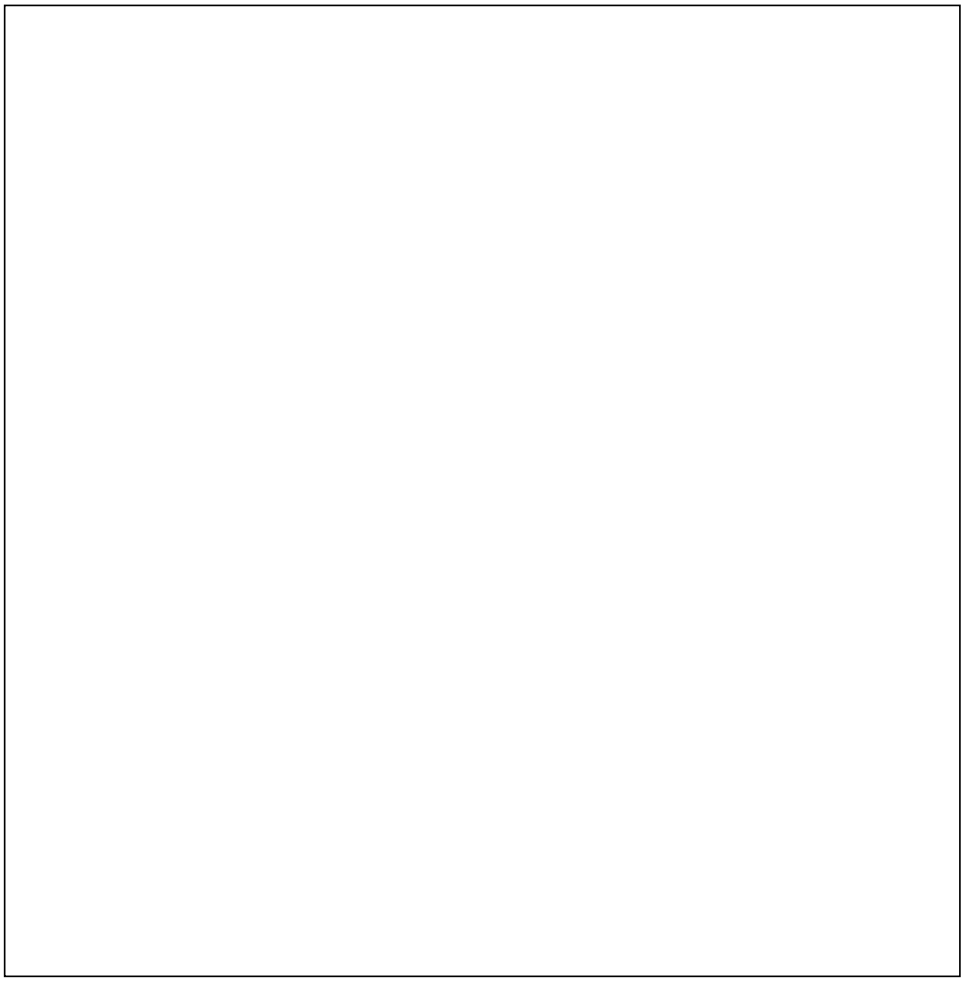
297-1001-524

DMS-100 Family

Remote Data Polling System

Description and User Interface

BCS33 and up Standard 09.01 October 1991



northern telecom

DMS-100 Family

Remote Data Polling System

Description and User Interface

Publication number: 297-1001-524
Product release: BCS33 and up
Document release: Standard 09.01
Date: October 1991

Publication history

October 1991

BCS33 Standard 09.01

- Updated format to new Northern Telecom documentation standards

March 1990

BCS30 Standard 08.01

- Added Table XFERSSYS and updated the DEFINE command
- Added System Load Module information to Configuration

Revision bars in the table of contents identify the sections where information has been changed. Revision bars in the outside margin of a page indicate text that has been added or revised.

Contents

List of terms 6-1

List of figures

List of tables

About this document

This document describes the Remote Data Polling System (XFER) facility and XFER menu commands provided in the NTX059AB feature package. Also discussed is the Network Operating System (NOS) facility and the Network Operation Protocol (NOP). NOP is provided in the NTX560AB feature package.

Applicability of this document

Northern Telecom (NT) software releases are referred to as batch change supplements (BCS) and are identified by a number, for example, BCS29.

This document applies to DMS-100 Family offices that have BCS33. Unless the document is revised, it also applies to offices that have software releases greater than BCS33.

More than one version of this document may exist. To determine which version applies to the BCS in your office, check the release information in *Guide to Northern Telecom Publications*, 297-1001-001.

How to identify the software in your office

Software applicable to a specific DMS-100 Family office is identified by a BCS release number and by NT Product Engineering Codes (PEC). The significance of the BCS number and the PEC is described in *Provisioning*, 297-1001-450 (section 450/32) and in the Office Feature Record D-190.

The *Office feature record D190* lists your current BCS and the NT feature packages that it comprises. To view similar information on screen, enter the following command string at a MAP (maintenance and administration position) terminal.

PATCHER;INFORM LIST;LEAVE

How the Remote Data Pooling System (XFER) documentation package is organized

This document is part of the XFER documentation package that supports NTs line of XFER products. The XFER documentation package is a subset of the DMS-100 Family library.

Where to find information

Documents that you require to understand the content of this document are listed below. These documents are also referred to in the appropriate places in the text.

Note: More than one version of these documents may exist. To determine which version of a document applies to the BCS in your office, check the release information in *Guide to Northern Telecom Publications*, 297-1001-001.

Prerequisite References

Document	Title
297-1001-100	Dms-100 System Description
297-1001-312	Device Independent Recording Package (DIRP) User Guide
297-1001-525	Data Packet Controller Reference Manual

Informative References

Document	Title
297-1001-001	Guide to Norfthern Telecom Publications
297-1001-110	Maintenance and Administration Position (MAP)
297-1001-119	Automatic Message Accounting--Northern T elecom Format
297-1001-160	Automatic Message Accounting Bellcore Format User Guide
297-1001-310	Table Editor Reference Manual
297-1001-312	Device Independent Recording Package User Guide
297-1001-450	Provisioning
297-1001-451	Common Customer Data Schema
297-1001-500	Index to Maintenance Procedures Documents

Document	Title
297-1001-513	Input/Output Devices (IOD) Man-Machine Interface Description
297-1001-517	External (EXT) Alarms Man-Machine Interface Description
297-1001-520	Maintenance System Man-Machine Interface Description
297-1001-830	Automatic Message Accounting Bellcore Format Reference Manual
450-1021-311	DNC-100/DNC-500 Dynamic Network Control Systems: BNM Input/Output Procedures

NT and Bell-Northern Research (BNR) trademarks and the products they represent

The following chart lists all NT and BNR trademarks that occur in this document, and associates them with the products they represent.

Trademark	Product
DMS	*Digital multiplex system* telephone switching equipment
DMS SuperNode	telecommunications switching equipment
NT	*Northern Telecom* a company that produces telecommunications switching equipment
MAP	*Maintenance and administration position* telephone communication equipment

What precautionary messages indicate

In this document, caution, danger and warning messages indicate potential risks, as identified in the following chart.

Message	Significance
CAUTION	Possibility of service interruption or degradation
DANGER	Possibility of personal injury
WARNING	Possibility of equipment damage

Examples of the precautionary messages follow.

CAUTION
Calls are dropped when line group controller is busied.
Manually removing the line group controller from service removes all its subtending peripheral modules from service. All calls in progress are dropped.

DANGER
Risk of electrocution
The inverter contains high voltage lines. Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed first. Until these fuses are removed, the high voltage lines inside the inverter are active, and you risk being electrocuted.

WARNING
Backplane connector pins may become damaged.
Use light thumb pressure to align the card with the connectors. Next use the levers to seat the card into the connectors. Failure to align the card first may result in bending of backplane connector pins.

How commands, parameters, and responses are represented

In this document, commands, parameters, and responses are represented according to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command.

Type the command that follows the input prompt and press the carriage return key.

Capital letters

Capital letters represent commands, fixed parameters, and responses that appear at a MAP.

Enter the command or fixed parameter exactly as it appears on the page.

Lowercase letters

Lowercase letters represent variables.

For commands and parameters, enter the letters or numbers that the variable represents. In most instances, the name that is used for the variable indicates clearly what you must enter. Where it does not, further explanations are provided.

In responses (which are presented in capital letters), lowercase letters represent a range of values.

Brackets [ ] or **[ ]**

Brackets enclose optional parameters. A vertical list enclosed in brackets means that one or more of the parameters may be selected.

Underscore connecting words

Underscore connecting words means the words are to be treated as one item, for example, pm_type or #_one_two.

• • •

Indicates repeated steps or items.

In addition, the following conventions are used.

n (lowercase n) is a number from 0 to 9.

a (lowercase a) is a letter from A to Z.

h (lowercase h) is a hexadecimal integer from 0 to F.

The following example illustrates the command syntax that is used in this document.

Examples of command syntax used in this document

Step	**Action**
1	Post the card in the inactive unit.
input>	**>POST unit_no card_no state**
parameters>	where unit_no is the number of the inactive unit (0 or 1) card_no is the number of the card you replaced (22-27) state is the state of the unit in which you wish to replace the card (Insv, SysB, ManB or Offl)
Example input>	For example: **>POST 7 1 INSV**
Example output>	`CARD 7 IS POSTED IN UNIT 1 OF MSB16`

Remote data polling system operation

The Remote Data Polling System (XFER) permits an Operating Company to transfer information such as Automatic Message Accounting (AMA) data or Operational Measurements (OM) data to its data processing center.

