PRACTICE 450-1021-151
Issued: 90 03 30
Vintage: NSR28-30 01
Standard

NETWORK OPERATIONS SYSTEM

BUSINESS NETWORK MANAGEMENT

DNC*-500: SYSTEM DATA

CONTENTS **PAGE**

Contents continued ----------

*DNC and DMS are trademarks of Northern Telecom.

CONTENTS (Continued) PAGE

Contents continued ----------

CONTENTS (Continued) **PAGE**

Figures

(blank)

1. INTRODUCTION

1.01 The business network management (BNM) product is a software feature package, operating in a dynamic network control DNC-500 environment, that collects information from switching equipment. This information is processed to produce reports, and for use by operating company's customers to make limited administrative changes to their own networks. Refer to 450-1011-100 for a general description of the DNC-500.

1.02 Further Reading. NT supplies the following documents that fully describe provisioning and packaging:

- **Advance Provisioning Information (API).** Describes how to calculate the quantities and types of SRUs required depending on data collection volumes and other information.
- **Planning Letter(s).** Describe (among other things) the feature packages into which the software is bundled.

1.03 Structure Of This Publication. This publication is divided into the following parts:

Introduction: Contains a brief description of the purpose of the product, and a summary of the contents of the publication.

System Identification: Shows how to identify the software release from the opening display.

Init Files Datafill for BNM: Gives general information on the init files for the DNC-500 when used for the BNM application.

SDM Datafill for BNM: Describes the SDM datafill for the DNC-500 when used for the BNM application.

System Constraints: Identifies the system limitations.

Compatibility: Lists the compatibility between the DNC-500 BNM features, and the compatibility between the DNC-500 BNM and DMS node.

Test Equipment: Lists the main test equipment together with suggested usage.

Abbreviations: Lists the abbreviations used in this publication.

CHANGE HISTORY

1.04 This section lists the important changes that affect this publication. They are arranged by network software releases (NSR) in a descending order starting with the current release.

NSR28-30

1.05 The following information was removed from the NTP due to its duplication with other NT documentation:

- **packaging information:** up-to-date packaging information can be found in the Planning Letter issued periodically by NT.
- **provisioning information:** the sizing and provisioning information can be found in the Advanced Provisioning Information (API) document issued periodically by NT.

NSR28

1.06 The following changes to the BNM application were added by NSR28:

- new feature on DNC performance monitoring
- new features added to station administration for remote systems
- ability to process SMDR data from other vendor switches
- number of SMDR simultaneous spooling ports increased to 32
- different SMDR data streams can be collected by up to three different DNC-500s or DNC-50s from one DMS-100, simultaneously

NSR27

1.07 The following changes to the BNM application were added by NSR27:

- a new feature on disk utilization and monitor
- an increase to the SMDR collection capacity; up to 4M records per day
- an enhancement to existing BNM software to allow a DNC-100 to communicate with multiple DNC-500s
- additional OMs collected for individual attendant consoles and OHCBQ

1.08 The chapter on software characteristics has been removed because the measurements listed are no longer valid. Values for NSR27 are not available at this time.

2. SYSTEM IDENTIFICATION

2.01 The opening display for the NSR28 release of the DNC-500 BNM application is shown in Fig. 2-1. It confirms that you are logging on to a DNC-500 by the welcome statement. Beneath this statement is the application identifier and the software release of the operating system which the DNC-500 is running. The information on the display has the following meaning:

- BUSINESS NETWORK MANAGEMENT is the application system
- Base Release is the DVS system software release, for this version of BNM, is 3.01
- BNM Release is the software release for the DNC-500 and the BNM application, for this version it is NSR28

2.02 The opening display shown in Fig. 2-1 is the standard display which can be changed to suit telco requirements.

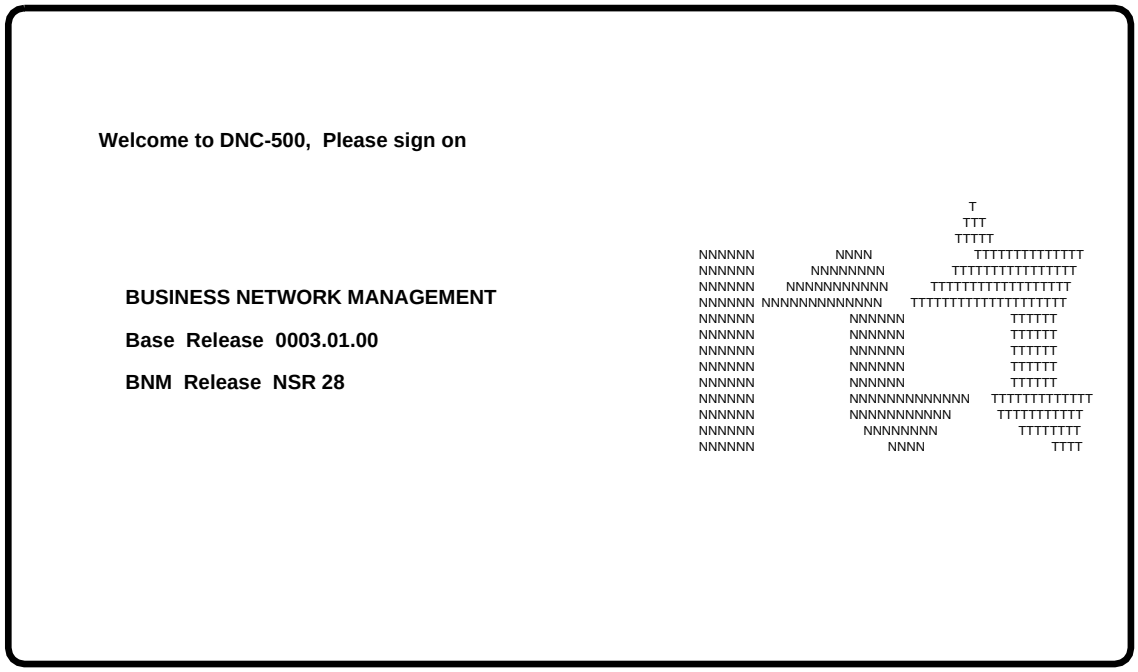

Fig. 2-1
Opening Display For The DNC-500 BNM Application

(blank)

3. INIT FILES DATAFILL FOR BNM

3.01 Init files together with SDM files contain the operating parameters for the system. These parameters are datafilled during the installation of a new system, or the installation of new hardware or software. As a general rule, these parameters are not changed during the life of a software release, but there are occassions when the telco is required to change some parameters. Changes in SDM tables, are made using the SDM table editor, which is described in Chapter 4. Changes to init files, on the other hand, requires the telco to use the HELIX command interpreter (CI) for accessing a file and then making changes in the file.

3.02 This chapter lists only the init files that can be changed by the telco. Within these init files, only the parameters that are of interest, are described.

Accessing An Init File

3.03 All init files are changed from the HELIX CI option. The procedure for accessing this option is as follows:

Caution: Do not make changes to an init file unless you are familiar with the HELIX CI , and the construction of init files.

(1) At the BNM main menu, select the System Administration Services menu option.
==> The system responds by displaying the options available to the user.

(2) Select the SAS Utilities option.
==> The system responds by displaying a new set of options.

(3) Select the Helix Command Interpreter option.
==> The system responds by displaying the Helix options, as shown in Fig. 3-1.

(4) At the prompt (>), input ED filename, where filename is the name of the file you wish to change.
==> The system will respond by displaying the required file.

(5) Make the changes to the file as required, then save the file by the following keystrokes to save and exit the file:
M4000 series terminal: RESET ***QSE***
ASCII terminal: ESC R ***QSE***
==> The system responds by displaying the Helix prompt.

(6) Input ***EXIT*** to return to the SAS Utilities display.

