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RELEASE INFORMATION, DNOS DNCS/SNA,
RELEASE 1.0.0-990

TEXAS INSTRUMENTS INCORPORATED DIGITAL SYSTEMS	drawing number 2308310-9901		
	REV. **	SHEET 1 OF 13	

Contents

Section 1

GENERAL INFORMATION

1.1 INTRODUCTION

This document contains information about the DNCS/SNA product, Release 1.0.0, that is not contained in the standard documentation associated with the object installation kit.

The subjects that are discussed in this document are special features or considerations that may be important for the proper installation and operation of the object package.

1.2 DNCS/SNA OVERVIEW

Texas Instruments Distributed Network Communication System (DNCS) provides the networking capability for the Distributed Network Operating System (DNOS). The DNCS Nucleus provides the basic communication software that allows a DS990 system to be connected to IBM's SNA/SDLC network. DNCS/SNA consists of a set of emulators that enables users of TI equipment to access applications on a remote SNA host. Together, DNCS Nucleus and DNCS/SNA allows the DS990 to function as an intelligent cluster controller node and TI terminals and printers to function as SNA display stations and printer stations.

The DS990 system is connected to IBM's 3705 communications controller node (local or remote) running Advanced Communication Function/Network Control Program (ACF/NCP) via a leased line data link (non-switched) supporting up to 19200 bits per second on point-to-point or multi-point configurations using SDLC protocol in non-NRZI mode. The DS990 can not be connected directly to the IBM host's multiplexor channel. DNCS can access an IBM S/370 or 303X host system having the Advanced Communication Function/Virtual Telecommunication Access Method (ACF/VTAM) and application subsystems, such as Information Management System (IMS), Customer Information Control System (CICS), or Time-Sharing Option (TSO).

1.2.1 FUNCTIONAL CAPABILITIES

DNCS functional capabilities in the SNA network are as follows:

1. Functions as Physical Unit (PU) type 2 intelligent cluster controller node.

2. Supports the following secondary Logical Unit (SLU) types:

   a. SLU type 1 (SLU.type1) using SNA character string (SCS) data stream, PS profile 1, FM profile 3 and TS profile 3 for support of TI 810 RO, 820 KSR, 743 KSR, LQ45 RO printers and DNOS sequential disk files via emulation. The PTR1 emulator supported by SLU.type1 emulates IBM 3287-2 and 3289-2 printer functions.

   b. SLU type 2 (SLU.type2) using SNA 3270 data stream (commands and orders), PS profile 2, FM profile 3 and TS profile 3 for support of TI 911 Video Display Terminal (VDT) via emulation. The VDT2 emulator supported by SLU.type2 emulates IBM 3278-2 display station functions.

   c. SLU type 3 (SLU.type3) using SNA 3270 data stream (commands and orders), PS profile 3, FM profile 3 and TS profile 3 for support of TI 810 RO, 820 KSR, 743 KSR, LQ45 RO printers and DNOS disk files (sequential and relative record) via emulation. The PTR3 emulator supported by SLU.type3 emulates IBM 3284 printer functions.

3. Supports the program station control (PSC), emulating the video device supported by SLU type 2 or printer device supported by SLU type 3, to user application programs.

4. Supports a wide variety of network operator functions to control and display the status of DNCS resources; such as lines, line controllers, physical units, logical units, devices and PU/LU sessions. It also allows VARYing the node resources and displaying memory of the network tasks and line controllers.

5. DNCS uses the formatted session services of the System Services Control Point (SSCP) for LOG-ON to the host applications.

6. Supports concurrent sessions with multiple applications in the same host node via session switching from the physical device (terminal).

7. Supports multiple Physical Units (PUs), depending on DS990 system memory availabilty. The host support of multiple PUs can be in the same or different domain.