Such data is stored on a variety of recording devices at the DMS office, by means of the device independent recording package (DIRP), explained more fully in *Device Independent Recording Package User Guide*, 297-1001-312. Data is made available, through DIRP , to the XFER for transmission to the data center.

> ***Note:*** For information on data transferal as it applies to Network Operation System (NOS), refer to Chapter 5 on page 5-1.

Configuration

Data transferal is done via a digital data packet switching network, such as DATAPAC (see *Data Packet Controller Reference Manual*, 297-1001-525), as shown in Figure 1-1 on page 1-3.

As shown in the figure, a standard network dataset interface in the data center office is connected through a pair of line controllers to the data center computer. A visual display unit (VDU) is connected to the computer via a terminal controller.

At the DMS office a network dataset interface is connected via an Electronic Industries Association (EIA) RS-232-C interface cable to a data packet controller (DPC) circuit pack (1X67BB or 1X67BD).

The DPC implements the network framing pattern, handles the cyclical redundancy check (CRC), and interfaces with the input/output controller (IOC).

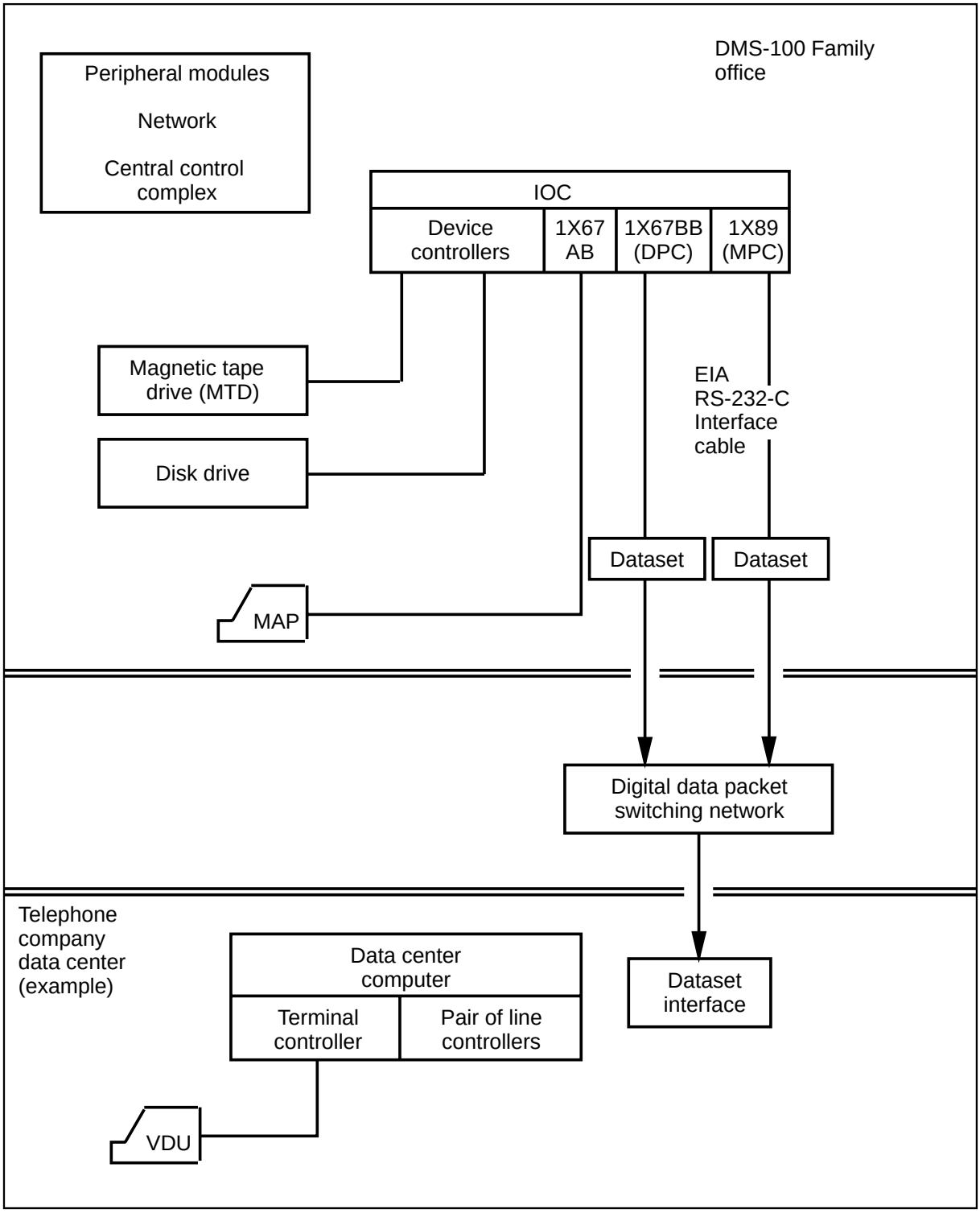
The multi-protocol controller (MPC) is a hardware circuit card (1X89) based on the 68000 microprocessor. The MPC resides between the IOC bus on the central control (CC) side of the IOC shelf and and two RS-232-C communication links to other systems on the other side.

The MPC performs the same functions as the DPC more quickly, saving central processing unit (CPU) real time in standard call processing.

Other Input/Output devices (IOD) are connected to the IOC using appropriate device controller circuit packs. The MAP connects to a terminal controller circuit pack (1X67AB).

Optional feature package NTXJ44AA supports the DIRP to record subsystem data on another device in DMS-Supernode called system load module (SLM). The SLM file system supports the functionality of the IOC disk file system on the DMS-Supernode. On a per disk basis, the SLM disk has shorter access time and larger storage capacity than the standard IOC disk. Because SLM tape files are not supported, only SLM disk files can be transmitted to Revenue Accounting Offices (RAOs) by using XFER utility. See *Device Independent Recording Package User Guide*, 297-1001-312, for more information on SLM disks.

Figure 1-1xxx
Remote data polling system hardware configuration

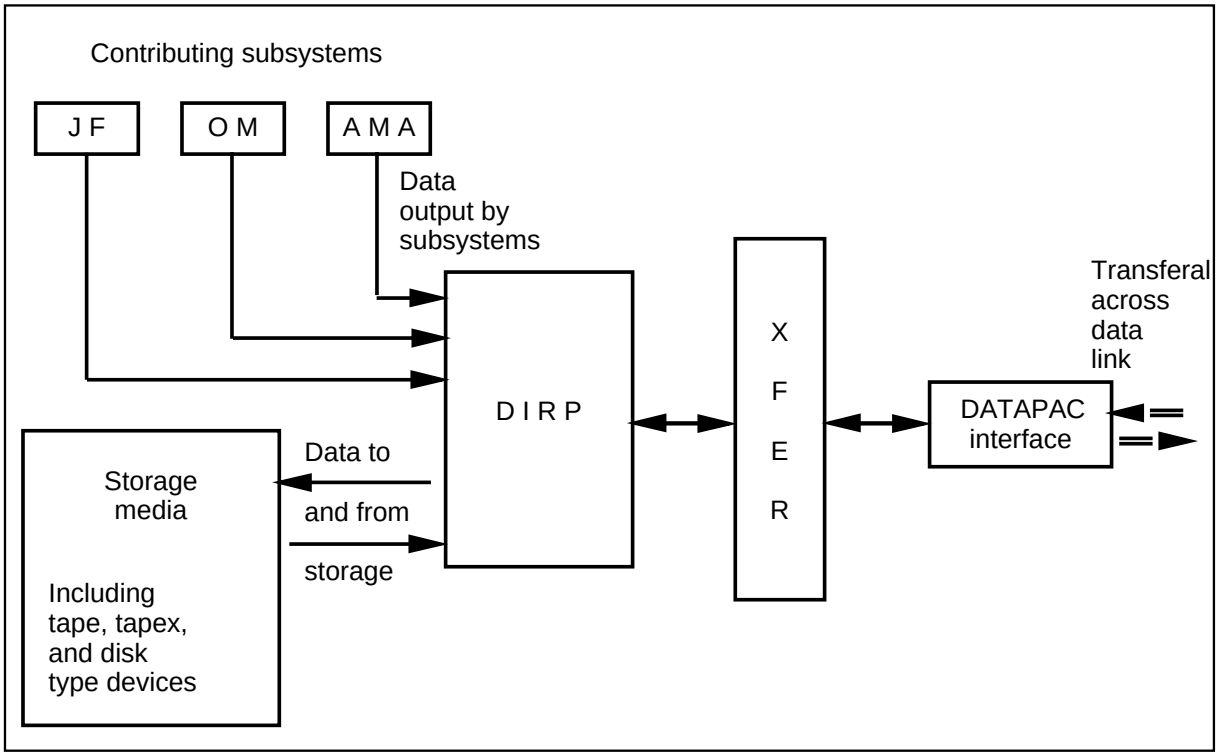


The XFER software controlling the XFER is resident in the DMS switch and is responsible for the following functions:

- handling incoming requests for data
- presentation of inventory lists of available data to the data center
- coordinating data transferal sessions.

Figure 1-2 illustrates the relationship between the DIRP and the XFER system.

Figure 1-2
Interrelationships in data management



Procedural overview

Transmission of recorded data to a remote Operating Company data center is accomplished by means of the DIRP and the XFER level of the MAP and generally involves the following step.

1 The remote data center contacts the DMS office via the packet switching network.

2 The network address of the calling data center is verified by comparing it to the list of authorized users in Data Table XFERADDR.

3 Once the incoming request is verified, the DIRP makes the latest recorded data available.

4 The data center scans the contents of the DIRPHOLD table, and selects a file for transmission.

5 DIRP manipulates the appropriate recording device and the file is transmitted.

6 On completion of transmission, the data center sends instructions for final disposition of the file.

Transferal protocols

There are two basic methods of data transferal, Automatic and Manual.

