DNOS DNCS Nucleus Object Installation Part No. 2302660-9701 *A 1 February 1983 EAD FIRST

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READ THIS DOCUMENT BEFORE ATTEMPTING TO USE THE OBJECT KIT. THIS DOCUMENT DESCRIBES RELEASE 1.1.0 OF THE DNCS NUCLEUS OBJECT INSTALLATION MEDIA, PART NUMBER 2276803-1601 (DISK OR TAPE), 2276803-1602 (DISKETTE), AND 2276803-1603 (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 DNCS nucleus object media under DNOS.

Be sure to make a backup copy of the release object before executing the installation procedures. For copy procedures, refer to the DNOS Operations Guide, part number 2270502-9701.

Consult the Release Information for additional information concerning the current release.

This document presents many System Command Interpreter (SCI) commands in batch format. You can execute them by entering the command exactly as shown or by entering only the command keyword and responding to the interactive prompts from SCI. 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
- * <u>Diskette</u> -- 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.
- * Install the communications device service routine (DSR) commands.
- * Generate the DNOS system.
- * Generate the communications DSRs.
- * Assemble and link the DNOS system.
- * Patch the communications DSRs.
- * Patch the DNOS system.
- * Install the communication controller utilities.
- * Generate the DNCS configuration.
- * Assemble and link the DNCS configuration.
- * Install the DNCS configuration.
- * Patch the DNCS configuration.

1.4 SYSTEM REQUIREMENTS

To perform these installation procedures successfully, you must have a DNOS operating system (Release 1.1.0 or later) running on a Model 990/10 or 990/12 Computer with at least 512K bytes of memory.

1.5 NON-DNCS COMMUNICATIONS PRODUCTS

The DNCS nucleus uses the DNOS Common Communications DSR Software (DNCMO). DNCMO is located on the DNOS system disk in .S\$OSLINK.DNCMO. DNCMO, 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. Appendix A presents a flowchart that describes the process for generating a system with communications support for one or more communications packages.

1.6 RESERVED DIRECTORY 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.

Section 2

Preparing for Installation

2.1 GENERAL

The DNCS nucleus object is shipped 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). 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. 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.

DOUBLE-SIDED, DOUBLE-DENSITY (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 available disk by using the Create Directory File (CFDIR) command as follows:

CFDIR P=<dncsvolume>.DCFWO, M=50

where:

is the name of the disk where you create <dncsvolume> It is also now the name the directory. 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 DCFWOFl 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 DCFWOFl 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=DCFWO, 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:

is the name of the drive where the diskette is <dsxx> 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=DCFWO, 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 available disk by using the Create Directory File (CFDIR) command as follows:

CFDIR P=<dncsvolume>.DCFWO, 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 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.

- 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=DCFWO, 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 SF or 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:

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

<dncsvolume> is the volume name of the add-on disk. 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. 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, you may 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 DSR linkable parts. These parts must be installed on the DNOS Common Communications DSR Software (DNCMO) directory .S\$OSLINK.DNCMO.

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

- 1. Access the DNCS Communications DSR linkable parts command library as follows:
 - a. Enter the following command to access the DNCS Communications DSR installation SCI procedures for DCMNS:

.USE DCFWO.DNCMO.DCMNS,.S\$CMDS

Complete steps 2 and 3. Return to step 1b.

b. Enter the following command to access the DNCS Communications DSR installation SCI procedures for DSDLC:

.USE DCFWO.DNCMO.DSDLC,.S\$CMDS

Complete steps 2 and 3. Continue to paragraph 3.3.

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 DNOS 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 DSxx.

3. When ICC completes, the following message appears at the station:

BATCH SCI HAS COMPLETED

Press the RETURN key to receive the following additional message:

x ERRORS IN PATCH STREAM < DCFWO>.BL.DNPPxxxx:

where:

<DCFWO> is the value of the synonym DCFWO.

is the name of the installed DSR linkable parts, that is, either CMNS or SDLC.

If the number of errors reported is nonzero, examine the file <DCFWO>.BL.DNPPxxxx by using the Show File (SF) or Print File (PF) command to determine the cause of the error(s). Correct the error(s) and repeat step 1.

3.3 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 installation procedures (ICC) for each product before DNOS system generation. At this time, execute the installation procedures for each additional communications product.