1.2.2 SNA NETWORK REQUIREMENT

The hardware, software, application subsystem, and system generation requirements of the SNA/SDLC network nodes to support the DS990 cluster controller node (Physical Unit type 2) are as follows:

1. HARDWARE

   a. Host system/370 (or 303X, or equivalent CPU).

   b. 3705 (or equivalent) communication controller node (local and/or remote).

   c. 4-wire leased telecommunication line (non-switched) of up to 19200 bits per second on point-to-point or multi-point configuration using SDLC protocol in non-NRZI mode from the 3705 (local or remote) to the DS990 system.

2. SOFTWARE

   a. Virtual Operating System - OS/VS1, or OS/VS2, or DOS running in the host system.

   b. Advanced Communication Function/Virtual Telecommunication Access Method (ACF/VTAM) running in the host system.

   c. Advanced Communication Function/Network Control Program/Virtual System (ACF/NCP/VS) running in the communications controller node.

3. HOST SYSTEM APPLICATION SOFTWARE

   a. Information Management System (IMS).

   b. Customer Information Control System (CICS).

   c. Time Sharing Option (TSO).

4. SYSTEM GENERATION

   a. The VTAM/NCP generation must include the PU/LU addresses, LU types, SDLC full-duplex line configuration, data link poll address and other parameters for the PU type 2 support (such as pacing, maximum request unit size, etc.)

   b. The application subsystem (i.e., IMS/CICS/TSO) generation must include the terminal support using the BIND format for the LU type 1 (SCS printer), LU type 2 (3270 display unit), and/or LU type 3 (3270 printer). This support is specified via the LOGMODE table and must include

the DNCS requirements (such as LOGMODE=DCPUPA for LU type 1, LOGMODE=DCP3278 for LU type 2, and LOGMODE=DCP3284 for LU type 3). A sample LOGMODE table for DNCS supported devices is shown in Table 1-1.

Table 1-1 DNCS LOGMODE TABLE FOR LU TYPE 1, 2, 3

```
DCPMOD    MODETAB
DCPLUT2   MODEENT LOGMODE=DCP3278,
                  FMPROF=X'03',
                  TSPROF=X'03',
                  PRIPROT=X'B1',
                  SECPROT=X'90',
                  COMPROT=X'3080',
                  RUSIZES=X'85F8',
                  PSERVIC=X'020000000000000000000200'
DCPLUT1   MODEENT LOGMODE=DCPUPA,
                  FMPROF=X'03',
                  TSPROF=X'03',
                  PRIPROT=X'B1',
                  SECPROT=X'B1',
                  COMPROT=X'3040',
                  RUSIZES=X'0202',
                  PSERVIC=X'8585'
DCPLUT3   MODEENT LOGMODE=DCP3284,
                  FMPROF=X'03',
                  TSPROF=X'03',
                  PRIPROT=X'B1',
                  SECPROT=X'90',
                  COMPROT=X'3080',
                  RUSIZES=X'8787',
                  PSERVIC=X'030000000000018502B507F00'
.     .   MODEEND
          END
```

1.2.3 DS990 NETWORKING ENVIRONMENT

A sample network configuration of DS990 DNOS/DNCS system in an SNA network is shown in Figure 1-1.