(7) To exit the file without saving any changes, input the following keystrokes to exit the file:
M4000 series terminal: RESET ***QE***
ASCII terminal: ESC R ***QE***
==> The system responds by displaying the Helix prompt.

(8) Input ***EXIT*** to return to the SAS Utilities display.

3.04 After changing any Init file, courtesy down, and return to service, the PRU that is affected by the change.

Note: Changing one init file may affect several PRUs.

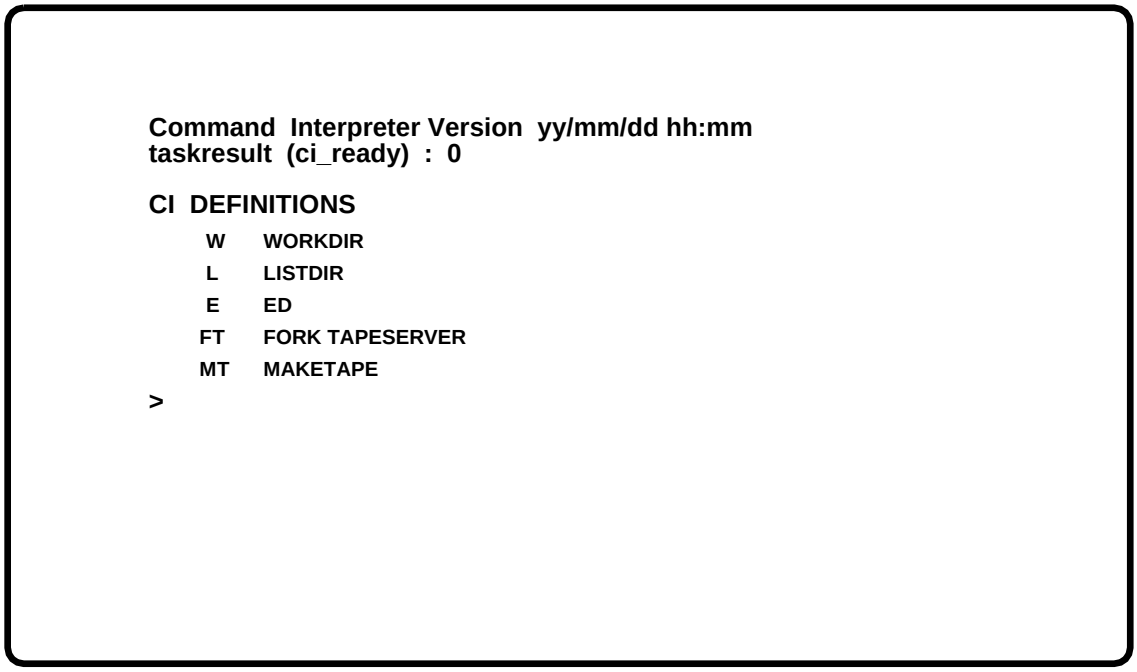

Fig. 3-1
An Example Of A Helix Command Interpreter Display

ATT Data Collector

3.05 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:AT:DCATINIT.TEXT, contains six parameters, only three of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-A lists the telco modifiable parameters.

Table 3-A
ATT DATA COLLECTOR PARAMETERS

Parameter	Range	Default	Description
bcs_number	0 through 99	19	This parameter is the BCS release of the DMS-100 software that is in use at the DMS nodes.
chg_dms_status	TRUE or FALSE	TRUE	This parameter is a flag to indicate whether the status of files collected from DMS nodes are to be changed to processed. This parameter must be entered in upper case.
sort_enabled	TRUE or FALSE	TRUE	This parameter is a flag to indicate whether the files should be sorted. Depending on how the DMS node is configured, it may not be necessary to have the files sorted. TRUE is for the files to be sorted, and FALSE is for the files not to be sorted. This parameter must be entered in upper case.

Call Tracking

3.06 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:CT:CTINIT.TEXT , contains six parameters, only two of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-B lists the telco modifiable parameters.

Table 3-B
CALL TRACKING PARAMETERS

Parameter	Range	Default	Description
compare_member	true or false	true	This parameter is a flag to indicate whether the member numbers should be checked. If true, number checking is enabled, and if false, number checking is not carried out.
backward_mask	true or false	true	This parameter is a flag to indicate whether the dialed digits should be masked during backward tracking. If true, the DNs are masked, and if false, the DNs are not masked.

DMS Interface

3.07 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:DI:DMSINIT.TEXT, contains 20 parameters, only seven of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-C lists the telco modifiable parameters.

Table 3-C
DMS INTERFACE PARAMETERS

Parameter	Range	Default	Description
prompt_ptda_login	0 or 1	0	This parameter is a flag to indicate whether the uer is to be prompted for a passthru MAP login user ID and password. When 0, the user is not prompted, the NOS logon values are used. When 1, the user is prompted for a user ID and password.
max_logon_retries		1	This parameter sets the number of times that the logon sequence is attempted prior to accepting commands from the DMS users.
prime_accept_ timeout	1 to 30000	30000	This parameter sets the period, during prime time, before the DMS supervisor, and DMS agents timeout on an accept statement. The values are in clock ticks (1 tick = 10ms).
off_hour_accept_ tmeout	1 to 30000	20000	This parameter sets the period, during off hours, before the DMS supervisor, and DMS agents timeout on an accept statement. The values are in clock ticks (1 tick = 10ms).
start_prime_time	00:00 to 23:59	09:00	This is the start of prime time. The values are in hours and minutes (24 hour clock).
end_prime_time	00:00 to 23:59	17:00	This is the end of prime time. The values are in hours and minutes (24 hour clock).
num_lines_per_ cmap_login	1 or 2	1	This parameter sets the number of lines that will be required for the CMAP login. It identifies, to the DMS node, how many lines are rquired for the login and password. The value of this parameter should be the same as the ENHANCED_PASSWORD_CONTROL parameter in the DMS node table OFCOPT.

Database Supervisor

3.08 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:DL:DLSPINIT.TEXT, contains a variable number of parameters depending on how many customer groups are in the station administration databases. Because the layout of this file is different from previously described init files, the layout and telco modifiable parameters are identified in Fig. 3-2.