Proceed to paragraph 4.1 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 paragraph 5.1 to continue the installation.

4.2 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 2308860-9701, for an overview of the relationship between the DNOS and DNCS system generation processes.

CAUTION

Do not assemble, link, or patch the system until after you generate the communications DSRs as described in paragraph 4.3.

4.2.1 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, and DNCS XCI. Each of these functions requires separate DNCS IPC facilities. You include DNCS IPC support in DNOS during the system generation process.

The system generation responses for defining DNCS IPC as a communication device are as follows:

ENTITY? DVC
DEVICE TYPE? COM
COM DEVICE ADDRESS? NONE
NUMBER OF CHANNELS? 2
CHANNEL NUMBER 00 PROTOCOL? CMNS
CHANNEL NUMBER 01 PROTOCOL? CMNS

Further definition of DNCS IPC occurs during the communications DSR generation process described in paragraph 4.3.

4.2.2 DNCS Communications Device Support Definition

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

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

ENTITY? DVC

DEVICE TYPE? COM

COM DEVICE ADDRESS? <address>
NUMBER OF CHANNELS? 4

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 FCCC.

<interrupt> is the interrupt level of the board.

(*) Trademark of Texas Instruments Incorporated

The system generation responses for including a bitoriented/character-oriented/asynchronous interface module (BCAIM) board for DNCS communications are as follows:

ENTITY? DVC
DEVICE TYPE? COM
COM DEVICE ADDRESS? <address>
NUMBER OF CHANNELS? 1
CHANNEL NUMBER 00 PROTOCOL? <protocol>
INTERRUPT? <interrupt>

where:

<address> is the CRU address of the BCAIM.

otocol> is SDLC.

<interrupt> is the interrupt level of the board.

4.2.3 DNCS Communications I/O SVC Support Definition

The DNCS nucleus requires an SVC processor for DNCS communications. You include this support in DNOS during the system generation process as follows:

ENTITY? SVC SVC GROUP NAME? COMM I/O SVC

4.3 GENERATING THE COMMUNICATIONS DSRs

After the definition of the DNOS operating system is complete and prior to assembling and linking the generated system, you must build the communications DSRs. The building of the DSRs requires that the DNOS generation configuration file be present.

4.3.1 Installing the DNOS Common Communications DSR Commands

Perform the following steps to install the DNOS Common Communications DSR commands in the DSR parts directory:

1. Enter the following command to access the DNOS Common Communications DSR commands installation SCI procedures:

.USE <sysgen volume>.S\$OSLINK.DNCMO,.S\$CMDS

where:

2. Install the DNOS Common Communications DSR commands by using the Install Communications DSR Commands (IDC) command as follows:

[]IDC

INSTALL COMMUNICATIONS DSR 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 DATA DISK/VOLUME prompt in the XSGU command.

LISTING DIRECTORY NAME

Enter the directory pathname to be used for listings and program files by the communications DSR generation procedure. IDC creates this directory and further creates the batch listing subdirectory .BL. The recommended pathname is DCFWO.

IDC executes a batch stream that updates the communications DSR installation commands.

3. When IDC completes, the following message appears at the station:

BATCH SCI HAS COMPLETED (appears twice)

- x ERRORS IN PATCH STREAM <directory>.BL.DNPPCOMM
- x ERRORS REPORTED IN PATCH STREAM <directory>.BL.GENPAT

where:

If the number of errors reported is nonzero, examine the files by using the Show File (SF) or Print File (PF) command to determine the cause of the error(s). Correct the error(s) and repeat steps 1 and 2.

4. Note that IDC executes the following command to change the SCI installation procedures library for the remaining commands in this section:

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

4.3.2 Building Communications DSRs

Build the communications DSRs by using the Build Communications DSRs (BCD) command as follows:

[]BCD

BUILD COMMUNICATIONS DSRS SYSGEN DATA DISK/VOLUME: TARGET DISK/VOLUME: SYSTEM 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 volume or directory containing the DNOS system configuration directory (.S\$SGU\$). The response to this prompt must match the response to the TARGET DISK/VOLUME prompt in the XSGU command.

SYSTEM NAME

Enter the name given in response to the OUTPUT CONFIGURATION prompt in the XSGU command.