Automatic transferal

Normally, the DIRP manipulates the files under its control in order to meet the recording needs of the switch. In turn, file identification information is recorded in the DIRPHOLD control table, creating an inventory of data files that are available for transmission. Files originating in this fashion are labeled as being in the unprocessed (UNPROC) state (see Table 3-1 on page 3-7).

DIRP then proceeds as follows in processing the files and initiating automatic transferal.

1 When the remote data center establishes contact with the DMS office, DIRP is instructed to perform a ROTATE and CLOSE procedure. DIRP attempts to rotate the recording duties of the files assigned to the particular subsystem being polled. DIRP then closes any files that can be closed, while preserving the minimum number of files specified for the subsystem. See *Device Independent Recording Package User Guide*, 297-1001-312, for more information on DIRP procedures.

2 The closed files are identified in Table DIRPHOLD, ensuring that the latest recorded data is available to the data center. The data center selects the file it wants to receive from the contents of DIRPHOLD and requests the desired file from the DIRP, using the XFER MAP level.

3 DIRP controls the necessary recording device, and XFER transmits the requested file to the data center.

4 Following transmission, the data center sends instructions concerning the file to XFER, which in turn instructs the DIRP concerning file disposition.

5 If the data was correctly received, the DIRP is instructed to retain the file for reuse. If a file is retained for reuse, its state is changed to AGEING (see Table 3-1 on page 3-7).

6 In the event that the data center detected errors during the transmission, the original file is required for verification and a request to transport the file to the data center is sent to XFER. The file status is changed to TOSEND, and a SENDnn minor alarm is raised (see Table 1-1 on page 1-6and Table 3-1 on page 3-7).

7 If no specific instructions are received, it is assumed that the data was not successfully received by the data center. The file state is not changed from UNPROC, and the file is available for further attempts at transferal.

Table 1-1xxx
Data transferal alarm indications

Indication	Meaning
XMITnn	The data center has requested that a file, identified at the position indicated by the key field value ‘nn’ in Table DIRPHOLD, is to be transmitted.
DMNTnn	Transmission of a tape volume has been completed and Operating Company personnel should remove the tape from the MTD. The volume is identified by its key field value ‘nn’ in Table DIRPHOLD.
SENDnn	The file identified by key field value ‘nn’ in Table DIRPHOLD cannot be received by the data center or Telco Network Operations System (TNOS). Physical intervention by Operating Company personnel is necessary.
KEEPnn	The file identified by key field value ‘nn’ in Table DIRPHOLD has been successfully transmitted to the Data Center or TNOS, and the file space can be reused by the DMS office, after expiration.

Page 1 of 1

Manual

Files that are not under the DIRP control may be manually transferred to a data center. Any file can be added by Operating Company personnel to the DIRPHOLD table to make it available for transmission to the data center.

For example, if a recording volume is part of a pool of devices (in Table DIRPPOOL) that is no longer used by the originating subsystem, all files on the volume are removed from the DIRP control and are placed under manual control. Such files can still be made available for transferal by manually creating entries for them in Table DIRPHOLD.

If the data center requests a file that is not under the DIRP control, operating company personnel are alerted by alarms.

Transmission of files under manual control is conducted using the commands of the XFER level of the MAP. These commands are described in Chapter 3 on page 3-1.

Files being transmitted are monitored by four minor alarms. These alarms appear under the IOD heading of the top level maintenance subsystem header and are described in Table 1-1 on page 1-6.

A sample data transferal session using XFER is presented in Chapter 4 on page 4-1.

Data assignment

This part of the document defines the data tables that need to be datafilled in order to activate the remote data polling system (XFER) facility. The activation of the XFER facility is accomplished by datafilling the tables listed in Table 2-1 below.

Table 2-1xxx
Data tables for activation of NTX059AB

Table	Section	Form	Table title
DPACDEV	008	2058	DATAPAC Device
GDLADEV	096	2063	Device Definition
XFERADDR	045	none	Data Transferal Address Information
XFERSSYS	00A	2362	Data Transferal Subsystem

Refer to *Common Customer Data Schema*, 297-1001-451, for more information about any of these tables.

Table DPACDEV

Table DPACDEV must be datafilled to implement one or more data pocket collector (DPC) circuit packs in the DMS Input/Output subsystem. See *Data Packet Controller Reference Manual*, 297-1001-525, for more information about the Data Packet Collector.

Table GDLADEV

Table GDLADEV is used in combination with Table XFERADDR and must be datafilled before Table XFERADDR. Refer to Table 2-2 on page 2-2 for a definition of the fields in this table.

Table GDLADEV contains four tuples, one for XFER and three for future expansion. Only one device can be associated with a given application in

this table at a time. For instance, attempts to associate XFER with both the multi-protocol controller (MPC) and the DPC are not allowed.

Table 2-2xxx
Table GDLADEV field descriptions

Field name	Entry	Explanation
APPLN	XFER or NOP	APPLICATION NAME. This field identifies the data transfer application to be used with an associated device as defined in the DEVICE field. There is no default.
DEVICE	MPC or DPC	TRANSMISSION DEVICE NAME. This field defines the transmission device to be associated with a specific data transfer application, as specified in the APPLN field. There is no default.

Page 1 of 1

Note: 1 Datafilling Table GDLADEV is not required in offices with transmission applications other than XFER. If XFER is used, Table GDLADEV must be datafilled as in the following example:

```
TABLE:  GDLADEV
TOP

APPLN     DEVICE
_____     ______

XFER      MPC

BOTTOM
```

In this example, XFER is the transfer application and MPC is chosen as the transmission device.

Note: 2 To change which transmission device XFER uses (for example, from DPC to MPC), all tuples in the XFERADDR table must be deleted before Table GDLADEV can be changed.

Table XFERADDR

The fields for Table XFERADDR are defined in Table 2-3 on page 2-3. DPC identifiers in this table correspond to those in Table DPACDEV.

Table XFERADDR can contain a maximum of 64 tuples, one for each possible virtual network connection that can be established by the office.

More than one of these connections can be in use simultaneously to handle multiple polling requests. Entries represent possible virtual connections only, and more than one entry may map to the same DPC circuit pack.

Table XFERADDR requires approximately 192 words of dynamic data store for 64 tuples. Table GDLADEV requires eight words of dynamic storage for four tuples.

Table 2-3xxx
Table XFERADDR field descriptions

Field name	Entry	Explanation
INDEX	0 through 63	TABLE INDEX. Enter an integer from 1 to 63 as an index for Table XFERADDR.
ADDRESS	00000000 through 99999999	NETWORK ADDRESS. Enter the network address number entered in the NODENUM field of Table DPACDEV.
UNIT	-32768 through 32767	MPC or DPC UNIT NUMBER. Enter the MPC or DPC number. If only the DPC is resident to the switch, only the DPC unit number will be entered. If only the MPC is resident to the switch, only the MPC unit number is entered. The unit numbers are obtained from Table MPC or Table DPACNUM. Common Customer Data Schema, 297-1001-451, section 078, describes Table MPC. *Common Customer Data Schema*, 297-1001-451, section 008, describes Table DPACNUM. If the MPC is datafilled in Table GDLADEV, values for this field are limited to 0 through 255. If the DPC is datafilled in Table GDLADEV, values for this field are limited to 0 through 15. There is no default.
LINK	-32768 through 32767	MPC LINK NUMBER. The only values that can be entered for the MPC are 2 and 3. If the DPC is datafilled in Table GDLADEV, the value for the MPC LINK field must be -1. There is no default.

Page 1 of 1

Table XFERSSYS

Table XFERSSYS holds the information that was previously provided in the DEFINE command at the XFER level of the MAP (maintenance and administration position). This table stores information about each device independent recording package (DIRP) subsystem whose data can be

transmitted using XFER. The fields for Table XFERSSYS are defined in Table 2-4 on page 2-4.

Table XFERSSYS contains 24 tuples and requires 72 words of data store. A subsystem must be datafilled in Table DIRPSSYS prior to datafilling the subsystem in Table XFERSSYS.

Table 2-4xxx
Table XFERSSYS field descriptions

Field name	Entry	Explanation
SSNAME	1 through 4 character string	SUBSYSTEM NAME. Enter the name used to identify the subsystem to DIRP. The subsystem must be known to DIRP prior to using it in this field.
PROTCLID	1 through 255	PROTOCOL IDENTIFICATION NUMBER. Enter the transferal protocol identification number by which the subsystem is known to data center. This number is supplied by the pooler and must be converted from hex to decimal.
FKEY	F13, F14,...F18, FNONE	FUNCTION KEY. Enter the key (menu item number) by which the subsystem is to be known at the XFER level of the MAP. Keys 2 through 12 are predefined for XFER commands and cannot be used for subsystems. Keys 13 through 18 can be defined for subsystems by using this table. The entry for the defined subsystem will not appear in the menu until the user exits and re-enters the XFER level of the MAP. FNONE means that no function key is specified for this subsystem and it will not appear on the menu.

Page 1 of 1

XFER menu and commands

XFER menu

The remote data polling system (XFER) level of the maintenance and administration position (MAP) is accessed from the Input/Output device (IOD) level with the command ‘XFER.’ The IOD level MAP display is illustrated in Figure 3-1 on page 3-1, while the XFER level display is illustrated in Figure 3-2 on page 3-2.

Figure 3-1xxx
IOD subsystem status and menu display

```
   CC     CMC    IOD    Net     PM     CCS    Lns    Trks    Ext
    •      •      •      •       •      •      •      •       •

 IOD         IOD   IOC    0      1
 0 Quit            Stat   •      •
 2
 3           DIRP:   •     XFER:  XMIT61
 4 ListDev_
 5
 6
 7
 8
 9
10
11
12
13 DIRP
14 Trnsl_
15 Xfer
16
17 IOC_
18
   USER ID
TIME 13:42 >_
```

The division of the MAP screen into various application areas is described in *Maintenance System Man-Machine Interface Description*, 297-1001-520.