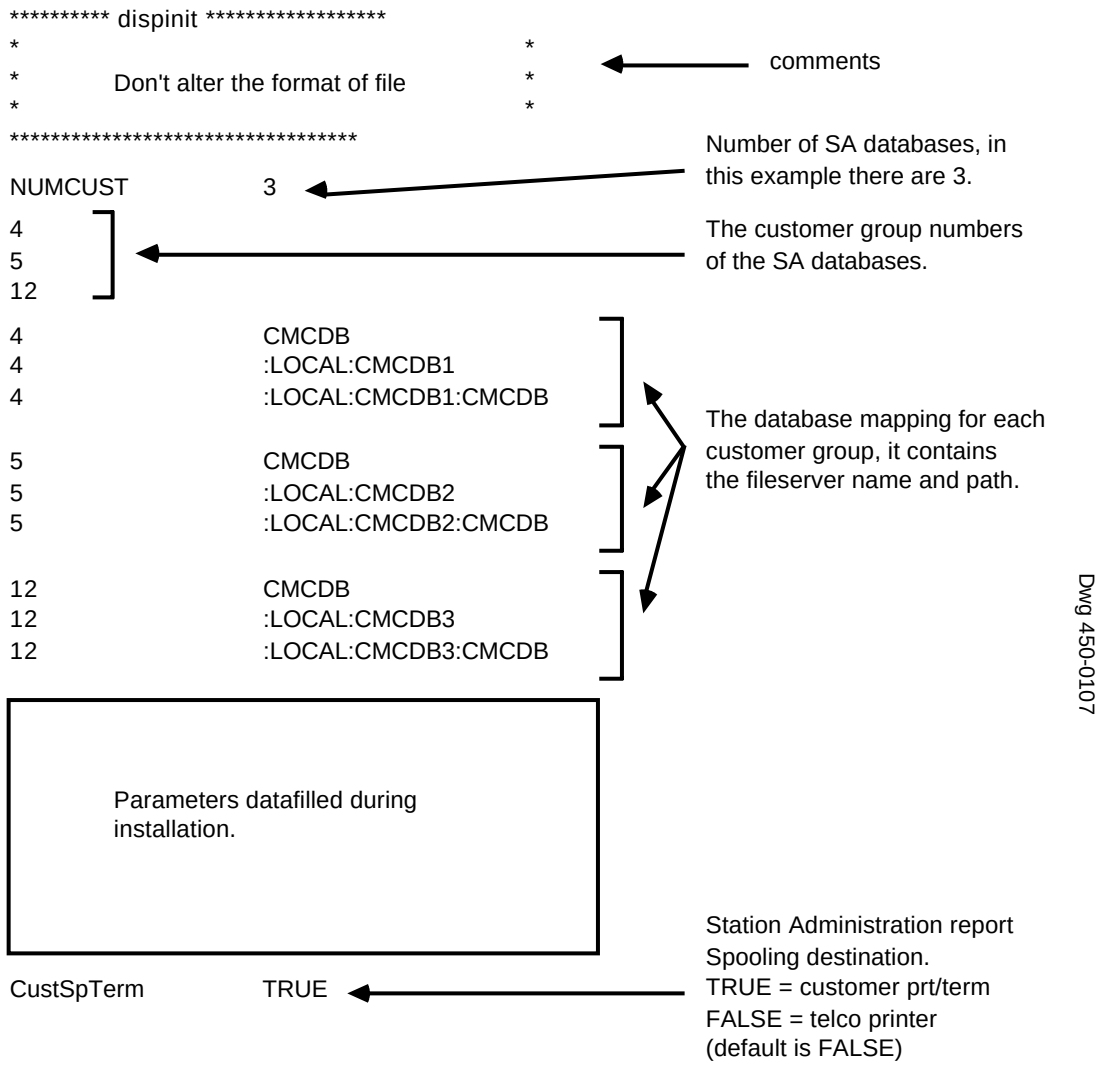

Fig. 3-2
Example Of The Database Supervisor Init File

Database Upload

3.09 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:DU:DUAGINIT.TEXT, contains seven parameters, only one of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-D lists the telco modifiable parameter.

Table 3-D
DATABASE UPLOAD PARAMETERS

Parameter	Range	Default	Description
soh_delete_age	0 to 365		This parameter sets the number of days that the service order history file is retained. After this time, the file is deleted.

File Manager

3.10 This init file, identified by the file name :LOCAL:PRU:NOS:B:FA:FAINIT.TEXT, contains seven parameters, six of these are of interest to the telco, the other is datafilled by NT at installation time. This file also contains 16 parameters that are datafilled before installation, and must not be changed. Table 3-E lists the telco modifiable parameters.

Table 3-E
FILE MANAGER PARAMETERS

Parameter	Range	Default	Description
SMDR_server	between 2 and 9 characters, and must include a leading colon	:LOCAL	This parameter is the name of the file server for the storage and processing of SMDR feature data.
SMDR	0 to 50	2	These parameters allow the telco to selectively choose the retention period. The parameter is in days, not including the current day.
ATT	0 to 50	1	
OM	0 to 50	1	
KT	0 to 50	1	
AMA	0 to 50	5	

SMDR Key Manager

3.11 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:KM:KMINIT.TEXT, contains seven parameters, only two of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-F lists the telco modifiable parameters.

Table 3-F
SMDR KEY MANAGER PARAMETERS

Parameter	Range	Default	Description
FILESERVER	between 2 and 9 characters, and must include a leading colon		This parameter is the name of the file server that stores the temporary files used in the sort routine.
VERSION	0 to 99		This parameter is the BCS release of the DMS-100 software that is in use at the DMS nodes.

KT Data Collection

3.12 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:KT:DCKTINIT.TEXT, contains five parameters, only two of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-G lists the telco modifiable parameters.

Table 3-G
KT DATA COLLECTION PARAMETERS

Parameter	Range	Default	Description
bcs_number	0 to 99		This parameter is the BCS release of the DMS-100 software that is in use at the DMS nodes.
change_dms_fstatus	TRUE or FALSE	FALSE	This parameter is a flag for the DMS node file status. It is set to TRUE if the DMS file status should be changed to processed when the file has been collected on the DNC-500.

DNC Connection Manager

3.13 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:NK:NKINIT.TEXT, contains 24 parameters, only five of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-H lists the telco modifiable parameters.

Table 3-H
DNC CONNECTION MANAGER PARAMETERS

Parameter	Range	Default	Description
Max_In_Sessions		25	This parameter determines the maximum number of incoming sessions to be supported by the network connection manager at any one time. This number should be the sum of the RO_cnm_inagents in the ROINIT file for each CS PRU configured. This parameter affects the amount of memory required for the NK PRU.
Max_Out_Sessions		25	This parameter determines the maximum number of outgoing sessions to be supported by the network connection manager at any one time. This number should be the sum of the RO_cnm_outagents in the ROINIT file for each CS PRU configured. This parameter affects the amount of memory required for the NK PRU.
Max_Switches		15	This parameter sets the maximum number of switches that can supply ATT data.
Max_DNC500s		1	This parameter sets the maximum number of DNC-500s that are collecting ATT data.
Loc_arbiter	0 and 1	0	This parameter is a flag that determines whether the arbiter is implemented. When set to 0 the arbiter is not used, which implies that there is only one CS PRU. This parameter is set to 1 when there are more than one CS PRUs in the installation.

OM Data Collector

3.14 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:OM:DCOMINIT.TEXT, contains nine parameters, only three of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-I lists the telco modifiable parameters.

Table 3-I
OM DATA COLLECTOR PARAMETERS

Parameter	Range	Default	Description
tapexlate	ascii, ebcdic, ascii_binary, or ebcdic_binary	ebcidic	This parameter is the same as the parameter TAPEXLATE in the DMS node table OFCENG.
omtapesuppression	true or false	false	This parameter is the same as the parameter OMTAPESUPPRESSION in the DMS node table OFCENG. It determines whether redundant D records are to be suppressed. If true, there are equal numbers of K and D records. If false, there will be one D record for every key allocated for the group. There will be K records only for assigned keys.
chg_dms_fstatus	true or false	false	This parameter determines whether the data collector should change the status, of a collected DMS file, from UNPROCESSED to PROCESSED.

Report Generator

3.15 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:RG:RGINIT.TEXT, contains eight parameters, only three of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-J lists the telco modifiable parameters.

Table 3-J
REPORT GENERATOR PARAMETERS

Parameter	Range	Default	Description
ERRORCH OVERFLOWCH UNAVAILABLECH	Any alpha-numeric character	+ -	These parameters allow the telco to choose the character that will represent errors in reports. The types of errors that can be represented are described in the comments for the init file.

SMDR Data Collector

3.16 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:SM:DCSMDATA.TEXT, contains 17 parameters, only three of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-K lists the telco modifiable parameters.

Table 3-K
SMDR DATA COLLECTOR PARAMETERS

Parameter	Range	Default	Description
customer	1 to 16 characters		This parameter defines the customer.
bcs_number	0 to 99		This parameter is the BCS release of the DMS-100 software that is in use at the DMS nodes.
chgDMSfstatus	TRUE or FALSE	FALSE	This parameter is a flag for the DMS node file status. If set to FALSE, the SMDR data collector will not change the DMS file status of a DMS SMDR file which has been successfully collected on the DNC-500.