A batch stream links and installs a task, CONFIG, onto the program file <directory>.S\$COMGEN, where <directory> is the pathname entered in response to the LISTING DIRECTORY NAME prompt of the IDC command. This task reads the configuration file generated during execution of the XSGU command. The task also accumulates the parameters entered when a communication device is defined. The task is reentered until all communication devices are defined or an end-of-file (EOF) is reached.

If the initial phase of this task executes without error, the prompt defined in paragraph 4.3.3.1 appears. Proceed to paragraph 4.3.3 to define the DSR components.

If an error occurs during the initial phase of execution of this task, the build process terminates and error messages are queued for display. The first message to appear is as follows:

DSR GENERATION FAILED. CHECK FOLLOWING ERROR MESSAGE

Press the RETURN key to display the next message, which is one of the following:

ABNORMAL TERMINATION ERROR >xxxx

Explanation:

The CONFIG task terminated with an error code of >xxxx.

User Action:

The DNOS Messages and Codes Reference Manual, part number 2270506-9701, contains an explanation of the SVC internal code >xxxx. Read the explanation and use the specified recovery procedure. To restart the communications DSR generation process, reenter the IDC command.

ABNORMAL TERMINATION-ILLEGAL FORMAT OF SYSTEM CONFIGURATION FILE

Explanation:

An illegal format was found in the configuration file. This message appears if one of the following conditions occurs:

- * The task finds no communications devices in the configuration file.
- * The task encounters an EOF before all parameters are accumulated.

The task reads unexpected data, when accumulating information on a communications device.

User Action: Correct the problem and reenter the IDC command.

4.3.3 DSR Component Definition

The following paragraphs describe the definition of communications DSR components. The prompts may not appear in the order shown.

NOTE

If the system you are building includes noncommunications products (such 3780/2780 Emulators, 3270 ICS, or RTS), the procedures described in paragraphs 4.3.3 through 4.3.5 will vary to include the DSR packages. component definition of those Refer to each object installation guide for further information.

4.3.3.1 Board Type Definition. When all the information describing the first communication device (defined during execution of the XSGU command) is gathered, the following prompt appears:

DEFINE COMMUNICATIONS BOARD TYPE AT DEVICE ADDRESS >xxxx BOARD TYPE: <type>

where:

is a four-digit hexadecimal CRU/TILINE address. >xxxx

is the type of communications controller installed at <type> the CRU/TILINE address. Enter either FCCC or BCAIM in response to the prompt.

This prompt appears for each communications device defined with a CRU/TILINE address.

4.3.3.2 Automatic Calling Unit (ACU) Definition. When you enter the BOARD TYPE response and press RETURN, the following prompt appears:

DEFINE AUTO CALL UNIT CRU ADDRESS FOR DEVICE CMxx ACU CRU(FOUR HEX DIGITS): FFFF

where:

CMxx is the name of the communications device.

DNCS does not support an ACU. Accept the initial value FFFF by pressing RETURN. This prompt appears for each channel defined on the board.

4.3.3.3 DNCS IPC Definition. If a communications device with the protocol of CMNS was defined during the XSGU process, the following prompt appears:

DEFINE SINGLE CMNS ON DEVICE CMxx NUMBER OF SESSIONS: <integer>

where:

CMxx is the name of the communications device.

<integer> is the number of sessions (or resources or
 concurrent transfers) to be allowed on the DNCS IPC
 channel. The initial value for <integer> is 16,
 and the valid range is 1 through 255. The value
 entered should match the number of sessions you
 plan to have on the DNCS IPC device CMxx. Your
 completed DNCS generation planning forms provide
 this information. For an RFT circuit, the number
 of sessions should be the same as the number of
 concurrent transfers required. For a CIPC circuit,
 the number of sessions should be the same as the
 number of stations. The CI circuit only requires
 one session.

This prompt appears for each communications device defined with the protocol of CMNS.

4.3.4 Linking the DSR

When you respond to the last prompt associated with the last device and press RETURN, the following prompt appears:

ENTER <CR> TO START DSR GENERATION PROCESS .:

To abort the process, enter NO and press RETURN. Continue pressing RETURN until all messages queued to the station have been displayed and the main DNOS SCI menu appears. You can ignore these messages. You must reenter the IDC command to restart.

