the following problem potentially exists. While the directory

<volume>.S\$DGU\$.S\$CLIENT.S\$SYSTEM.S\$HSTRY is properly updated, the file <volume>.S\$SYTEM.S\$HSTRY on the CLIENT DNOS SYSTEM VOLUME is updated only if that file previously exists. Thus, if a scratch pack is used to hold the DNCS client files for transport to the client site, this history file update will not occur.

Because of the problems in guaranteeing the integrity of the history files if either of the two local build techniques is used, it is recommended that downloading be used if possible when doing DNCS client installations.

B. 4 NETWORKS WITH MULTIPLE GATEWAYS

Some special considerations apply if there is more than one DNCS gateway on a DNIO network:

1. If all gateways have the same functionality, e.g., the network has two SNA gateways but no X.25 gateway, any gateway can install client software on a particular client and the client will be able to use all gateways. Note however, that certain commands need to use the gateway user ID, passcode, and account ID defined for each gateway during the execution of PIDC at the gateway. (See paragraph 5.4.) The commands which use this data are XDNCS, TDNCS, CFG, HOSTQST, SCIQST, XRFT, TRFT, and AMSG. This information is made available automatically by the IDCC command for those gateways which install client software at a client site. A special procedure is needed to make it available for client access to those gateways which have not installed client software at the client site in question. In order to make this data available to a client, copy the gateway file:

```
<custom directory>.S$DNCS.UPA.<gateway name>
```

to the file:

```
<client name>:.S$DNCS.UPA.<gateway name>.
```

2. If gateways have different functionality, e.g., two SNA and two X.25 gateways, a client should have DNCS client software installed by each type of gateway. LSC run against the client site software history file will identify the fact that this client has had DNCS client software installed by more than one gateway by the presence of multiple report lines titled DNCS CLIENT OF <gateway site name>. When performing the installations, the same directory must be specified for DNCS COMMAND DIRECTORY for each installation. As before, certain commands require the file .S\$DNCS.UPA.<gateway name> to be present for all gateways to which access is needed.

3. A gateway may act as a client in accessing another gateway.
4. If a gateway needs to act as a client with respect to another gateway and that gateway has different functionality, the second gateway must install DNCS client software on the first. If both gateways have the same functionality, DNCS client software installation is not needed.
5. If a client site receives software from multiple gateways, the default gateway for SCI commands executed at that client will be the last gateway to perform an installation. This default gateway will be accessed unless a specific gateway is specified when commands are executed at that site.
6. If one gateway site installs software at a second gateway site, the default gateway at the second site will become the first site. This is probably not what is desired in most cases. In order to preserve the orientation of the second gateway toward considering itself to be the default, do the following:
 - a. Prior to installation of software from the first gateway, make a copy of the file:
 <command>.DNCSASYN
 at the second gateway where <command> is the DNCS
 COMMAND DIRECTORY you enter when executing PIDC.
 - b. Install software from the first gateway.
 - c. Restore <command>.DNCSASYN from the saved copy.
7. Careful coordination is required to maintain an accurate picture of the status of all clients when client software may be installed from any of multiple gateways.