Save And Restore

3.17 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:SR:PROFILE, contains the profiles for the databases. The only reason for the telco to access this file is to add or delete database paths for the save and restore directories at the bottom of the file. The addition of directories must not exceed 64.

3.18 Any changes made to this file must be made in the same format as other similar entries. The database supervisor init file must also be changed to agree with the changes made in this file.

Service Order MMI

3.19 This init file, identified by the file name :LOCAL:PRU:NOS:B:UC:UCINIT.TEXT, contains only one parameter. It is called PrimDnAccess (primary DN access). When TRUE, customers are able to delete primary DNs. When FALSE, customers are unable to delete primary DNs. This file gives the telco the option of allowing customers to control primary DNs.

BNM Tables

3.20 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:UN:UNINIT.TEXT, contains 24 parameters, 21 of these are of interest to the telco, the remaining three are datafilled by NT at installation time. Table 3-L lists the telco modifiable parameters.

Table 3-L
BNM TABLES PARAMETERS

Parameter	Range	Default	Description
Node_Limit		10	This parameter limits the number of nodes that may be added to the Node table.
DNC100_Limit		1	This parameter limits the number of DNC-100 that can be added to the Customer table.
DNC500_Limit		1	This parameter limits the number of DNC-500 that can be added to tne Other DNC table. If this parameter does not exist, the UN task instance defaults to 1 DNC-500.
Mask_Edit_Enable	TRUE or FALSE	FALSE	If this parameter is TRUE the mask table can be edited.
Partition_Enable	TRUE or FALSE	FALSE	If this parameter is TRUE the merging softkey is displayed on the Facility Ownership Table main menu.
Merge_Enable	TRUE or FALSE	FALSE	If this parameter is TRUE the partitioning softkey is displayed on the Facility Ownership Table main menu.
PBX_ALLOWED	TRUE or FALSE	FALSE	If this parameter is TRUE , PBX is an allowable datatype in the UN PRU.
SMDR_ALLOWED OM_ALLOWED ATT_ALLOWED KT_ALLOWED	TRUE or FALSE	FALSE	If any of these parameters are TRUE , they will be an allowable datatype in the UN PRU.
NUM_OF_ SUBTYPEs	0 to 8	8	This parameter sets the number of OM subtypes allowed.
OM1 TRK OM2 IBN OM3 SLU OM4 VFG OM5 IBNSG OM6 PRK OM7 IBNAC OM8 OHCBQ	TRUE or FALSE	FALSE	If any of these parmeters are TRUE they will be an allowable OM subtype in the UN PRU.

Service Orders Agent

3.21 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:SO:SOAGINIT.TEXT, contains 10 parameters, only four of these are of interest to the telco, the remainder are datafilled by NT at installation time. Table 3-M lists the telco modifiable parameters.

Table 3-M
SERVICE ORDERS AGENT PARAMETERS

Parameter	Range	Default	Description
write_SO_data	1 or 0	0	This parameter is a flag that determines whether servord commands and responses are written to a file. 1 write data to file 0 do not write data to file If set to 1, directories must be created for each SA customer, using: CREATEDIR :LOCAL:PRU:NOS:B:SO:custname where custname is one defined in Customer Table (BNM tables).
journal_nth_object	1 to 99	10	This parameter causes a journal message to be output, at regular intervals, in a batch. Can be used to monitor progress in large batches. The parameter is a number which determines the number of object commands between journal messages.
err_rept_userid	0 or -1	0	This parameter is a flag that determines the routing of error reports. If set to 0 the default printer is used, and if set to -1 the error reports are sent to the same printer as customer reports.
extra_err_rept	0 or 1	0	This parameter is a flag that determines whether an extra error report is to be generated. If set to 1, an extra report is generated and sent to the same printer as customer reports. If set to 0, no extra reports are generated.

Tape Generation

3.22 This init file, identified by the path and file name :LOCAL:PRU:NOS:B:UN:UNINIT.TEXT, contains 10 parameters, 6 of these are of interest to the telco, the remaining three are datafilled by NT at installation time. Table 3-N lists the telco modifiable parameters.

Table 3-N
TAPE GENERATION PARAMETERS

Parameter	Range	Default	Description
append	true or false	false	This parameter determines whether the data is appended to an existing tape string. If set to true it is appended.
mask	true or false	false	This parameter enables the number string to be masked. If true, the string is masked.
maskquit	true or false	true	This parameter is a flag to verify that masking was completed. If true, tape generation is terminated if the numbers could not be masked. If false, tape generation is not terminated if masking failed.
encode	true or false	false	This parameter is a flag that determines whether data is to be encoded to ASCII. If set to true, data is coded to ASCII. If set to false, data is encoded in EBCDIC.
overflow	true or false	false	This parameter is a flag that informs whether the data will overflow to another tape. If false the data will be contained on one tape.
liu			This parameter identifies the LIU port that will be used for the tape handler. It is a number consisting of the unit type and the configuration type.

(blank)

4. SDM DATAFILL FOR BNM

SERVICE DATA MANAGER TABLES

4.01 Service data manager (SDM) tables are files that contain data in list form. Each table consists of two files, the data dictionary file, and the data file. The data dictionary contains the definition of the record structure, and information regarding the access rights of various users and user groups. The data file consists of a series of records, each structured according to the definition in the data dictionary file.

4.02 Access to SDM tables is through two screens: the List of Tables screen and the Table-editing screen. An SDM table can only be modified from the Table-editing screen, a subset of the List of Tables screen.

COMMUNICATIONS SERVICE

4.03 Commencing with NSR28, the communications service (CS) PRU datafill is contained in SDM tables.

4.04 Four SDM tables are used by the CS PRU, they are:

- **CSENG** This table contains parameters set by NT prior to installation. Because these parameters are not to be changed by telco or customer, details of this table are not given in this publication.
- **CSINIT** This table contains the initializing parameters, and the links to other SDM tables. Parameters in this tables may be changed after installation.
- **NOAPs** This table is renamed to SSETS, it contains information for the applications supported by the CS PRU (for instance data collection, and CMAP).
- **ADDR** This table provides a mapping between logical application addresses and the corresponding X.25 addresses and attributes.

Table CSINIT

4.05 The parameters associated with table CSINIT are shown in Table 4-A.

Table 4-A
PARAMETERS FOR TABLE CSINIT

Parameter	Value	Default	Description
Object Index	-1 to 9	-1	CS PRU object index. There may be a number of CS PRUs, each with a unique object index, that must have a tuple in this table.
NOAPS		SSETS	Name assigned to the NOAPS table.

Table Continued ----------

Table 4-A Continued
PARAMETERS FOR TABLE CSINIT

Parameter	Value	Default	Description
ADDR		ADDR	Name assigned to the ADDR table.
Sessions	1 to 128	8	Total number of sessions.
Inbound	1 to 128	4	Number of inbound sessions reserved.
Arbiter	YES or NO	NO	Decision as to whether the arbiter is required.
RTS Name			The name that RTS has registered with NS.

4.06 Notes for Table 4-A.

- The Sessions field is set to reflect the total number of sessions required. The total number is the sum of the inbound and outbound sessions.
- The Inbound field indicates the number of sessions reserved for inbound calls only.
- For installations with a single CS, the arbiter is not used. In addition the RTS name must be NOS.
- For installations with multiple CS, the arbiter is used, and the RTS name is not used.