To continue with DSR generation, press RETURN. The DSR generation process links each communications DSR generated during the execution of the BCD command. The following messages appear at the top of the screen indicating which DSR is being linked:

GENERATE xxxx DSR LINK CONTROL FILE AND LINK DSR

where:

xxxx is either COMA, CMNS, or SDLC. The message appears once for each DSR protocol defined.

When the DSR generation process completes, the following message appears:

COMPLETE XSGU PROCESS AND APPLY DSR PATCHES:

Press RETURN to display the first of a series of messages, each reporting the number of errors that occurred during one phase of the generation process. Press RETURN to display subsequent messages.

CAUTION

Pressing the CMD key or entering a hard break sequence before completion of the DSR generation interrupts normal operation of the process. You must enter the Kill Background Task (KBT) command to abort DSR generation. To restart DSR generation, reenter the IDC command.

If the number of errors reported in any of these messages is nonzero, examine the file named in the message to determine the cause of the error(s). Correct the problem and restart the DSR generation process with the IDC command. Refer to paragraph 4.3.5 for a list of possible completion messages. When an error-free DSR generation is completed, proceed to assemble and link the DNOS system (paragraph 4.4).

4.3.5 Completion Messages

The following list shows the completion messages that appear at the end of the DSR generation process. The messages include the pathnames of the batch listing files describing the errors.

BATCH SCI HAS COMPLETED (appears several times)

- x ERRORS REPORTED IN <directory>.BL.DSRxxxx
- x ERRORS REPORTED IN <directory>.BL.COMSWS

where:

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

is either COMA, CMNS, or SDLC. The message appears once for each DSR protocol defined.

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 <u>DNOS</u> System Generation Reference Manual, part number 2270511-9701. When this phase completes successfully, proceed to patch the communications DSRs and the DNOS system as described in the next paragraph.

4.5 PATCHING THE COMMUNICATIONS DSRs AND THE DNOS SYSTEM

After successfully assembling and linking the system, apply the necessary patches to the communications DSRs and the DNOS system. Use the Patch Communications System (PCS) command to apply Communications DSR and DNOS system patches simultaneously.

1. Patch the communications system by using the PCS command as follows:

[]PCS

PATCH COMMUNICATIONS SYSTEM
SYSGEN DATA DISK/VOLUME:
TARGET DISK/VOLUME:
SYSTEM NAME:
PROTOCOL NAME(S):
INSTALL KERNEL PATCHES?: NO
LISTING DIRECTORY DESIRED?: NO

SYSGEN DATA DISK/VOLUME

Enter the name of the volume or directory containing the DNOS system generation parts and the .S\$OSLINK.PATCH directory (containing KERNEL patches). The response to this prompt must match the response to the DATA DISK/VOLUME prompt in the XSGU command. The default is the value entered in the BCD command.

TARGET DISK/VOLUME

Enter the name of the volume or directory that contains the system being patched. The response to this prompt must match the response to the TARGET DISK/VOLUME prompt in the ALGS command. The default is the value entered in the BCD command.

SYSTEM NAME

Enter the system name supplied in response to the OUTPUT CONFIGURATION prompt during the XSGU process.

PROTOCOL NAME(S)

Enter the names of all communications protocols being patched. This list should contain the names of all communications protocols entered in response to the CHANNEL NUMBER xx PROTOCOL prompts given during the definition of communications devices in XSGU. Commas separate individual protocols in this response.

INSTALL KERNEL PATCHES?

If the Patch Generated System (PGS) command has already been executed, enter NO. If PGS has not been executed, enter YES to execute the DNOS kernel patch batch stream.

LISTING DIRECTORY DESIRED?

Enter YES to direct the listings to a directory on disk. Enter NO to direct the listings to a device. If you enter YES, the following additional prompt appears:

LISTING DIRECTORY NAME:

Enter the directory name where the patch batch listing(s) are to be written. PCS creates this directory with a maximum entry size of five and further creates the subdirectory .BL for batch listings resulting from the patch process. The recommended directory name is DCFWO.

If you enter NO, the following additional prompt appears:

LISTING DEVICE:

Enter the name of a device to receive the patch batch listing(s).

2. PCS patches the communications DSRs that support the protocols defined for communications devices during XSGU.

When PCS completes, press RETURN to view the first of a series of completion messages, each reporting on one phase of the patching process. Press RETURN again to view subsequent messages. For DNCS protocols, the following messages appear. Other communications messages appear when other protocols are defined.