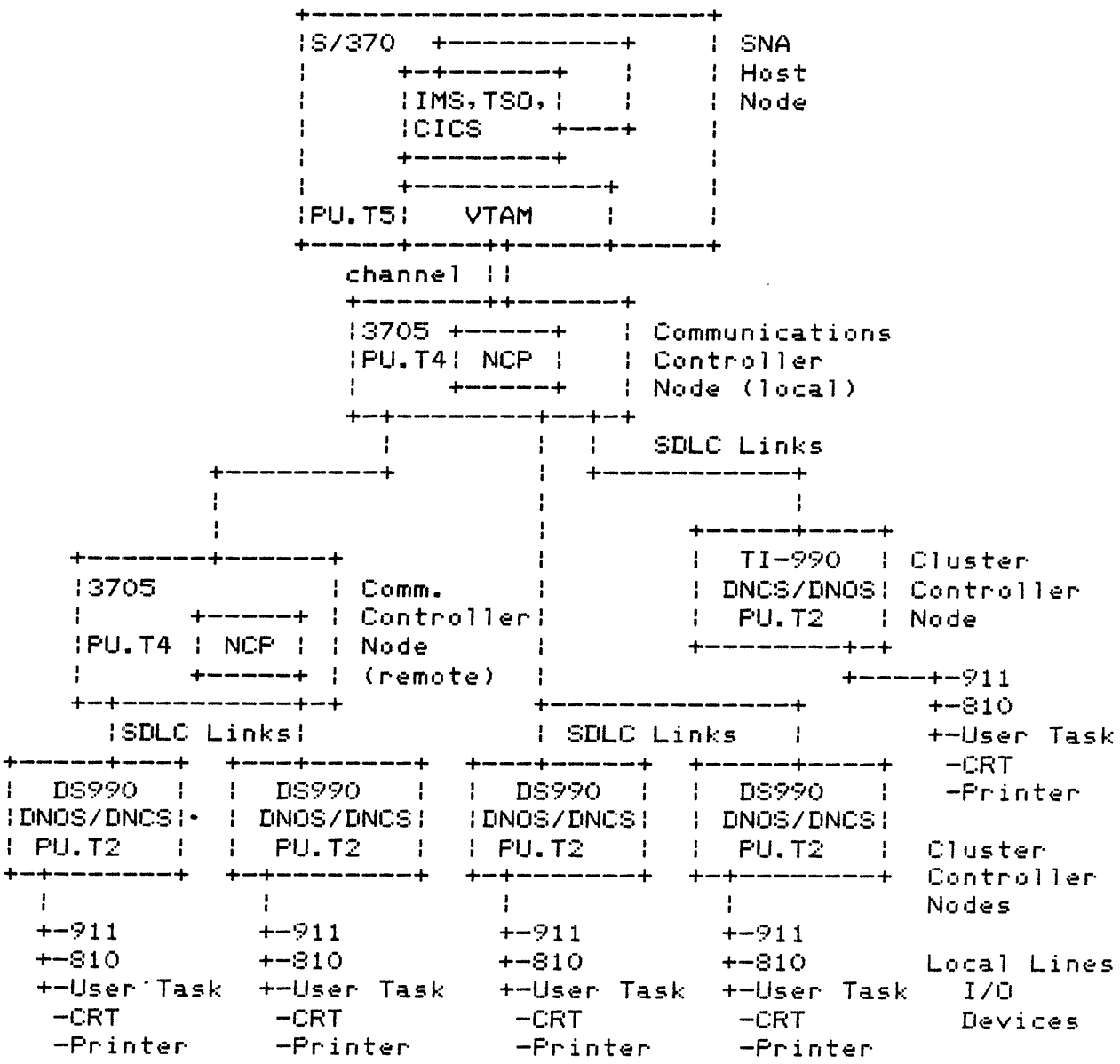

Figure 1-1 DS990 DNOS/DNCS NETWORKING ENVIRONMENT in SNA

1.2.4 DS990 DNOS/DNCS STATUS

The DS990 DNOS/DNCS system has operated with the following IBM network hardware and software products. The end-user (customer) can configure the SNA network according to the requirements of terminal support, line configuration, line speed, etc. The host VTAM/NCP and APPLICATIONs must be genned to support the DS990 DNOS/DNCS system. The DS990 DNOS/DNCS system must be genned to support the host system requirements.

1. IBM host system/370 running OS/VS2 and Advanced Communication Function/Virtual Telecommunications Access Method (ACF/VTAM) release 2.0.

2. IBM communications controller 3705 running Advanced Communication Function/Network Control Program/Virtual System (ACF/NCP/VS) release 2.0.

3. DS990 system connected to an IBM 3705 (local or remote) via 4-wire (full duplex) leased (non-switched) telecommunication line in point-to-point and multi-point configurations. The SDLC, in normal response mode (NRM) and non-NRZI mode, was used as the link protocol.

4. The modem used on each end (i.e. at 3705 and at DS990) were 'synchronous' type BELL 208B for 4800 bits per second and CODEX LSI9600 for 9600 bits per second transmission speeds. Other synchronous type BELL modems (or equivalent) may be used.