Calculating Number Of Sessions

4.07 The number of sessions (inbound and outbound) are calculated as follows:

Inbound:

Inbound = 2 * DNCWS + (number of switches + (3 * DNC-100s)

Where:
- DNCWS is the number of DNC workstations on the DNC-500
- number of switches is the number of switches on each DNC-100
- DNC-100s is the number of DNC-100s supported by the DNC-500

Outbound:

Outbound = CMAP + SERVORD + trans + OM + KT + SMDR + ATT

Where:
- CMAP is the number of CMAP sessions
- SERVORD is the number of SERVORD sessions
- trans, add 1 if a transaction session is used
- OM, add 1 if an OM session is used
- KT, add 1 if a KT session is used
- SMDR, add 1 if an SMDR session is used
- ATT, add 1 if an ATT session is used

The total number of outbound sessions is the sum of the outbound times the number of switches.

Table SSETS

4.08 The parameters for table SSETS (renamed from NOAPS) are shown in Table 4-B.

Table 4-B
PARAMETERS FOR TABLE SSETS

Parameter	Value	Default	Description
Profile	0 to 99		Profile ID for this application.
ApplName			Name that the application is registered with NS
Definite	YES or NO	YES	Definite length encode decision.
SSETS			HELIX path for SSETS file.

4.09 The actual parameter values depend on the feature sets installed. Examples of parameter sets for this table are:

Profile	ApplName	Definite	SSETS
0	BNM_NKAM	YES	BNMTSSET
1	BNM_NKAM	YES	BNMBSSET
6	DMS	YES	SSETS.CMAP
8	NETADMIN	YES	SSETS.NTKADM

Table ADDR

4.10 The parameters for table ADDR are shown in Table 4-C.

Table 4-C
PARAMETERS FOR TABLE ADDR

Parameter	Value	Default	Description
Address		*	Application address. An asterisk means that the default address is used in this tuple.
Subnet		DATAPAC	X.25 Gateway name. An asterisk means that the Subnet name is the same as the application address.
NSAP		*	X.25 NSAP address. An asterisk means that the NSAP is the same as the application address.
CUG	0 to 99	0	X.25 closed user group. The default is 0, meaning that there is no closed user group used.
RC	YES or NO	NO	X.25 reverse charging decision. When set to YES, calls to that address have origated reverse charges
CUD		03018000	X.25 Call User Data.

DATA SPOOLING

Service Data For Data Spooling

4.11 Static and dynamic service data for data spooling is contained in the three SDM tables, DS CONFIG-NS, DS DELIM-NS, and DS PORTS-UD. The names of these SDM tables are contained in the following BNM data spooling tables.

- ***Table BNMDS-NS*** contains the following SMD table names for NT static service data:
  DS CONFIG-NS
  DS DELIM-NS
  The data fill for these two SMD tables for BNM is contained in Tables 4-D and 4-E.
- ***Table BNMDS-UD*** contains the following SDM table name for NT dynamic service data:
  DS PORTS-UD
  The data fill for this SMD table is contained in Table 4-F.

Table 4-D
DATA SPOOLING CONFIGURATION DATA TABLE

Table Name	Parameter	Value	Description
DS CONFIG-NS	APIO Flow Control	TRUE	This flag controls the APIO flow control. Data spooling requires this parameter to be true.
DS CONFIG-NS	XMIT Len	512	Is the number of bytes in a packet transmitted by data spooling.
DS CONFIG-NS	RCV Len	30	Is the number of bytes in a packet received by data spooling.
DS CONFIG-NS	Timeout	1000	Is the number of seconds delay between packets for data spooling.
DS CONFIG-NS	TS Log	FALSE	This flag enables TS Log error messages. Data spooling requires this parameter to be false.

Table 4-E
DATA SPOOLING DELIMITER DATA TABLE

Table Name	Parameter	Value	Description
DS DELIM-NS	Delimiter	27	Is an integer providing the ordinal value of the ASCII character used as delimiter indicating when to forward a packet. Data spooling uses the <ESC> (27) character as a delimiter.

Table 4-F
DATA SPOOLING PORT DATA TABLE

Table Name	Parameter	Value	Description
DS PORTS-UD	Tuple ID	Between 1 and 10	Is the unique identifier for the synchronous port, it is configured by the customer.
DS PORTS-UD	Port Address	cc/ss/ll/pp	Identifies the AP port being defined, where: cc is the cabinet number, ss is the slot number, ll is the line number, and pp is the port number.
DS PORTS-UD	Line Flow Control	XON/XOFF	Defines the line flow control for the communications link. It is XON/XOFF for data spooling.
DS PORTS -UD	Line Duplex	FULL	Defines the transmitting mode of the communications link.

Table Continued ----------

Table 4-F Continued
DATA SPOOLING PORT DATA TABLE

Table Name	Parameter	Value	Description
DS PORTS-UD	Baud Rate	50 thru 19200	Determines the baud rate for the port. This parameter is configured by the customer.
DS PORTS-UD	Auto Echo	FALSE	Is the selection for auto echo of characters back to the remote device. Data spooling does not use auto echoing.
DS PORTS-UD	Stop Bits	1	Is the number of stop bits added to each transmitted byte. Data spooling requires only one stop bit.
DS PORTS-UD	Parity	NONE	Is the type of character parity in use. Data spooling uses no parity.
DS PORTS-UD	Char Size	8	Is the number of bits used for each character. Data spooling uses eight bits.

DISK UTILIZATION REPORT AND MONITOR

4.12 This feature allows the telco to use the SDM Table Editor to define disk utilization levels for the following:

- SMDR data collection (SM)
- station administration (SA)

4.13 Once the levels are set, the user can monitor their disk consumption at pre-determined time intervals. Disk Operational Measurements (OMs) are generated that contain records of the number of data files, and their total volume for each application. If the disk consumption of the application exceeds a pre-defined threshold, alarms will be generated or a write protect will be applied to the data directories to prevent additional OMs from being written to the data files.

4.14 The parameters associated with the tables in this feature, are described in Table 4-G.

Table 4-G
SERVICE DATA PARAMETERS

Table Name	Parameter	Range	Default	Description
DMOP	Tuple_ID	up to 25 characters		Is the tuple (or row) identifier, it is the first column in the table.
	Feature	1 to 9 characters		Identification of the type of directories to be monitored. They must be defined in table DMUDF, current directories are SM, and SA.
	Customer	0 to 16 characters		Identification of the customers to be monitored for directories identified in table DMUDF.
	Dir_Al_Size	-1, 6 to 32767	-1	Alarm threshold for directory size, in KBytes.
	Dir_WP_size	-1, 9 to 32767	-1	Write protect threshold for directory size, in KBytes.
	Num_File_Al	-1, 6 to 32767	-1	Alarm threshold value for the number of files.
	Disk_OM	YES or NO	NO	OM acquisition flag (true or false).
	Mon_Freq	1 to 720	1	Monitoring frequency threshold.
DMUDF	Tuple_ID	1 to 9 characters		Is the tuple (or row) identifier, it is the first column in the table.
	Feature	1 to 9 characters		User defined feature name.
	pathname	1 to 80 characters		Directory pathname of the directory to be monitored.

DISK PROCESS MONITORING

4.15 The disk process monitoring utility provides the user with information on disk and processor runtime utilization. The two tables that contain parameters that uniquely define the disks and processors that are to be monitored, are called MXDISK-UD and MXMCP-UD.

Table MXDISK-UD

4.16 This SDM table sets the time interval between updates to the screen for a specified server. The parameters for this table are listed in Table 4-H.

Table 4-H
PARAMETERS FOR TABLE MXDISK-UD

Parameter	Value	Default	Description
Time Interval	300 to 900	300	This parameter is the period, in seconds, between updates to the screen for the specified server.

Table MXMCP-UD

4.17 This SDM table identifies the location of the processors to be monitored. The parameters for this table are listed in Table 4-I.