The first completion message is as follows:

BATCH SCI HAS COMPLETED (appears several times)

If kernel patches are installed, the following message appears:

X ERRORS IN DNOS KERNEL PATCH STREAM

After this message, the following messages appear:

- x ERRORS IN DNPCSWS PATCH STREAM
- x ERRORS IN CMONxxxx (DNPCMON) PATCH STREAM
- X ERRORS IN DNPXXXX PATCH STREAM

where:

xxxx is either COMA, CMNS, or SDLC. The messages appear once for each DSR protocol defined.

If any one of these messages reports a nonzero error count, the patching process is incomplete. Examine the file named in the message to determine the cause of the error(s). Take appropriate action to correct the error, and reenter the PCS command.

If no errors occur, the patches have been applied to the disk-resident system image.

4.6 INSTALLING THE COMMUNICATIONS CONTROLLER UTILITIES

DNCMO provides common communications controller utilities that you install by using the Install Utility Tasks (IUT) command. DNCS uses one of these utilities, Communications Device Reset (CRSET), to reset the BCAIM and FCCC devices and another utility, the Communications Device Download Utility (CDL), to download patches to the FCCC. CRSET and CDL are automatically included and executed in the XDNCS command.

4.6.1 Installing the Utilities

Install the download utilities by using the Install Utility Tasks (IUT) command as follows:

[]IUT

INSTALL UTILITY TASKS
SYSGEN DATA DISK/VOLUME:
TARGET DISK/VOLUME:
BATCH LISTING ACCESS NAME: .IUTLST

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. The default is the value entered in the BCD 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 the TARGET DISK/VOLUME prompt in the ALGS command. The default is the value entered in the BCD 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 DCFWO.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 RETURN 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.

4.6.2 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: .PUTLST

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 given to 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 DCFWO.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.

4.7 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. Proceed to paragraph 5.1 to continue the installation.

Section 5

Installing DNCS Tasks

5.1 GENERAL

The procedures in this section describe how to generate, install, and patch tasks that support your DNCS configuration.

5.2 GENERATING DNCS CONFIGURABLE TASKS

Perform the following steps to generate the DNCS configurable tasks:

- 1. Ensure that the DNCS nucleus volume DCFWO is installed or the synonym DCFWO is assigned to the DNCS nucleus object directory and that the other DNCS product media are prepared as explained in Section 2.
- 2. Enter the following command to access the DNCS configuration object installation SCI procedures:

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

3. 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 PATCH DIRECTORY:

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.

DNCS PATCH DIRECTORY

Enter the directory pathname where the patch subdirectories reside. The standard response is DCFWO. Otherwise, enter the directory pathname containing the .PATCH directory.

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

BATCH LISTING FILE WILL BE...:

<patch directory>.PATCH.LSTGEN':

where:

<patch directory> is the value entered for the DNCS PATCH DIRECTORY prompt (synonym expanded).

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

[]WAIT

5. When PDGU completes, the following message appears at the station:

x ERRORS IN DNCSGEN PATCH STREAM:

If the number of errors reported is nonzero, examine the file <patch directory>.PATCH.LSTGEN by using Show File (SF) or Print File (PF) command to determine the cause of the error(s). Correct the error(s) and reenter PDGU.

6. 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\$ (with a maximum of 15 entries) 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.

NOTE

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

7. Verify the DNCS configuration by using the Verify DNCS Configuration (VDC) command as follows:

[]VDC

VERIFY DNCS CONFIGURATION

DNCS NUCLEUS DIRECTORY: DCFWO

DNCS GENERATION DIRECTORY:

CONFIGURATION:
LISTING:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWO, 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 OUTPUT CONFIGURATION prompt in the XDGU command.

LISTING

Enter the file pathname where the verification listing is to be written.

VDC executes in foreground and completes with the following message when no errors are detected:

NO ERRORS DETECTED IN CONFIGURATION DEFINITION .:

When an error(s) is detected, VDC completes with the following message:

Inspect the listing file to determine the nature of the error(s). Refer to the <u>DNOS DNCS System Generation Reference Manual</u>, part number 2302648-9701, for a complete explanation of VDC errors. Reenter XDGU and make the necessary corrections.

NOTE

Refer to the DNOS DNCS System Generation Reference Manual, part number $230\overline{2648-9701}$, for a complete description of the VDC process.