The labels device independent recording package (DIRP) and XFER appear on line 7 of the display. Next to each of these, any alarm conditions applicable to these subsystems are displayed. DIRP alarm indications are described in *Device Independent Recording Package User Guide*, 297-1001-312. XFER alarm indications are described in Table 1-1 on page 1-6. If there are no alarm conditions, a dot (.) appears.

Of the items appearing on the XFER menu, those numbers 3 through 9 and 12 are commands. Items 10 and 11 are parameters used with some of the commands. Parameters appear on the menu for convenience of input.

Figure 3-2xxx
XFER level menu display

```
   CC     CMC    IOD    Net     PM     CCS    Lns    Trks    Ext
    •      •      •      •       •      •      •      •       •

 XFER       IOD   IOC     0      1
 0 Quit           Stat    •      •
 2
 3 Query_   DIRP:    •     XFER:  XMIT61
 4 Define_
 5 Xmit_
 6 Sent_
 7 Kept_
 8 Dmnt_
 9 Abortx
10 _Ssys_
11 _Hold_
12 Revive_
13
14
15
16
17
18
   USER ID
TIME 15:06 >_
```

Commands and parameters can be entered at the MAP in either of two ways.

- The item itself can be entered, character by character, regardless of uppercase and lowercase form.

- The number associated with the menu item can be entered instead of the item.

Presentation of commands

In this section, commands are described in alphabetical order and in a standard format.

The syntax of the commands is given using the following conventions.

- The command name is given in the left part of the figure and the associated parameters are given in the right part.
- Optional parameters are shown between square brackets, [ ].
- Required parameters are shown separately, with no brackets, and are stacked vertically if a selection may be made.
- Characters required to be typed in are shown in UPPERCASE, and named parameters, described in the text following the figure, are shown in lowercase.

See How Commands, Parameters, and Responses are Represented on page viii for more information on notational conventions used in this section.

The “command syntax box” for each command is followed by a description of the process that the command initiates. System responses and usage notes are also described.

The following commands, presented in alphabetical order, are supported at the XFER level of the MAP.

ABORTX	index

ABORTX is used to indicate that the file requested by the data center cannot be transmitted.

Where:

index is the key field index number for the requested file, from the Table DIRPHOLD.

Note: 1 The system cancels the XMITnn minor alarm that was raised in response to the data center or TNOS request and sends a message indicating that the file will not be transmitted.

Note: 2 The data center or TNOS can request that another attempt be made to transmit the file.

DEFINE	subsystem protocol_id mode menu_number

DEFINE previously controlled an interface function between DIRP, XFER, and the data center requesting data transmission. The functions of this command have been replaced by Table XFERSSYS. Use of the DEFINE command results in the following response.

```
PLEASE USE TABLE XFERSSYS TO DEFINE A SUBSYSTEM FOR XFER
TO UNDEFINE A SUBSYSTEM, DELETE THE TUPLE FOR THAT SUBSYSTEM
```

Refer to Chapter 2 on page 2-1 and *Common Customer Data Schema*, 297-1001-451, for information on Table XFERSSYS.

DMNT	index

DMNT indicates to the XFER that the tape which contains the specified file has been demounted from its drive, as requested.

Where:

index is the key field index number from the Table DIRPHOLD, for the file contained on the tape that has been demounted.

Note: The command has the effect of cancelling the DMNTnn minor alarm that is raised when the DEMOUNT TAPE instruction is received.

KEPT	index

KEPT indicates to the system that the specified file has been retained for reuse in the office, as requested by TNOS or the data center.

Where:

index is the key field index number of the file that has been retained, from the Table DIRPHOLD.

Note: 1 This command only applies to files under manual control, since files under automatic control are stored by the system and later reused.

Note: 2 The command causes the system to cancel the KEEPnn minor alarm that was raised when the instruction to retain the file was received from TNOS or the data center.

QUERY	XMIT SENT KEPT DMNT SSYS subsystem HOLD index

QUERY causes the display of relevant transferal information concerning the specified group of files.

Where:

XMIT specifies the group of files that have been requested for transmission.

SENT specifies the group of files that are to be transported physically to the data center for verification purposes.

KEPT specifies the group of files, under manual control, which are to be retained at the DMS office for eventual reuse.

DMNT specifies the group of files, contained on tapes, that need to be demounted from their drives.

SSYS specifies all files originating from the subsystem indicated by the next parameter.

subsystem is the name of the originating subsystem.

HOLD followed by an index number, specifies one particular file listed in the DIRPHOLD control table.

index is the key field index number, from Table DIRPHOLD, for the file for which information is to be displayed.

Note: This command causes information to be displayed at the MAP, as illustrated in Figure 3-3 on page 3-7. The menu area of the MAP screen has been omitted for clarity. Information appears under the following headings:

HOLDNO is the key field index number of the tuple concerning a file in Table DIRPHOLD.

STATE is the Transferal State Code currently assigned to the file, as described in Table 3-1 on page 3-7.

SSYS is the name of the originating subsystem.

ORIG indicates whether the file was made available due to manual or system action, entry is either MAN or DIRP, respectively.

DMNT is for files contained on magnetic tape and indicates whether the tape has been demounted after transmission, entry is either YES or NO.

FILENAME is the name of the file; file types such as tape and tapex, use the file name assigned in the datafill of Table DIRPSSYS; if none is assigned there, the name defaults to a name generated by the system. With files that are type disk, the name is always generated by the system.

COUNT is the number of records in the file.

FILE_LOCN is the name of the volume containing this file.

Note: If the group of files was specified by subsystem, the current definition of the subsystem to the XFER system is also displayed.

Figure 3-3xxx
XFER response to QUERY command

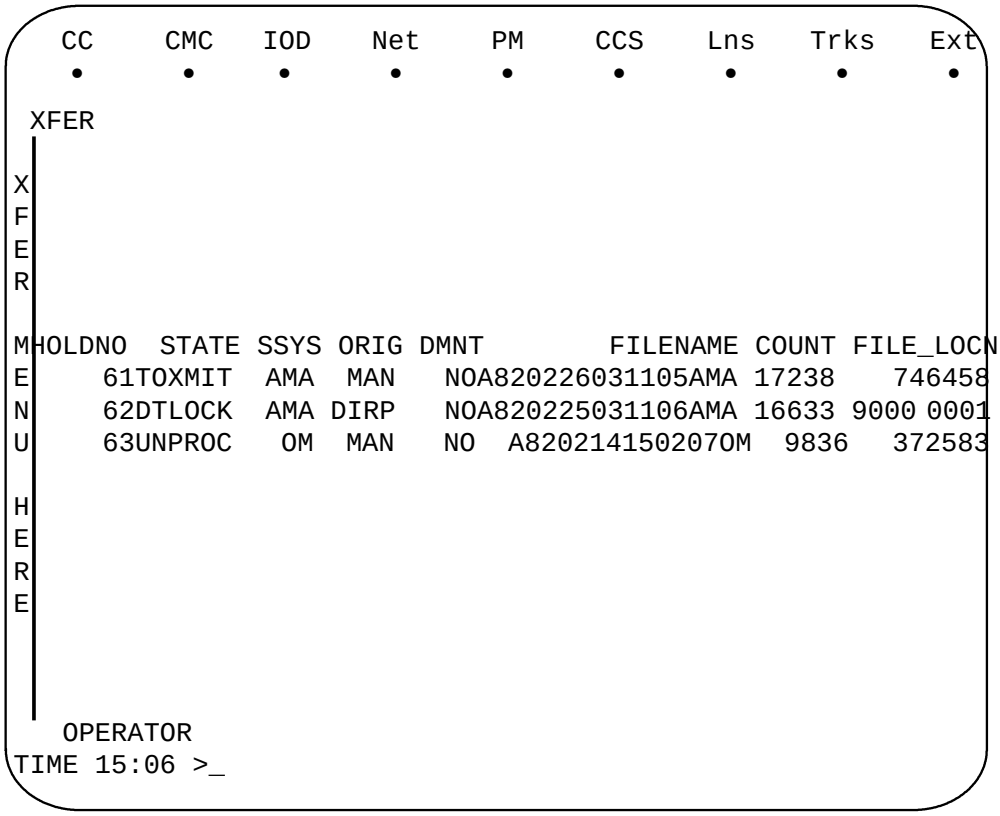


Table 3-1xxx
File states for data transferal system

Code	Meaning	Explanation
NOFILE	no file	There is no file currently listed at that location in DIRPHOLD.
UNPROC	unprocessed	This file has not yet been successfully transmitted to the data center.
DTLOCK	data transferal locked	This file is currently under the control of the data transferal system. No manual action is allowed on this file unless the data transferal session is first interrupted or terminated.
TOXMIT	to be transmitted	A request has been received from the data center to transmit this file.

Page 1 of 2

Table 3-1xxx
File states for data transferal system (continued)

Code	Meaning	Explanation
TOSEND	to be sent	The data center has requested that this file be transported to the center for verification.
TOKEEP	to be kept	The file has been processed and should be retained by the office for reuse. This applies only to files under manual control.
AGEING	aging	The file has been processed and is being held, awaiting its expiration date. This applies only to files under system control.
RELOAD	verifying over reload	A reload/restart has occurred and the system is in the process of verifying the contents of this file. This applies only to disk-type files.

Page 2 of 2

REVIVE	XFERCALL XFERCLR ALL

REVIVE brings back into activity a failed XFER process without a DMS restart.

Where:

XFERCALL specifies that the call-waiting process is to be revived.