Table 4-I
PARAMETERS FOR TABLE MXMCP-UD

Parameter	Value	Default	Description
Cabinet	01 to 08		This parameter is the cabinet number of the server to be monitored.
Slot	01 to 16		This parameter is the slot number of the processor to be monitored.
Line			This parameter is the line number used by the processor.
Port	0 to 99	0	This parameter is the port number used by the processor.
Time Interval	30 to 900	NO	This parameter is the period, in seconds, between updates to the screen for the identified processor.

MAP PASSTHRU

4.18 The link redundancy utility (ZZ) provides an alternate communications path for MAP passthrough. The two links that supply the redundancy are specifed in the SDM table LINKADDR. The parameters for this table are defined in Table 4-J.

Table 4-J
PARAMETERS FOR TABLE LINKADDR

Parameter	Range	Default	Description
xx Key	1 to 30 characters		This parameter uniquely defines the switch.
Switch Name	1 to 16 characters		This parameter is the name that CMAP displays on the terminal
Address 1	1 to 16 characters		This parameter is the primary address for the switch. It must map to an address in the X.25 name/address table (SAS configuration, or table ADDR).
Address 2	1 to 16 characters		This parameter is the secondary address for the switch. It must also map to an address in the X.25 name/address table.

NAS INTERFACE

4.19 This feature allows the telco to use the SDM Table Editor to set the parameters for the Network Administration System (NAS) residing on a host International Business Machines (IBM) computer.

4.20 The parameters are located in three SDM tables:

- NAS INTERFACE-UD
- PC NASIF HOST-UD
- PC NASIF X.25-UD

Table NAS INTERFACE-UD

4.21 This SDM table is a feature office table which maintains a list and description of all user dynamic table names. The parameters are defined in Table 4-K.

Table 4-K
PARAMETERS FOR TABLE NAS INTERFACE-UD

Parameter	Range	Default	Description
DNC - Table Name	1 to 16	nil string	This is the name of a table that is configurable by the telco. This parameter is datafilled at installation time only. The telco has only read access to this parameter.
Table Description	0 to 80	nil string	This parameter consists of a line of text explaining the function of table. The telco has only read access to this parameter.

Table PC NASIF HOST-UD

4.22 This SDM table, used by the NAS interface control task, provides all configuration data for the host systems that run NAS . The parameters for this table are defined in Table 4-L.

Table 4-L
PARAMETERS FOR TABLE PC NASIF HOST-UD

Parameter	Range	Default	Description
Enabled	TRUE or FALSE	FALSE	This parameter controls whether a communications task will be created to set up a connection to the host.
Public	TRUE or FALSE	TRUE	This parameter is a flag that selects whether this tuple is for public or private use.
Site	1 to 8 characters		This parameter is the mainframe site name of the host system running NAS .

Table Continued ----------

Table 4-L Continued
PARAMETERS FOR TABLE PC NASIF HOST-UD

Parameter	Range	Default	Description
Userid	1 to 8 characters		This parameter is the userid for the mainframe site of the host system running NAS.
Enabled Public	yes or no	yes	
Password	1 to 10 characters		This parameter is the password for the mainframe site's userid on the host system.
Comms Type	1 to 5 characters	X.25	This parameter is an identifier for the preferred communications protocol to be used for the host connection.
Options	6 characters	IBM YES	This parameter contains sub-fields to define all variants of BNM/NAS host protocol options that may be available. Two sub-fields are defined, a tag of three characters used as a host identifier, and a flag to determine if a VM break character is to be sent. The default for this option is: IBM Y (Y is yes to send a break character) The host identifier must be identified in the data dictionary.

Table PC NASIF X.25-UD

4.23 This SDM table is used, by the X.25 communications task, as configuration data for connection setup to the host system running NAS using the X.25 services. The parameters for this table are defined in Table 4-M.

Table 4-M
PARAMETERS FOR TABLE PC NASIF X.25-UD

Parameter	Range	Default	Description
Gateway	1 to 8 characters	nil string	This parameter is an identifier for the X.25 gateway sub-network name that will be used to set up a connection to the NAS host system.
DTE_Address	1 to 32 characters	nil string	This parameter is the address at the sub-network point of attachment of the NAS host site.
CUG	0 to 99	0	This parameter is the closed user group number that is used for the call setup.
RC	TRUE or FALSE	FALSE	This parameter is a flag to determine whether reverse charges are to be made against the X.25 call.

Table Continued ----------

Table 4-M Continued
PARAMETERS FOR TABLE PC NASIF X.25-UD

CUD	0 to 136 characters	This parameter is a set of sub-fields that define the different variations of call user data for an X.25 connection request. The following sub-fields are required to talk to an X.3 PAD: Tag, a call user data category using up to seven characters (for example: X.3_PAD1), and a PAD protocol id. If there are more than one host at the site, this parameter will also include a 4 character suffix to identify the host system.

NODES

4.24 The Nodes utility provides the ability to select the method of data collection from nodes. There are two SDM tables associated with this utility, US CONFIG-NS and US CONFIG-US.

Table US CONFIG-NS

4.25 This SDM table determines which data collection types will be scanned for data collection (within a specified node). The parameters for this table are listed in Table 4-N.

Table 4-N
PARAMETERS FOR TABLE US CONFIG-NS

Parameter	Range	Default	Description
Minimum Sessions	Yes or No		This parameter is a flag that determines how the system will log onto data collection types. If set to Yes, it will only log onto the data collection types, in that node, that have datafill in the customer feature tables. If set to No, it will log onto all data collection types for that node.
Autologon	Yes or No		This parameter is a flag that determines whether the system will automatically logon to the nodes that have features datafllled in the customer feature tables.

Table US CONFIG-US

4.26 This SDM table determines whether the system will automatically logon to the nodes that have features datafilled in the customer feature table. The parameters for this table are listed in Table 4-O.

Table 4-O
PARAMETERS FOR TABLE US CONFIG-US

Parameter	Range	Default	Description
Autologon	Yes or No	no	This parameter is a flag that determines whether the system will automatically logon to the nodes that have features datafllled in the customer feature tables.
Start-up Delay	0 to 30	5	This parameter is a delay, in minutes, before starting the logon task.

PDRC TABLES FOR PACKET STATIONS

4.27 In NSR28, two new SDM tables were created to control packet data recent change (PDRC) file production. The new tables are:

- **PDRC INIT-ND** This table contains the name of the fileserver that is used for the PDRC files, and a flag indicating whether or not to create PDRC files.
- **PDRC LINK-ND** This table contains the names of applications that use PDRC files.

Table PDRC INIT-ND

4.28 This table identifies the fileserver that will be used for PDRC files. This fileserver name is also used when creating a packet data terminal audit file. The parameters are defined in Table 4-P.

Table 4-P
PARAMETERS FOR TABLE PDRC INIT-ND

Parameter	Value	Default	Description
File Server	1 to 8 or LOCAL	LOCAL	PDRC files are saved on this fileserver.
PDRC on	YES or NO	YES	A flag to indicate whether the PDRC files are to be saved.

Table PDRC LINK-ND

4.29 This table contains the names of the applications using PDRC files. A separate tuple is created for each application. Note that the billing entry should always be the first entry. The parameters are defined in Table 4-Q.

Table 4-Q
PARAMETERS FOR TABLE PDRC LINK-ND

Parameter	Value	Default	Description
Sub Directory	1 to 12 application names	BILLING	The names of the applications using PDRC files.

SARC TABLES

4.30 The SARC utility, determines whether SOP or SADBSYNC should be used to synchronize the system to the nodes, and what external system is interfaced. These tables are SARCINIT-ND and SARCLINK-ND.

Table SARCINIT-ND

4.31 This SDM table determines which file server will be used for SOP and SADBSYNC. The parameters for this table are listed in Table 4-R.