8. Build the DNCS configuration tables by using the Build DNCS Configuration Tables (BDCT) command as follows:

[]BDCT

BUILD DNCS CONFIGURATION TABLES

DNCS NUCLEUS DIRECTORY: DCFWO

DNCS GENERATION DIRECTORY:

CONFIGURATION:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWO, 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 OUTPUT CONFIGURATION prompt in the XDGU command.

BDCT executes in foreground and completes with the following message:

CONFIGURATION TABLES BUILT SUCCESSFULLY .:

If BDCT does not complete with this message, reenter the VDC command as described in step 7 for configuration error checking. If VDC completes without errors, but BDCT again does not complete successfully, call your customer support analyst for a resolution before continuing.

9. 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: DCFWO
DNCS GENERATION DIRECTORY:
CONFIGURATION:

DNCS NUCLEUS DIRECTORY

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

DNCS GENERATION DIRECTORY

Enter the directory pathname where the DNCS configuration files reside. The default is the value entered in the BDCT 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 BDCT command.

After you enter the configuration name, the following prompts appear if RFT or PSC is included in the configuration:

DNCS X.25 RFT DIRECTORY=DCRFTO DNCS/SNA EMULATOR DIRECTORY=DCEMO

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

The following messages appear at the station after you enter ALDC. Respond to each message by pressing RETURN.

BATCH STATUS FILE WILL BE...:

'<custom>.LIST.ERRLOGxx':

where:

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

is the station ID. XX

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

TIAW[]

11. When ALDC completes, the following message appears at the station:

BATCH SCI HAS COMPLETED

RETURN to receive the following additional Press message:

===>x ERRORS IN ALDC BATCH STREAM

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

5.3 INSTALLING THE DNCS TASKS

Perform the following steps to install the DNCS tasks:

WARNING

DNCS must not be active when installing a new configuration to the current DNCS system volume. The installation procedure will fail leaving the new configuration only partially installed and the old configuration unusable.

1. Install the DNCS tasks by using the Install DNCS Configuration (INSDC) command as follows:

[]INSDC

INSTALL DNCS CONFIGURATION

DNCS NUCLEUS DIRECTORY: DCFWO

DNCS GENERATION DIRECTORY:

CONFIGURATION:

DNCS SYSTEM VOLUME:

DNCS COMMAND DIRECTORY:

DNCS NUCLEUS DIRECTORY

Enter the directory pathname of the DNCS nucleus object directory. The default is DCFWO, 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.

CONFIGURATION

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

DNCS SYSTEM VOLUME

Enter the volume name or existing directory name where you want to create the DNCS nucleus program file .S\$DNCS.PGMTASK to contain the DNCS nucleus tasks.

DNOS SYSTEM VOLUME

Enter the directory (or volume) name where the .S\$UTIL program file resides.

DNCS COMMAND DIRECTORY

Enter the directory pathname where you want to install the DNCS SCI procedures. The standard response is <sysvol>.S\$CMDS, where <sysvol> is the DNOS system volume. The directory must already exist and contain at least 75 available entries.

NOTE

This directory cannot be <custom>.S\$CMDS because that directory is used to build the customized commands.

After you enter the pathname of the command directory, the following prompts appear if RFT, SNA Emulators, or 914A terminal support is included 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 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 at the station after you enter INSDC. Respond to each message by pressing RETURN.

BATCH LISTING FILE WILL BE...:

'<custom>.LIST.INSDC':

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 INSDC to complete by using the WAIT command as follows:

[]WAIT

3. When INSDC completes, the following message appears at the station:

BATCH SCI HAS COMPLETED

Press RETURN to receive the following configurationdependent messages:

- x ERRORS IN INSNUC BATCH STREAM:
- x ERRORS IN INSEM BATCH STREAM:
- x ERRORS IN INS914 BATCH STREAM:
- x ERRORS IN INSPSC BATCH STREAM:
- x ERRORS IN DNCS/X25/RFT INSRFT BATCH STREAM:
- y ERRORS IN INSDC BATCH STREAM:

where:

- is the number of errors in the individual install batch stream.
- y is the total number of errors.

If the number of errors is nonzero, examine the file <custom>.LIST.xxxxx (where xxxxx is the batch stream listing containing the errors) to determine the cause of the error(s). Correct the error(s) and reenter INSDC.