XFERCLR specifies that the call-clearing process is to be revived.

ALL specifies both processes are to be revived.

Note: If it is necessary to manually REVIVE an XFERCALL or XFERCLR process, a software error may be indicated and should be explored before attempting to REVIVE the system. Recurring faults reflected in system logs should aid in determining the source of problems.

Responses:

```
PROCESS xxxx REVIVED
```

Explanation: The process has successfully been brought back into activity. Expression xxxx specifies the process requested for revival.

```
PROCESS xxxx ALREADY RUNNING
```

Explanation: A process xxxx requested for revival is still active and does not need to be revived.

```
UNABLE TO REVIVE PROCESS xxxx
```

Explanation: XFER cannot revive the process xxxx due to software error.

```
No response
```

Explanation: REVIVE was attempted with ALL parameter when specified processes were already running.

```
UNABLE TO COMPLETE REVIVE ATTEMPT
```

Explanation: Software difficulties have prevented the REVIVE procedure from being attempted.

```
WAIT ON REPLY TIMED OUT
ATTEMPT TO ABORT REVIVE IS BEING MADE
```

Explanation: A mailbox timeout (error) has occurred.

System Action: The system tries to stop the REVIVE.

User Action: To determine whether or not the processes are stopped or running, enter QUERY PROCESS XFERCALL or QUERY PROCESS XFERCLR at the MAPCI level. Contact the next level of maintenance.

Any of the following responses:

```
MAILBOX RESET FAILED WITH RETURN CODE nn
```

```
MESSAGING ERROR; MBRC IS nn
```

```
MAILBOX ALLOCATION FAILED WITH RETURN CODE nn
```

```
MAILBOX DEALLOCATION FAILED WITH RETURN CODE nn
```

Explanation: Software Operating System (SOS) errors have interfered with messaging.

System Action: The REVIVE process is aborted.

User Action: Note the return code nn. Contact the next level of maintenance.

SENT	index

SENT indicates to the system that the specified file has been physically sent to the data center or TNOS as requested.

Where:

index the key field index number, from the Table DIRPHOLD, for the file that was sent.

Note: The command has the effect of cancelling the SENDnn minor alarm that is raised when the data center or TNOS requests that the file be sent out.

XMIT	index

XMIT initiates the transmission to the requesting TNOS or data center of a specified file. The file is identified by reference to its key field index number in the Table DIRPHOLD.

Where:

index is the key field index number for the file to be transmitted, from the Table DIRPHOLD.

Sample session

Manual transferal protocol sequence

If the file requested by the polling data center is under manual control, the manual transferal protocol is initiated. Under this protocol, when the request for transmission of a file is received by the DMS office, an XMITnn alarm is raised, indicating the DIRPHOLD key field index number of the requested file.

In response, operating company personnel input the command QUERY HOLD nn, where nn is the key field index number identified in the XMIT alarm. Once the file is identified, it is prepared for transmission, on the appropriate recording device.

Since the file is under manual control, it is necessary to ensure that DMS internal software is aware of its presence. This is accomplished by the process of listing the volume.

For example, if the file is contained on a tape, and the tape has been properly placed on magnetic tape drive (MTD) 2, the following commands are used at the maintenance and administration position (MAP) to list the volume:

> MOUNT 2	to mount the tape on the drive
> LIST T2	to instruct the system to read all the file names on the tape.

In the case of a file contained on, for example, disk volume D000VOL3, the sequence of commands is:

> DSKUT	to access the Disk Utility software.
> LISTVOL D000VOL3 ALL	to instruct the system to read all the file names on that volume

> QUIT to leave Disk Utility.

Once the process of listing the volume has been completed, the command XMITnn is input to initiate transmission of the file.

Following transmission, the data center usually sends instructions concerning the file to the DMS office. If the data was received correctly, the instruction causes a KEEPnn alarm to be raised. This indicates that the file space can be reused in the DMS office, once the expiration date of the file has been reached. The KEPTnn command acknowledges the instruction and cancels the alarm. If the data center detected errors during transmission, or is conducting a routine periodic audit, the instruction specifies that the original file should be transported to the data center. A SENDnn alarm is raised. After arranging for the file to be transported, the alarm is canceled using the SENTnn command.

Also after transmission, in the case of a file contained on a tape, the DMS office raises a DMNTnn minor alarm indication. This indication may be temporarily masked by the alarms raised in response to the disposition instructions from the data center. If masked, the DMNT indication becomes apparent when attempting to cancel the SENDnn or KEEPnn alarm.

In response to the DMNT minor alarm, operating company personnel remove the required tape from its drive and use the DMNTnn command to cancel the alarm. This completes the procedure.

Network operating system (NOS) communications

This part of the Practice describes Network Operating System (NOS) communications. NOS communications is handled by the Network Operation Protocol (NOP).

What is the network operation protocol (NOP)?

The NOP is the protocol by which a DMS communicates with NOS products. The NOP uses the Remote Operation (RO) Service to handle the communications between the DMS applications and the remote systems by using an RO. An RO is a task requested by one processor but performed by another processor. Refer to What is the Remote Operation (RO) Service? on page 5-6 for more information about the RO Service.

The NOP uses the International Standards Organization (ISO) seven layer architecture. Layers 1, 2, and 3 use the DATAPAC version of X.25. Layers 4 and 5 are null layers, that is, they are not used and perform no function. A subset of layers 6 and 7 make up the RO Service.

Refer to Figure 5-1 on page 5-3 for an illustration of the layers and their relationships.

What are the network operating system (NOS) products?

An NOS product is any of a series of products that are used to offload data processing at the DMS. For example, an NOS product can be one of the following products:

- Business Network Management (BNM)

  BNM is aproduct that is an application of Northern Telecom's (NTs) Dynamic Network Control (DNC) products that gives customers direct access to call detail, station administration, and performance information from one or more Meridian Digital Centrex (MDC) nodes in their telecommunications network.

- Station Detail Server (SDS)

The DNC-50 SDS is a member of the DNC-500 BNM family. The SDS provides Station Message Detail Recording (SMDR) from a DMS-100 to an end-user's premises.

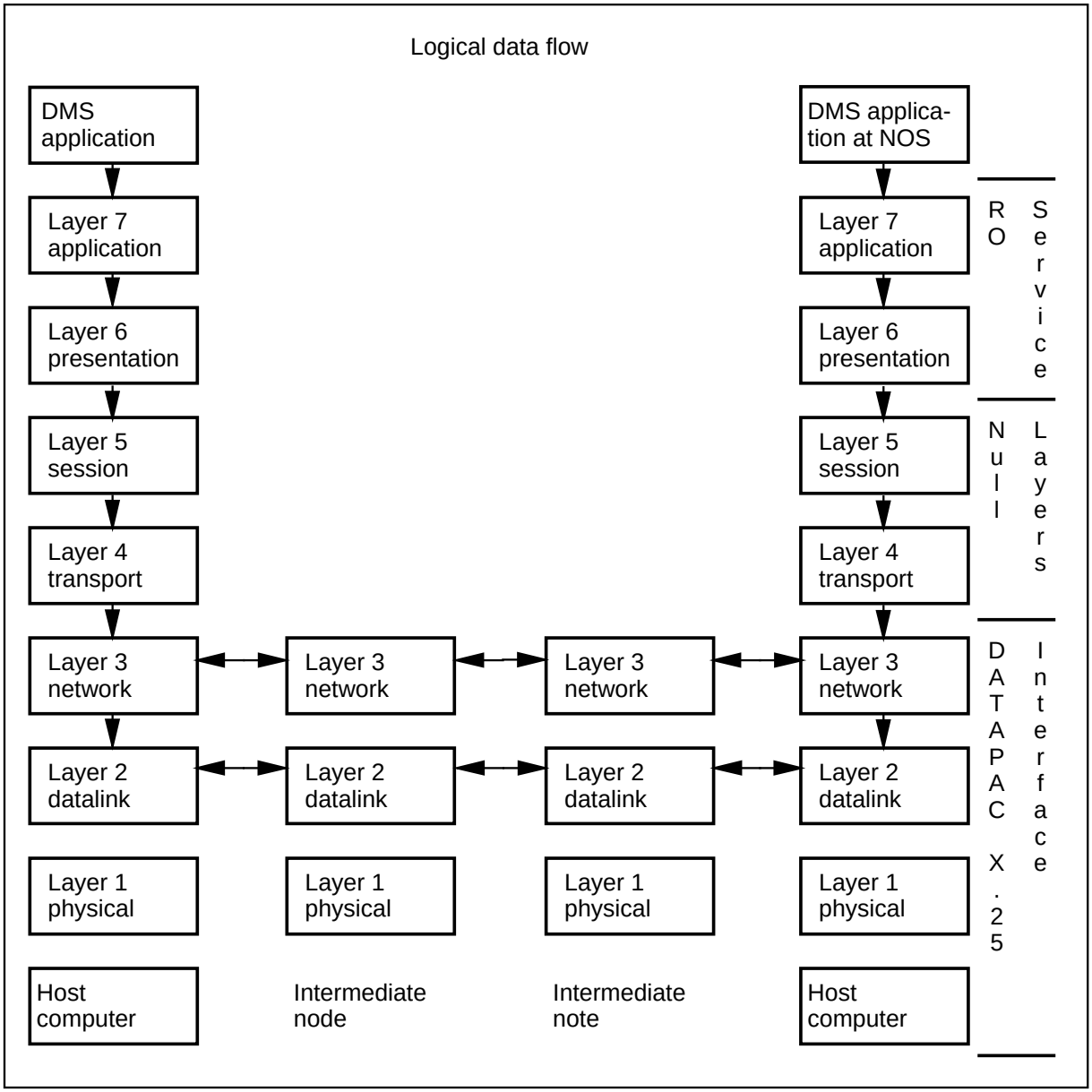
- Large Business Remotes (LBR)

  LBR is a product that is basically a DMS-100 switch configured to serve as a remote switching center. An LBR is connected to a centralized operations, administration and maintenance (COAM) device. A COAM is an application on a DNC-500 providing centralized operations, administration, and maintenance for DMS-100 family products.