5. The application subsystems used in the IBM host were:

   a. Information Management System/Virtual System (IMS/VS).

   b. Customer Information Control System/Virtual System (CICS/VS).

   c. Time Sharing Option (TSO).

1.3 DNCS/SNA EMULATOR MEMORY REQUIREMENTS

The DNCS/SNA Emulators consist of six tasks. The following table describes the memory requirements for the DNCS/SNA Emulators. All variables are specified during the generation of DNCS as described in the DNCS_Operations_Guide.

name	size(bytes)	program file	memory resident?
EM3278	19034	<dncs volume>.S$DNCS.PGMTASK	NO
EM3284	21548	<dncs volume>.S$DNCS.PGMTASK	NO
EM914P	10062	<dncs volume>.S$DNCS.PGMTASK	NO
EMPSC	29562 + (a)	<dnos volume>.S$UTIL	NO
PSTART	1590	<dnos volume>.S$UTIL	NO
DSTART	3168	<dnos volume>.S$UTIL	NO

Where
(a) = 2 + 4*(no. of PORTs on all BOARDs) + 6*(no. of CIRCUITs)
+ 18*(no. of RESOURCEs on all CIRCUITs with protocol CIPC)

1.4 DNOS BUFFER TABLE REQUIREMENTS

The DNCS/SNA Emulators dynamically expand/compress the DNOS buffer table area, by 288 bytes, on execution/termination. This is to guarantee a buffer for Emulator execution.

1.5 DNCS/SNA EMULATOR DISK UTILIZATION

The following table summarizes the disk requirements for the DNCS/SNA Emulators. The figures are estimates and will vary depending on the number of sectors/ADU of the disk and configuration parameters. Generally, the larger the sectors/ADU the more disk space required due to disk allocation on an ADU basis. Also, the more configurable resources defined in DNCS the more disk space required. The ADU size in the following table is based on 256 bytes/ADU.

name	disk roll space (ADUs)	disk resident space (ADUs)
VDT2 EMULATOR	75	
PTR3 EMULATOR	85	
PTR1 EMULATOR	40	
EMPSC EMULATOR	135	
DNCS/SNA EMULATOR DIRECTORY (DCEMO)		2000-2500
DNCS GENERATION DIRECTORY (SDGU)		400
DNOS SYSTEM DIRECTORY (S$UTIL)		200
DNCS SYSTEM DIRECTORY (S$DNCS)		250
DNCS COMMAND DIRECTORY		30

Section 2

KNOWN PROBLEMS

This section documents known problems that may be encountered in installing and operating the DNCS/SNA object package.

2.1 SOFTWARE

DNCS/SNA 1.0 software currently has the following known problems. Problems which have been fixed with patches are so identified. Some patches are not on the object installation media patch files because they were developed after the software was in the release cycle. The latest patches can be obtained as described in Section 3.

1. The XDPSC proc cannot be used to bid a COBOL PSC user written task. Use XTS, XCT, or XCTF to bid the task.

2. Upon IPL, DNCS assumes printer stations are active and transmits log-on messages to the host via a timer algorithm. When the 'start data traffic' message is received, the LU-STATE goes to DTACT. A 'terminal connected' message may (depending upon the application) be sent to the printer. However, until the printer emulator is activated, this message cannot be printed. The printer bracket state (BRKST) is RCVE until the printer emulator is activated.

3. The XVDT2 option of auto logoff used when session not active does not reset term state from ACT to TMOUT. This is a nuisance type problem and does not functionally affect the operation of the emulator.

4. If a 'log-on other' command is issued for a printer station (for example, 'IMS ID=LP01'), an 'attempting session' message is first sent to the printer. If printer emulator is not active, the printer cannot receive the message and is marked inactive. Therefore, the log-on command is not sent to the host (and the timer algorithm for auto-logon is switched off). The printer bracket state goes to RCVE in this case. The log-on request remains active and will be transmitted whenever the printer emulator becomes active. A STOP/START command on the output device may be required to set the output device ready to receive data (bracket state BETB).