5.4 PATCHING THE DNCS NUCLEUS TASKS

Perform the following steps to patch the DNCS tasks:

1. Patch the DNCS nucleus tasks by using the Patch DNCS Configuration (PATDC) command as follows:

[]PATDC

PATCH DNCS CONFIGURATION DNCS NUCLEUS DIRECTORY: DCFWO

DNCS GENERATION DIRECTORY: CONFIGURATION:

DNCS SYSTEM VOLUME:

DNOS SYSTEM VOLUME:

DNCS COMMAND DIRECTORY:

DNCS PATCH DIRECTORY:

DNCS NUCLEUS DIRECTORY

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

DNCS GENERATION DIRECTORY

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

CONFIGURATION

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

DNCS SYSTEM VOLUME

Enter the directory (or volume) name where the DNCS configuration program file .S\$DNCS.PGMTASK resides.

DNOS SYSTEM VOLUME

Enter the directory (or volume) name where the .S\$UTIL program file resides.

DNCS COMMAND DIRECTORY

Enter the directory pathname where the DNCS SCI command procedures are installed. The default is the value entered in the INSDC command.

DNCS PATCH DIRECTORY

Enter the directory pathname where the patch subdirectories reside. The standard response is DCFWO. Otherwise, enter the directory pathname containing the .PATCH directory.

After you enter the pathname of the patch directory, the following prompts appear if RFT, SNA Emulators, or 914A terminal support is included in the configuration:

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

is the proper response for the X.25 DCRFTO directory, DCEMO is the proper response for the Emulator directory, and DC9140 is the proper response for the 914A directory.

The following messages appear at the station after you enter all the PATDC prompts. Respond to each message by pressing RETURN.

BATCH LISTING FILE WILL BE...:

fetch directory>.PATCH.LSTDC':

where:

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

[]WAIT

3. When PATDC completes, the following message appears at the station:

x ERRORS IN DNCS CONFIGURATION PATCH STREAM:

If the number of errors is nonzero, examine the file <patch directory>.PATCH.LSTDC to determine the cause of the error(s). Correct the error(s) and reenter PATDC.

5.5 COMPLETING THE TASK 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 paragraph 6.1 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.

NOTE

The Execute DNCS (XDNCS) command uses the system user ID SYSTEM. Make sure that SYSTEM has a privilege level of 7 and allows use of SCI primitives.

6.2 EXECUTING THE DNCS NUCLEUS JOB

Perform the following steps to execute the DNCS nucleus job:

1. If the response to the DNCS COMMAND DIRECTORY prompt in the Install DNCS Configuration (INSDC) command in Section 5 was the DNOS system directory .S\$CMDS, proceed to step 2. Otherwise, enter the following command to use the DNCS procedure library:

.USE <cmddir>,.S\$CMDS

where:

- <cmddir> is the value entered for the DNCS COMMAND
 DIRECTORY prompt in the INSDC command.
- 2. Execute the DNCS nucleus job by entering the XDNCS command. The following display appears at your station:

[]XDNCS

EXECUTE DNCS
DNCS BATCH JOB LISTING: <dncsvol>.S\$DNCS.STRLST

DNCS BATCH JOB LISTING

Enter the file pathname for the DNCS batch job listing. The default is <dncsvol>.S\$DNCS.STRLST, where <dncsvol> is the value entered for the DNCS SYSTEM VOLUME prompt in the INSDC command.

6.3 TERMINATING THE DNCS NUCLEUS JOB

Perform the following steps to terminate the DNCS nucleus job:

1. If the response to the DNCS COMMAND DIRECTORY prompt in the INSDC command in Section 5 was the DNOS system directory .S\$CMDS, proceed to step 2. Otherwise, enter the following command to use the DNCS procedure library:

.USE <cmddir>,.S\$CMDS

where:

2. Terminate the DNCS nucleus job by entering the TDNCS command at a station that is under Execute Operator Interface (XOI) control. The following display appears at the station:

[]TDNCS

TERMINATE DNCS
ARE YOU SURE?: NO

ARE YOU SURE?

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

3. DNCS terminates successfully when the following message appears:

I DNCS-0001 DNCS TERMINATED:

Appendix A

System Generation Flowchart

This flowchart explains the process for generating a system with communications support for one or more communications packages.