- Dynamically Controlled Routing (DCR)

  DCR is a product that provides improved routing control of calls overflowing the direct routes within a network of switching centers. It does this by evaluating congestion within the network and recommending the most idle alternate routes to each participating switch, on a 10-second cycle.

Figure 5-1xxx
NOP in the ISO seven layer architecture



When is the network operation protocol (NOP) used?

An NOS processor requests that tasks be performed by a DMS by sending RO requests using NOP to the DMS. NOS products have a set of ROs that are used to request tasks to be performed by the DMS. The DMS has ROs that it uses to respond to the DNC ROs.

The NOP is used when transmitting the data related to the following applications to and from a DMS.

- File Transfer (FT): This application provides the DMS with the capability to transfer operating company and customer data stored in the device independent recording package (DIRP) subsystems over a communication link. The following types of data streams can currently be transmitted:
  - Automatic Message Accounting (AMA)
  - Automatic Trunk Testing Facility (A TTF)
  - Killer Trunk (KT)
  - Operational Measurements (OM)
  - Station Message Detail Recording (SMDR).

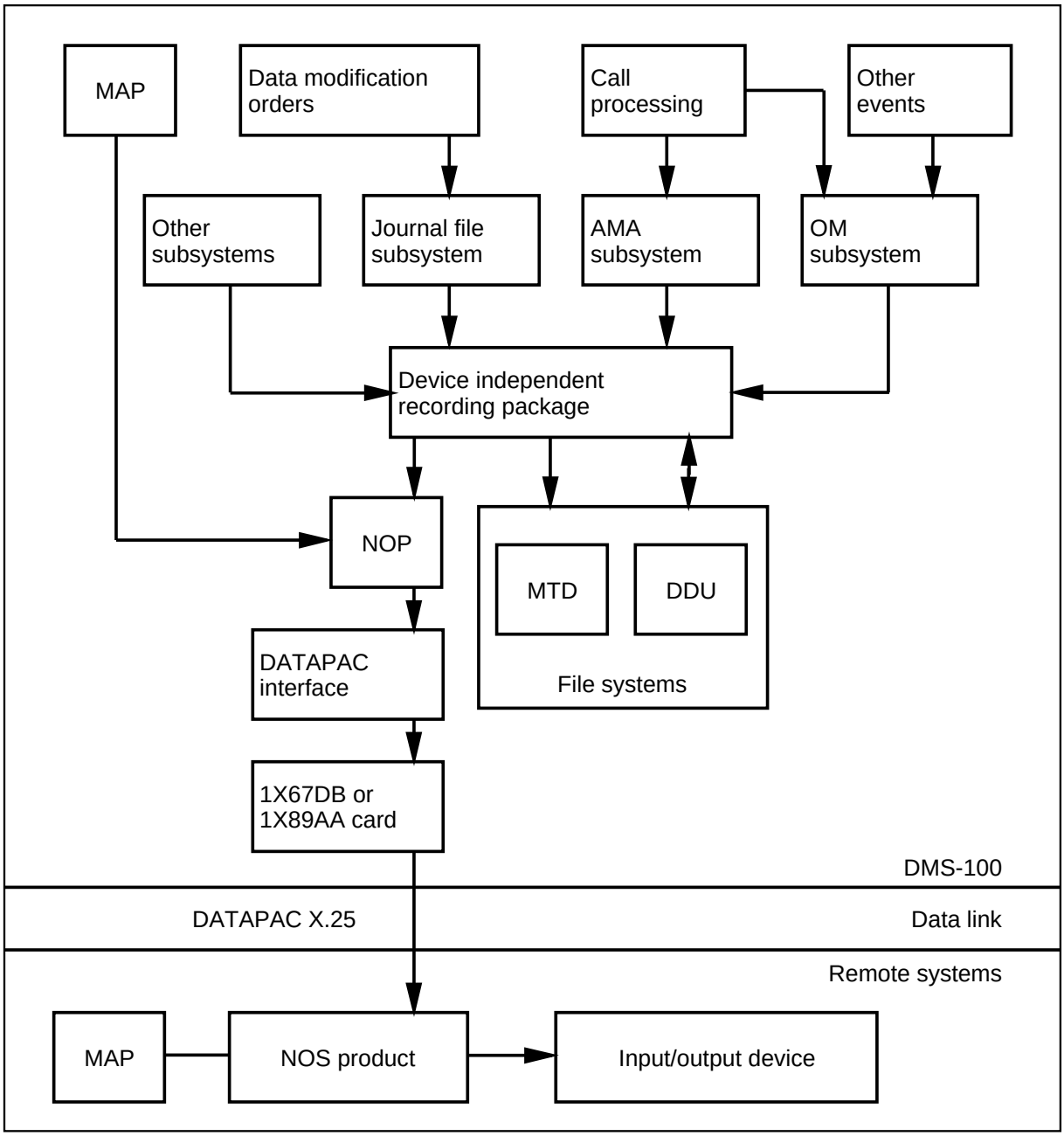
  Refer to File Transfer (FT) Remote Operation (RO) on page 5-9 for an explanation of the four FT ROs. Refer to *DNC-100/DNC-500 Dynamic Network Control Systems: BNM Input/Output Procedures*, 450-1021-311 for more information about collecting operating company and customer data.

- Transactions (TRAN): The TRAN application sends supervisory information. Refer to Transaction (TRAN) Remote Operation (RO) on page 5-9for an explanation of the four TRAN ROs.
- Passthru Application Entity (PTAE): Also known as Centralized MAP (CMAP), this application allows NOS users access to the DMS MAP from a remote system. This application was known as Pass Through DMS Access (PTDA) and MAP. Refer to Passthru Application Entity (PTAE) Remote Operation (RO) on page 5-10 for an explanation of the nine PTAE ROs.
- Centralized Alarms (CALM): The CALM application sends alarms from a DMS to an NOS product user at a terminal. There can be a maximum of two CALM sessions at one time, that is, two DNCs can be collecting alarms from the same DMS. However, only one CALM session can be sent at one given time to a particular NOS product. Refer to Centralized Alarms (CALM) Remote Operation (RO) on page 5-10 for an explanation of the two CALM ROs.
- Dynamically Controlled Routing (DCR): The DCR application sends data regarding routing control of calls. There are nine DCR ROs, but they are not displayed at the NOP MAP level.

The DIRP subsystems use NOP to send data to and communicate with an NOS product. Refer to Figure 5-2 on page 5-5 for an illustration of the

interrelationship between the DIRP subsystems using NOP and an NOS product.

Figure 5-2xxx
DIRP interrelationships using NOP to NOS



What is a network operation protocol (NOP) session?

When data is passed between a DMS and an NOS product using NOP, it is passed using a switched virtual circuit (SVC). The sending of data using an SVC is called a session. The NOP MAP level is used to monitor communication between a DMS and an NOS product by keeping track of the sessions between a DMS and an NOS product.

A session between a DMS and an NOS product can have five states. The five states are actually the states of the SVC through which the data is sent. The following are the five session states:

1 IDLE: No session (SVC) has been established. The UP and DOWN tasks within the RO Service are waiting for a call between the DMS and a nNOS product to arrive.

2 LOGGED OFF or UNASSIGNED: A session (SVC) has been connected. The RO Service is waiting to receive a logon RO.

3 LOGON PENDING: A logon RO has been received by the RO Service from the application and is being processed. The proper application's task is initialized and storage allocations are made.

4 LOGGED ON or ACTIVE: The logon has been verified. The application's task is running.

5 LOGOUT PENDING: A logoff RO has been received by the RO Service from the application and is being processed. The application's task is deallocated and memory is cleaned up.

The number of sessions is set by the NOS_QUANTITY_OF_SVCS office parameter. The NOP MAP level is accessed through the Input/Output Device (IOD) MAP level. Refer to *Input/Output Devices (IOD) Man-Machine Interface Description*, 297-1001-513, for more information about the IOD MAP level.

Log reports are generated and OM group registers are pegged as an RO passes through the five session states.

What is the remote operation (RO) service?

The RO Service handles communication between the DMS applications and remote systems by using an RO. An RO is a task requested by one processor but performed by another processor.

The RO Service resides on the top two layers (layers six and seven) of NOP. Layer six, the Presentation Layer, is responsible for encoding and decoding the data packets into or from the X.409 syntax. Layer seven, the

Application Layer, is responsible for the RO X.410 Message Handling System (MHS).

The RO Service uses UP and DOWN tasks (one task pair per SVC) to perform its functions. An UP task processes information from an NOS product to a DMS application. A DOWN task processes information from a DMS application to an NOS product. The following are the four functions the RO Service performs:

- RO buffering
- application interface
- interface to RO encode/decode uilities
- ROs service/X.25 interface

Remote operation (RO) buffering

In order to minimize the blocking of data transmitted and received through the X.25, the RO Service provides buffering. ROs coming from a remote system to an application are received by the RO Service and buffered until the application is ready to accept them. Conversely, the RO Service receives ROs from the application and holds them until transmission is possible.

Application interface

When the RO service receives data from a remote system while using X.25, this data must be passed to the application. The RO service provides the interface for an application to receive data from the RO service when the information is desired. As data is passed to the application from the RO service, it is decoded from its X.409 syntax.

Data generated by an application for transmission to a remote system is sent using the RO Service. As data is passed to the RO Service, it is encoded into X.409 syntax.