Table 4-R
PARAMETERS FOR TABLE SARCINIT-ND

Parameter	Value	Default	Description
File Server	1 to 8 characters or LOCAL	LOCAL	This parameter defines the file server.
ForSop	YES or NO	NO	This parameter selects a service order file for incremental uploads.
ForSadbsync	YES or NO	NO	This parameter selects a SARC file for incremental uploads.

Table SARCLINK-ND

4.32 This SDM table identifies the external systems that will be interfaced with the system. The parameters for this table are listed in Table 4-S.

Table 4-S
PARAMETERS FOR TABLE SARCLINK-ND

Parameter	Value	Default	Description
Sub Directory	BILLING COSMOS LMOS		This parameter identifies the external system in use.

SERVICE ORDER MMI

4.33 The following SDM tables available for the packet data terminal MMI feature.

Table UC TELCOPARMS-US

4.34 The SDM table UC TelcoParms-US enables the telco to spacify which screen fields should be locked for customer use. Changes to this table take effect only when the software is rebooted. The parameters are defined in Table 4-T.

Table 4-T
PARAMETERS FOR TABLE UC TELCOPARMS-US

Parameter	Range	Default	Description
Tuple id	1 to 4 characters		This parameter is the tuple index string.
Screen Field	1 to 70 characters		This is the name of a screen field which can be modified by the telco only, when the Telco-Only parameter is set to TRUE
Screen name	1 to 30 characters		This parameter is the name of the screen that lists the screen field.
Telco-Only	TRUE or FALSE	FALSE	This parameter is a flag to determine whether the Screen Field is modifiable only by the telco.

Table UC CUGTABLES-US

4.35 This SDM table maps the customer names to their corresponding SDM table UC CustomerID-US. The parameters are defined in Table 4-U. See note below.

Table 4-U
PARAMETERS FOR TABLE UC CUGTABLES-US

Parameter	Range	Default	Description
Tuple id	1 to 16 characters		This parameter is a customer name that has an SDM table listing all CUGs it owns.
SDM Tble Name	1 to 16 characters		This parameter is the name of the SDM table that contains the list of CUGs. The general form of the table name is: UC CustomerID-US, where customerid is the name of the customer.

Table UC CustomerID-US

4.36 The SDM table UC CustomerID-US exists for each customer. CustomerID is a variable that represents unique customer names. Table 4-V lists parameters for SDM table UC CustomerID-US. See note below.

Table 4-V
PARAMETERS FOR TABLE UC CUSTOMERID-US

Parameter	Range	Default	Description
Tuple id	1 to 4 characters		This parameter is the CUG list index for the customer.
CUG Number	0 to 65535		This parameter is the CUG number that is associated with the DNA.
CUG Type	I or N		This parameter is a flag that determines whether the CUG is of type international (I) or type national (N).
CUG Network Number	0 to 9999		This parameter is the CUG network number associated with the DNA.

Note: If a customer has the NAS interface package, the following logs should be turned on, i.e., "suppression" = false (ref. 450-1011-301):

Subsystem	Report no.	Error No.
8519	0005	0001
8519	0024	0004

5. NAS INTERFACE HOST REQUIREMENTS

5.01 The Network Administration System (NAS), is a component of the Data Packet Network (DPN) Operations, Administration, and Maintenance System which provides user access service facilities for the administration of DPN networks.

5.02 The NAS resides on an IBM 370 host mainframe, and is a menu driven service to define, query, and change network service parameters, that are maintained in a resident database. The BNM system accesses the NAS, through the ISDN Customer Access feature described in 241-2001-363, using a protocol that conforms to the CCITT X.25 service.

5.03 The IBM host must comply with the requirements for the CCITT X.25 service. The X.3 PAD on the IBM host must be supplied with the default parameters, paying particular attention to the Flow Control, it must be set to YES. Table 5-A gives the settings recommended for the NAS interface.

Table 5-A
X.3 PAD PARAMETER SETTINGS FOR BNM INTERFACE TO NAS

Para-meter Number	Parameter Name	Value (Hex)	Value Meaning
01	PAD recall using a character	01	recall possible
02	Echo	00	no echo
03	Selection of “data forwarding” signal	02	forward after CR
04	Selection of idle timer delay	00	no time out
05	Ancillary device control	00	no use of X-ON and X-OFF
06	Control of PAD service signals and command signals	01	service signals are sent
07	Selection of operation of PAD on receipt of “break” signal from the start-stop mode DTE	15	
08	Discard output	00	normal data delivery
09	Padding after carriage return (CR)	02	2 padding characters
0A	Line folding	00	no line folding
0B	Binary speed of start-stop mode DTE	03	1200 bit/s

Table Continued ----------

Table 5-A Continued
X.3 PAD PARAMETER SETTINGS FOR BNM INTERFACE TO NAS

Para-meter Number	Parameter Name	Value (Hex)	Value Meaning
0C	Flow control of the PAD by the start-stop mode DTE	01	use (XON and XOFF)
0D	Linefeed insertion after carriage return	04	after echoed CR
0E	Linefeed padding	00	no linefeed after LF
0F	Editing	00	no editing in data transfer state
10	Character delete	7F	character 7F (DEL)
11	Line delete	18	character 18 (CAN)
12	Line display	12	character 12 (DC2)
13	Editing PAD service signals	02	editing for display terminals
14	Echo mask	00	echo all characters
15	Parity treatment	03	parity checking and generation
16	Page wait	00	page wait disabled

6. SYSTEM CONSTRAINTS

6.01 Table 6-A lists the maximum capacity for a DNC-500 with the BNM application. Some of the capacities are controlled by the capacity of the associated DMS nodes.

Table 6-A
CAPACITY LIMITS FOR NSR28

PARAMETER	CAPACITY
Rate of SMDR collection per day (total for all DMS nodes)	4,000,000
Rate of SMDR collection per day (total for all non-DMS nodes)	750,000
Station administration, lines administered	100k
Line transmission speed (asynchronous)	19.2k bps
Line transmission speed (X.25)	19.2k bps
DMS nodes used for SMDR and OM data collection	20
Non-DMS nodes used for SMDR data collection	30, with a maximum of 21 conversion processes running concurrently (due to a single user DVIX resource restriction)
DMS nodes used for features other than SMDR and OM data collection	10
Customers:	
Station administration	64
Network administration	10
SMDR	64 with a maximum of 150 customer groups
Other features	8
KT	11 + Telco
ATT	12 + Telco
Simultaneously active terminals	10
Report printers per user	1
DNC-100's per DNC-500	1
DNC-500's per DNC-100	1

Table Continued ----------

Table 6-A Continued
CAPACITY LIMITS FOR NSR28

PARAMETER	CAPACITY
Total software and collected data storage for:	1750MB
80MB + 350MB SASI	1300MB
350MB SCSI	1250MB
Total Station Administration storage (these data storage values are the capacities for formatted disks using two file servers)	250MB
Simultaneously active data spooling ports	32

7. COMPATIBILITY

7.01 Currently, BNM is implemented through appropriate software packages resident on DMS-100 and DNC-500 processors. Feature software resident on DMS-100 and associated UNIX application processor are part of the BCS software load, while software features on the DNC are ordered as an NSR software load. DNC software loads will adhere to the BCS schedules. Operating company subscribers gain access through appropriate DMS or DNC user interfaces.

NSR30

7.02 Beginning with BCS30, BNM feature packaging is simplified to conform with Open Systems Interconnect (OSI) classifications (e.g., Accounting, Performance, Fault, and Configuration Management). Consequently, new master packages have been established for both DMS and DNC resident software to simplify the ordering process. This repackaging also applies to future BCSs, as enhanced BNM features are made available on the DMS SuperNode processors.