5. There is a problem with PATPSC that prevents patching the DNCS/SNA PSC tasks. A separate patch module must be linked with these tasks to provide the required patch area. Before executing ALPSC, perform the following steps to allow this patch module to be included in the link control files for these tasks:

   a. Copy the patch module from the Nucleus object installation directory (DCFWO) to the DNCS/SNA object installation directory (DCEMO) as follows:

      CC I=DCFWO.CS.OBJ.PATCH, O=DCEMO.EMPSC.OBJ.PATCH

   b. Edit (XE) the link control file at DCEMO.RELEASE.CTL.PSTART and insert the following statement immediately before the END statement:

      INCL DCO.EMPSC.OBJ.PATCH

   c. Edit (XE) the link control file at DCEMO.RELEASE.CTL.DSTART and insert the following statement immediately before the END statement:

      INCL DCO.EMPSC.OBJ.PATCH

6. STR 11485 - PSC and PTR3 processing of program tab orders is incorrect under certain boundary conditions. Patches 1655 and 1684 fix this problem for PSC. Patch 1656 and 1685 fix this problem for PTR3.

7. STR 11551 - PSC start up task should do a write execute instead of write initiate on the user IPC channel to insure user task read completion. Patch 1661 fixes this problem.

8. STR 11755 - PSC will hang when auto-logon is specified for a station that is already logged on. Patch 1700 fixes this problem.

9. STR 11805 - XPTR1 proc does not support use of synonyms in response to PRINTER ACCESS NAME. Patch 1707 fixes this problem.

10. ALPSC encounters an assembly error if a CIPC circuit is the last circuit defined in the DNCSGEN configuration. This problem can be avoided by defining a circuit other than CIPC as the last circuit. The latest DNCS patches contain a fix for this problem.

2.2 DOCUMENTATION

The following documentation changes and additions are applicable to the DNCS/SNA USER'S GUIDE.

1. Paragraph 5.3.3.3. Add the following to the list of arguments which return values of interest: The third argument returns the actual number of characters retrieved.

2. Figures 5-2 and 5-3 are stand-alone examples. These examples are not intended to work together in a user program without appropriate customization.

3. Paragraphs 5.4.1.4, 5.4.2.4, and 5.4.3.4. The DNCS PATCH DIRECTORY prompt for PUPSC is better described as follows: 'Enter the directory name where the DNCS/SNA patch sub-directories reside. The standard response is DCEMO. Otherwise, enter the directory name containing the .PATCH directory.'

   In addition, the following messages are displayed at the station after PUPSC is entered. Respond to each message by pressing RETURN.

   BATCH LISTING FILE WILL BE...

   '<dcpat>.PATCH.LSTPUP':

   where:

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

4. Page C-21. Add the following message:

   DNCS0915 E <station> printer not available

   Explanation: You have used the PRINT key, but the associated printer is not available.

   User Action: Use the DNCS/CI Display command to check the status of the printer station. Verify that the hard copy device is available and its printer station emulator is active. Use the DNCS/CI STOP/START command to bring the printer station to an active state.

5. Table 5-6, page 5-57. Replace the current description of completion code 0018 with the following description: 'Emulator terminated. Do not use XDPSC proc to bid PSC COBOL task.'

Section 3

PATCHES AND PATCH PROCEDURES

3.1 PATCH UPDATE PROCEDURE

Patches are maintained by Texas Instruments and are available to customers from two sources - Customer Support Line and Patch Update Service. The Customer Support Line is able to provide patches on an as needed basis over the telephone or by communications link. Call (512)-250-7407 to get the latest patch files. Periodically, Texas Instruments will ship all current patches for the DNOS system family software to customers on the subscription service. Refer to the DNOS Products Patch Update Service Release Information for a list of the latest patches. In both cases, a detailed explanation will be provided on how to apply the patches to your system.

It is recommended that you call the Customer Support Line to get the latest patches prior to installation of the product.