Interface to remote operation (RO) encode/decode utilities

The RO Service provides a set of general encoding and decoding utilities for the purpose of translating ROs to and from X.409 syntax. These utilities are used to build application specific RO encoding and decoding procedures.

Remote operation (RO) service/x.25 interface

For an application to communicate with a remote system, it must interface with X.25 protocols. The RO service provides this interface to the application.

The remote operation (RO) for each network operation protocol (NOP) application

Each of the five applications has a set of ROs. The status of each RO is displayed at the NOP MAP level using the QUERY command. Refer to Table 5-1 on page 5-8 for a complete list of the ROs.

Table 5-1xxx
Remote operations for the five applications

Application	Remote operations				
FT	DEMAND	SEND	START	STOP	
TRAN	CHANGE	LIST	TEST	TIME	
PTAE	CILOGON	CILOGOUT	DEVICE	HT	HX
	MAP	RT	SCROLL	TRIGGER	
CALM	REQUEST	UPDATE			
DCR	(DCR has ten ROs, but are not displayed at the NOP MAP level.)				

Page 1 of 1

Additionally, there are five other ROs: LOGON, LOGOUT, REJECT (RJ), RETURNERROR (RE), and RETURNRESULT (RR).

Remote operation (RO) service remote operations (ROs)

The following are the five RO Service ROs:

1 LOGON: This RO starts the interface between the RO Service and an application over a particular SVC. One SVC is used per session. As of BCS23, only the DNC generates a LOGON RO.

2 LOGOUT: This RO can be generated internally within the RO Service if a failure occurs. Applications from either the DMS or the DNC generate a LOGOUT RO. The LOGOUT RO ends the interface set up by the LOGON RO.

3 REJECT: This RO is generated when an incoming RO is rejected by the RO Service.

4 RETURNERROR: This RO is generated when the RO service cannot perform actions on an RO it has received.

5 RETURNRESULT: This RO is generated when the RO service performs an action on an RO it has received.

File transfer (FT) remote operation (RO)

The following are the four types of FT RO:

1 DEMAND: This RO is generated from the NOS to the DMS when the RETRIEVE FILE soft-function (S/F) key is pressed at the NOS terminal. This RO requests that one file or a range of files be transferred to a DNC. The selection of the files is done at the NOS terminal. Only unprocessed files contained in Table DIRPHOLD can be sent from the DMS.

2 START: This RO is generated from the NOS to the DMS when the START COLLECT S/F key is pressed at the NOS terminal. This RO requests that a continuous flow of data be transferred for the given stream (AMA, ATT, KT, OM, or SMDR) of data selected at the NOS terminal. The flow of data is not stopped unless a STOP RO is sent or an exception condition occurs. Active files are sent from the DMS. If the need arises, unprocessed files can also be sent.

3 SEND: This RO is generated from the DMS to the NOS. This RO requests the NOS to accept a block of data. This block of data is the result of either a DEMAND or START RO sent to the DMS.

4 STOP: This RO is generated from the NOS to the DMS when the STOP S/F key is pressed at the NOS terminal. This RO stops the transmission of the files selected by the DEMAND or START ROs.

Transaction (TRAN) remote operation (RO)

The following are the four types of TRAN ROs:

1 CHANGE: This RO is automatically generated from the NOS to the DMS when the DNC receives the files requested by a START or DEMAND RO. This RO changes the state of the files from unprocessed to processed.

2 LIST: This RO is generated from the NOS to the DMS when the LIST FILES S/F key is pressed at the NOS terminal. This RO lists the DIRP files that meet certain criteria selected at the NOS terminal.

3 TEST: This RO is automatically generated from the NOS to the DMS when the DNC software at the NOS verifies that the DMS session is logged on. This RO is sent prior to sending any other ROs.

4 TIME: This RO is automatically generated from the NOS to the DMS requesting an update to the internal NOS clock.

Passthru application entity (PTAE) remote operation (RO)

The following are the nine types of PTAE ROs:

1 CILOGON: This RO is generated from the NOS to the DMS when the Command Interpreter (CI) level of the NOS terminal is entered. This RO starts a session with the DMS. This RO is generated when the LOGON S/F key is pressed at the NOS terminal.

2 CILOGOUT: This RO is generated from the NOS to the DMS when the CI level of the NOS terminal is exited. This RO terminates a session with the DMS. This RO is generated when the EXIT S/F key is pressed at the NOS terminal.

3 DEVICE: This RO is generated from the NOS to the DMS when the CONNECT DEVICE S/F key is pressed at the NOS terminal or automatically during a CI logon. This RO requests that a new device be assigned for the current CMAP (PTAE) session and be accepted as valid. The DMS either validates the new device or rejects the new device by sending out an error report in the form of a log report.

4 HT: This RO is generated from the NOS to the DMS when the HT S/F key is pressed at the NOS terminal. This RO requests that the DMS halt the output from the currently executing CI command.

5 HX: This RO is generated from the NOS to the DMS when the BREAK S/F key is pressed at the NOS terminal. This RO restarts the current CI session. Any commands currently being executed are aborted.

6 MAP: This RO is generated from the NOS to the DMS when an update to the NOS terminal display is requested.

7 RT: This RO is generated from the NOS to the DMS when the RT S/F key is pressed at the NOS terminal. This RO requests that the DMS resume the output from the currently executing CI command.

8 SCROLL: This RO is generated from the NOS to the DMS when either DMS has more scroll data to send or “more” has been entered from the CI MAP level. This RO requests the command to display more scroll data.

9 TRIGGER: This RO is automatically generated from the DMS to the NOS when the state of a session has changed.

Centralized alarms (CALM) remote operation (RO)

The following are the two types of CALM RO:

1 REQUEST: This RO is automatically generated from the NOS to the DMS when a CI session begins requesting the current alarm status of all nine maintenance subsystems. The DMS supplies the statuses.

2 UPDATE: This RO is automatically generated from the DMS to the NOS when an alarm status change is detected during the scan of the alarm statuses. The scan is done by the DMS every four seconds. If there are no changes to the alarm statuses, this RO is not sent.

Dynamically controlled routing (DCR) remote operation (RO)

There are currently ten ROs that control DCR actions. They are not displayed at the NOP MAP level.

How are remote operations (ROs) generated?

Most of the ROs from the DMS are generated automatically and are in response to an RO previously sent from the NOS product; however, there are exceptions. The DMS can send INVOKE ROs to the DNC without being asked to send an RO. For example, the file transfer SEND RO is sent by the DMS whenever there is a block in the data available to send.

An RO from an NOS product, which resides on a DNC, is generated at the NOS terminal by pressing a specific S/F key. Also, it is possible for the internal state of the NOS product to send an RO. For example, depending on the data stream requested, if the DEMAND S/F key is pressed, a LIST RO is sent prior to the DEMAND RO.

Sending a remote operation (RO) to a network operating system (NOS) product

The following describes what occurs when an RO is sent from a DMS to an NOS product and a DOWN task is implemented.

1 An RO is generated from a DMS application, usually in response to a previously sent RO by an NOS product.

2 An RO is received from a DMS application by the RO Service.

3 After the RO is received from the DMS application, the RO Service must determine if it can encode the RO. If the RO can be encoded, the RO is encoded and sent to the NOS product.

If the RO cannot be encoded, the ROAPOG register is pegged, log report RO103 is generated, and the application is informed that the data was not sent.

Receiving a remote operation (RO) from a network operating system (NOS) product

The following occurs when an RO is received at the DMS from an NOS product and an UP task is implemented.

1 Following are the steps that occur for ROs in general.

a. When an RO is received from an NOS Product by the RO Service and can be received, the ROMLOGA register is pegged and log report RO101 is generated.

   If the RO cannot be received, the ROMFLOG register is pegged, log report RO101 is generated, and a CLEANUP is performed on the RO buffers. Processing of this RO stops.

b. After an RO is received, the RO Service must determine if it can decode the RO. If the RO can be decoded, it notifies the application. When the application is ready to receive the RO, the RO is decoded and passed to the application.

   If the RO cannot be decoded, the incoming RO is rejected by the RO Service, the ROAPIC register is pegged, log report RO103 is generated, and a REJECT RO is sent back.

2 The following are the steps for the NOS LOGON RO only which set up an RO session.

a. An SVC is acquired.

b. A NOS LOGON RO is received from the DNC (or whatever remote process with which the DMS is communicating), and the incoming RO is decoded.

c. After decoding the incoming LOGON RO, the application ID of the LOGON RO is checked to determine whether it is valid. If the application ID is valid, the ROAPLOGA register is pegged.

   If the application ID is not valid, the ROMFLOG register is pegged, log report RO101 is generated, and a RETURNRESULT RO is sent back to the NOS product. The NOS product can send another logon RO or terminate the SVC link.

d. After validating the application ID, a check is made to see if an application session is free. If a session is free, RO buffers are allocated for the data. The application is notified that a session is required.

   If a session is not free, the ROAPFLOG register is pegged, log report RO101 is generated, and a RETURNERROR RO is sent back to the NOS product. The NOS product can send another logon RO or terminate the SVC link.

e. After allocating buffers, internal flags are set. If the flags can be set, the application session is created.

If the flags cannot be set, the ROMFLOG and ROAPFLOG registers are pegged, log report RO101 is generated, and a RETURNERROR RO is sent back to the NOS product. The NOS product can send another logon RO or terminate the SVC link.

f. Once the flags are set, the application is notified that initialization is needed. If the session has initialized correctly, a RETURNRESULT RO is sent to confirm the success of the operation to the NOS product.

If the session did not initialize correctly, the ROAPFLOG register is pegged, log report RO101 is generated, and a RETURNERROR RO is sent back to the NOS product. The NOS product can send another logon RO or terminate the SVC link.