With DMS Nodes

7.03 The NSR30 release of BNM will work with BCSs 26 to 30 inclusive. Previous BCSs may work but are not officially supported, and will have limitations. In particular, the following limitations are noted for SMDR:

- the record D7 (Spanish Metering Reception, introduced for BCS23) will be accepted but not stored. A log warns the user to turn off SMR at the affected switch.
- if a switch has BCS28, but is datafilled in the DNC as having BCS29, the Meridian SuperNode extension record (which increased in length from 44 BCD nibbles in BCS28 to 54 nibbles in BCS29) may cause problems in data spooling, call tracking etc., although the SMDR Collector will probably handle it.

Between NSR Releases

7.04 An NSR30 DNC-500 will communicate with an NSR26 or higher DNC-100, and an NSR30 DNC-100 will communicate with an NSR26 or higher DNC-500.

NSR28

7.05 The NSR28 release of BNM software has the following compatibility rules.

With DMS Nodes

7.06 The DNC-500 software release is compatible with the same release of BCS software (DMS node). This means that NSR28 is compatible with BCS28. The DNC-500 software is also compatible with one forward release of BCS and two backward releases of BCS. The compatibility can be summarized as: NSR28 is compatible with BCS26 through BCS29.

7.07 Although the NSR28 release of DNC-500 BNM application is compatible with BCS releases other than BCS28, there are some restrictions. Although BCS22 through BCS25 are not officially

supported, station administration will work with additional restrictions. The restrictions for BCS27 through BCS22 are listed as follows:

(a) BCS27 and BCS26

- Name and suppress features are not supported, although they are included in the DMS-100 software

(b) additional restrictions for BCS25

- Hunt groups are not supported
- Secondary DNs in a custgrp are not shown
- Only one custgrp can be uploaded at any one time
- Station administration database synchronization can be implemented only after the initial upload has been executed

(c) additional restrictions for BCS24

- The number of MADN members per LSG faults to 4 rather than checking the DMS-100 office parm
- the ability to change the NCOS numbers of incoming MDC trunk groups is not supported
- the ability to change the routing plan is not supported

(d) additional restrictions for BCS23 and BCS22

- upload will cause DMS swerrs on SLU lines
- SADBSYNC is not available for these releases

7.08 For compatibility between NSR28 and DMS node software releases above BCS28, see your Northern Telecom representative.

Between NSR Releases

7.09 Previous releases of the DNC-100 collector PRU are not compatible with an NSR28 DNC-500 release. If the DNC-500 system is running NSR28, all DNC-100s connected to it must be running NSR28.

7.10 A DNC-500 cannot connect directly to another DNC-500, and a DNC-100 cannot connect directly to another DNC-100.

7.11 Station Administration. The features that are not compatible with the hunt group features (DNH and SHU) are listed in Table 7-A. In addition to the compatibility rules in Table 7-A, there are other conditions that apply.

DNH conditions:

- CFB may not be on the same set as the DNH option.
- KSH may be on the same set as DNH, provided that none of the dns in the KSH keylist have DNH.
- If DNH and SUS are on the same DN, then SUS is dropped when uploaded to DNC.

Table 7-A
SERVICE ORDER COMPATIBILITY

Feature	Pre-requisite	Incompatible With
CBE	CFB	non-primary MDN, CBI, and hunt groups
CDE	CFD	non-primary MDN, CDI, and hunt groups
CFDVT	CFD	non-printing MDN, and hunt groups
DCBI		DCPU, DOR, and AUL
DCF		
DCPU		DCBI, DOR, and AUL
DNH		CBE, CBI, CFB, CFDVT,CWX, KSH, MDN, SUS, and UCD
DOR		DCPU, DCBI, CXR, CWD, CWO, 3WC, MWT, MSB, MSBI, LNR, CFB, CFD, CFU, CFI, RAG, CPU, CNF, CHD, PRK, SCS, SCL, SCU, HLD, and AUL
EBO		
EBX		
GIC		MDN (IBN sets)
ICM		
NDC		CWI, CXR, CWX, CNF, 3WC, PRK, HLD, CHD, and CWT
PRL		
SHU		CWX, MDN, and UCD
SPB		
UCD		MDN, AUL, SHU, and DNH

(blank)

8. TEST EQUIPMENT

8.01 A DNC-500 installer or NT field representative will find the equipment listed in Table 8-A useful for installation testing or problem diagnosis.

Table 8-A
TEST EQUIPMENT LIST

EQUIPMENT	PURPOSE
Protocol analyzer	Used to diagnose DMS-100 to DNC-500 and DNC-500 to DNC-100 communications problems.
Break-out box	Used to diagnose suspected problems between RRUs (i.e., the LIU) and external devices (such as printers and modems).
ASCII (VT100 or equivalent) terminal and RS-232C cable	Monitors SRUs (primary processor and applications processors) for system messages and error tracebacks.
Supply of streaming tapes and 9-track magnetic tapes	Used to capture data from the DNC-500 hard disk. This data (such as feature data collected from a DMS-100) is used for later analysis by NT personnel when searching for a suspected problem.
Dialup modem	Used with an ASCII terminal and RS-232C cable to allow NT personnel to have mainframe computer access for such things as electronic mail, program library, and problem report database access.

(blank)

9. ABBREVIATIONS

Standard Abbreviations

9.01 The following abbreviations are used in this publication:

AP	Application processor
ASCII	American standard code for information interchange
BIX	Building internal cross-connect
BNM	Business network management
D-1	A standard for the conditioning of telephone lines for use in data transmission
DCE	Data communications equipment
DMS	Digital Multiplex System
DMS node	A member of the DMS-100 family of digital switches. Only the variant DMS-100 is used with the BNM application.
DNC	Dynamic network control
DTE	Data terminal equipment
DVS	Data Voice System
ID	Identification
IOC	Input-output controller
LAN	Local area network
LIU	LAN interface unit
M	Modem
Mbit	Megabit
MDC	Meridian digital centrex
MLP	Multiple link procedure
NOP	Network operating protocol
NOS	Network Operating System
NSR	Network system release
NT	Northern Telecom
OM	Operational measurements
PRU	Program resource unit

SASI	Shugart associated standard interface
SCSI	Small computing systemsinterface
SLP	Single link procedure
SMDR	Station message detail recording
SRU	Shared resource unit

Station Administration Feature Abbreviations

9.02 The following abbreviations are used for the station administration features:

AUD	Automatic dial
AUL	Automatic line
AVT	Autovon termination
CBE	Call forward busy exclude external
CBI	Call forward busy intragroup
CDE	Forward no answer exclude external
CDI	Forward no answer intragroup
CFB	Call forward busy
CFD	Call forward no answer
CFDVT	Call forward variable timing
CFI	Call forward intragroup
CFU	Call forward universal
CHD	Call hold
CNF	Conference
CPU	Call pick-up
COD	Cutoff on disconnect
CWD	Dial call waiting
CWI	Call waiting intragroup
CWO	Call waiting originating
CWT	Call waiting
CWX	Call waiting exempt

CXR	Call transfer
DCBI	Directed barge in
DCF	Deny call forward
DCPU	Directed call pick -up
DGT	Digitone
DIN	Deny incoming calls
DISP	Display
DNH	Directory number hunt
DOR	Denied origination
DIM	Denied termination
EBO	Executive override
EBX	Override exempt
EXT	Extension
GIC	Group intercom
HLD	Permament hold
ICM	Single intercom
KSH	Key short hunt
LNR	Last number redial
MDN	Multiple appearance DN
MSB	Make set busy
MSBI	Make set busy intragroup
MWT	Message waiting
NDC	No doubt connect
PRK	Call park
PRL	Privacy release
PRM	Primary member of a MDN or pilot of a DNH
QTD	Query time and date
RAG	Ring again
RSUS	Requested suspension

SCL	Speed call long
SCS	Speed call short
SCU	Stop hunt
SPB	Special billing
SUS	Suspended service
UCD	Uniform call distribution
3WC	3-way calling