Limitations

The following are the limitations imposed by NOP.

1 There can only be as many sessions (SVCs) assigned to the DMS-100 as there are datafilled in the NOS_QUANTITY_OF_SVCS office parameter.

2 The maximum number of sessions (SVCs) is 15.

3 Refer to *Common Customer Data Schema*, 297-1001-451, for the data schema limitations of Tables MPC, X25LINK, DPACDEV, and XFERSSYS.

4 When changing the NOS_QUANTITY_OF_SVCS office parameter, a restart (warm, cold, or reload) must be done to activate the change.

Restrictions

The following are the restrictions imposed by NOP.

1 Only one data stream per SVC may be accessed at one time.

2 Different SVC cannot access the same data stream.

3 The NOP can only use one IOD at a time; that is, if NOP is set to use an MPC, all applications using NOP to communicate with a remote system must use an MPC. For example, the PTAE application cannot use a DPC while the FT application is using an MPC. The NOP can only use the I/O feature packages loaded into the switch and datafilled in Table GDLADEV.

4 To change which IOD NOP uses, all tuples in NOPADDR must be deleted before changing Table GDLADEV.

List of terms

AMA

Automatic message accounting

AMAT

Automatic message accounting transmitter

ATT

Automatic trunk testing

Automatic message accounting (AMA)

AMA is an automatic recording system that documents all the necessary billing data of subscriber-dialed long distance calls.

Automatic message accounting transmitter (AMAT)

AMAT is a subsystem of the automatic message accounting teleprocessing system that, on request, transmits automatic message accounting data to the collector in the central office.

Automatic trunk testing (ATT)

ATT is a set of hardware and software entities that provide automatic testing for outgoing trunks and the outgoing portions of two-way trunks.

Batch change supplement (BCS)

BCS is a DMS-100 Family software release.

BCS

Batch change supplement

Bell-Northern Research (BNR)

BNR is a part of the tri-corporate structure consisting of Bell Canada, Northern Telecom, and Bell-Northern Research.

BF

Fixed block (format)

BNM

Business Network Management

BNR

Bell-Northern Research

Business Network Management (BNM)

BNM is a product that is an application of Northern Teelcom;s Dynamic Network Control products that gives customers direct access to call detail station administration, and performance information from one or more Meridian Digital Centrex nodes in their telecommunications network

Central processing unit (CPU)

CPU is a hardware entity, located in the central control complex frame, that contains the central data processor for the DMS-100 Family system.

CALM

Centralized alarm

Centralized alarm (CALM)

CALM is an application that sends alarms from a DMS to an NOS product user at a terminal. There can be a maximum of two CALM sessions at one time, that is, two CALM sessions can be sent at one give time to a particular NOS product.

Centralized maintenance and administration position (CMAP)

Centralized operations administration and maintenance (COAM)

COAM is an application on DNC-500 hardware providing centralized operation, administration, and maintenance for DMS-100 Family products. One application is for the DMS-100 host and up to eight large business remotes in a DMS-100 switching cluster.

CI

Command interpreter

CMAP

Centralized maintenance and administration position

COAM

Centralized operations administration and maintenance

Command interpreter (CI)

CI is a support operating system component that functions as the main interface between machine and user. Its principal roles include

- reading lines entered by a terminal user
- breaking each line into recognizable units
- analyzing the units
- recognizing command item-numbers on the input lines
- invoking these commands

CPU

Central processing unit

CRC

Cyclical redundancy check

Cyclical redundancy check (CRC)

Data packet collector (DPA)

DPA is an input/output device used for data communications with the DMS-100.

DCR

Dynamically controlled routing

Device independent recording package (DIRP)

DIRP is software that automatically directs data from the various administrative and maintenance facilities to the appropriate recording devices.

Digital Multiplex System (DMS)

DMS is a central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

DIRP

Device independent recording package

DMS

Digital multiplex system

DNC

Dynamic network management

DPC

Data packet collector

Dynamic network controller (DNC)

DNC is a family of applications that is part of Northern Telecom's dynamic network architecture. These applications generally provide an enhanced level of network control and allow operating companies to develop their service management and administration system independently of the evolution of their network equipment.

Dynamically-controlled routing (DCR)

DRC is a feature that reserves idle trunks in trunk groups to provide routes for overflow traffic. The trunks are separated by one or more links from an originating toll switch.

EIA

Electronic Industries Association

Electronic Industries Association (EIA)

EIA is an American organization made up of manufacturers of a wide variety of electronic products including telecommunications equipment. The EIA is active setting industry standards.

EXT

External

External (EXT)

File transfer (FT)

FT is an application that provides the DMS with the capability to transfer operating company and customer data stored in the Device Independent Recording Package subsystem over a communication link.

FT

File transfer

IDO

International standards organization

Input/output controller (IOC)

IOC is an equipment shelf that provides an interface between up to thirty-six input/output devices and the central message controller. The IOC contains a peripheral processor that independently performs local tasks, thus relieving the load on the central processing unit.

Input/output device (IOD)

IOD is a device that interprets input and formats output for human users or remote computers.

International Standards Organization (ISO)

ISO is the organization responsible for creating a seven-layer protocol model for a data communications network.

IOC

Input/output controller

IOD

Input/output device

Killer trunk (KI)

KT

Killer trunk

Large business remotes (LBR)

LBR is a DMS-100 that is configured to serve as a remote switching unit.

LBR

Large business remotes

Magnetic tape drive (MTD)

In DMS, an MTD is a device used to record DMS-100 Family data. An MTD may be mounted on either a magnetic tape center frame or an input/output equipment frame.

Maintenance and administration position (MAP)

A MAP is a group of components that provide a man-machine interface between operating company personnel and the DMS-100 Family systems. A MAP consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture. MAP is a trademark of Northern Telecom.

MAP

Maintenance and administration position

MDC

Meridian Digital Centrex

Meridian Digital Centrex (MDC)

MDC is a special DMS business services package that utilizes the data-handling capabilities of DMS-100 Family offices and provides a centralized telephone exchange service. It is formally known as Integrated Business Network (IBN).

Message handling system (MHS)

MHS

Message handling system

MPC

Multi-protocol controller

MTD

Magnetic tape drive

Multi-protocol controller (MPC)

MPC is a general-purpose data communications card that allows data communications between a DMS-100 Family switch and an external computer (for example, between a central office billing computer and a DMS-100 Family switch). The MPC card resides on the input/output controller shelf. MPC card protocol software is downloaded from the DMS-100 central processing unit and then supports software routines for data packet network communication.

Network operation protocol (NOP)

The NOP protocol provides an interface between a DMS-100 Family switch and its remote systems.

Network operating system (NOS)

NOS is a facility providing the DMS-100 with the capability of transferring data over communication links to a telephone network operating system.

NOP

Network operation protocol

Northern Telecom (NT)

NT is part of the tri-corporate structure consisting of Bell-Northern Research, Bell Canada, and Norther Telecom.

NOS

Network operating system

NT

Northern Telecom

OM

Operational measurements

Operational measurements (OM)

OMs are the hardware and software resources of the DMS-100 Family systems that control the collection and display of measurements taken on an operating system. OMs organize the measurement data and manage its transfer to displays and records on which maintenance, traffic, accounting, and provisioning decisions are based.

Passthru application entity (PTAE)

PTAE is an application also known as Centralized MAP. It allows network operation system user access to the DMS MAP from a remote system.

Passthru DMS access (PTDA)

PEC

Product engineering code

Product engineering code (PEC)

The PEC is an eight-character code that provides a unique identification for each marketable product manufactured by Northern Telecom.

PTAE

Passthru application entity

PTDA

Passthru DMS access

RAO

Revenue accounting office

Remote data polling system (XFER)

XFER is a system that permits an operating company to transfer information concerning the operation of a DMS-100 Family office to its data processing center.

Remote operation (RO)

Revenue accounting office (RAO)

RAO is a data center that produces subscriber bills from host office automatic message accounting data.

RO

Remote operation

SDS

Station detail server

S/F

soft function

SLM

System load module

SMDR

Station message detail recording

Soft function (S/F)

Software operating system (SOS)

SOS

Software operating system

Station detail server (SDS)

SDS is a member of the DNC-500 BNM family. The SDS provides station message detail recording from a DMS-100 to an end-user premises.

Station message detail recording (SMDR)

In Meridian Digital Centrex, SMDR is a system that provides recording facilities for the details of billable and nonbillable calls for each MDC customer group.

SVC

Switched virtual circuit

Switched virtual circuit (SVC)

SVC is a logical, end-to-end connection for data communication made through a packet data network. An SVC is established dynamically.

TRAN

Transaction

Transaction (TRAN)

TRAN is an application that sends supervisory information.

Variable-blocked (VB)

In DMS, VB is a magnetic tape format for blocks of variable-length data records. In a VB format, the total length of one or more records in a block may not exceed the maximum block. *See also* variable-blocked-spanned.

Variable-blocked-spanned (VBS)

In DMS, VBS is a magnetic tape format for blocks of variable-length data records where the total length of one or more records may exceed the maximum block size. In a VBS format, the overflow of the last record is spanned into the beginning of the next block. *See also* variable-blocked.

VB

Variable block (format)

VDU

Visual display unit

Visual display unit (VDU)

VDU is an electronic output device that presents data to a terminal user in the form of a television picture. In DMS, the VDU is one of the components of the maintenance and administration position, and, along with a keyboard, provides the main man-machine interface in the DMS-100 Family of systems.

XFER

Remote data polling system

DMS-100 Family

Remote Data Polling System

Description and User Interface

Publication number: 297-1001-524
Product release: BCS33 and up
Document release: Standard 09.01
Date: October 1991

Published simultaneously in Canada and the United States by Northern Telecom.