297-7001-310

DMS-100 Family

DMS VoiceMail

Translations Guide

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DMS-100 Family

DMS VoiceMail

Translations Guide

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About this document

This document contains procedures for datafilling the DMS-100 host so it can interact with the DMS VoiceMail system. It is also used for datafilling line features so a subscriber can be provided voice mail service. It is intended for personnel involved in the planning and administration for DMS VoiceMail. This guide is designed to cover datafill tables for the SPM.

When to use this document

This document is written for all DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document, check the release information in *DMS-100 Family Guide to Northern Telecom Publications,* 297-1001-001.

How DMS VoiceMail documentation is organized

This document is part of DMS VoiceMail documentation that supports the Northern Telecom line of DMS VoiceMail products. DMS VoiceMail documentation is a subset of the DMS-100 Family library.

The DMS-100 Family library is structured in numbered layers, and each layer is associated with an NT product. To understand DMS VoiceMail products, you need documents from the following layers:

- DMS-100 Family basic documents in the 297-1001 layer
- related documents in the 297-2001, 297-2051, and 297-2101 layers
- DMS VoiceMail documents in the 297-7001 layer

DMS VoiceMail documents and other documents that contain related information are listed in “Finding DMS VoiceMail information” in *DMS VoiceMail Product Guide,* 297-7001-010.

References in this document

The following documents are referred to in this document.

Number	Title
297-1001-103	*Peripheral Modules*
297-1001-310	*Table Editor Reference Guide*
297-1001-451	*Common Customer Data Schema*
297-1001-455	*Office Parameters Reference Manual*
297-2051-104	*Meridian Digital Centrex Simplified Message Desk Interface Setup and Operation*
297-2101-310	*Service Orders and Query System Reference Manual*
297-7001-300	*DMS VoiceMail System Administration Guide*

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

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

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a Maintenance Administrative Position (MAP) are shown in uppercase letters:

>BSY LINK

Variables

Variables are shown in lowercase letters:

>BSY LINK ps_link

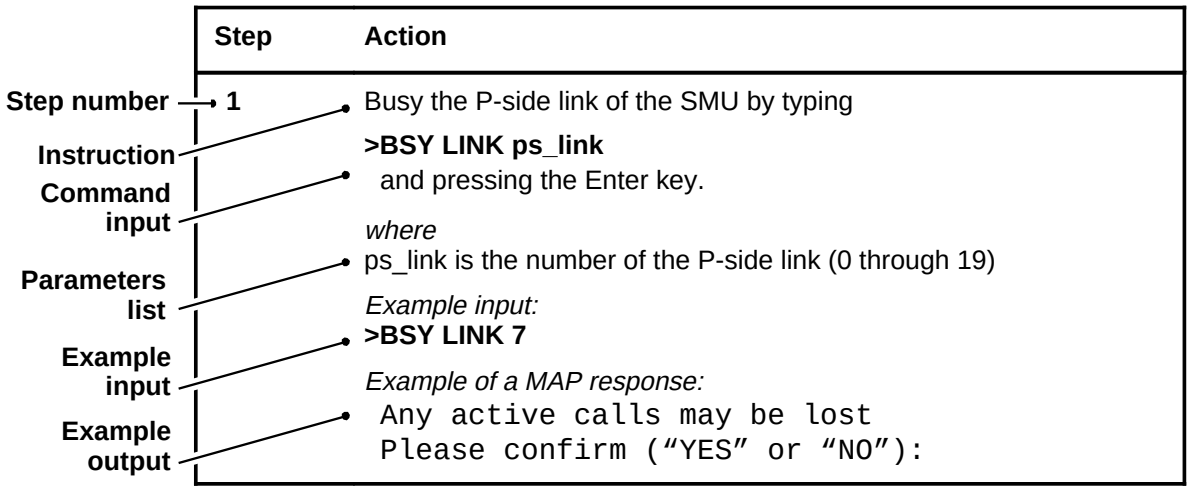
The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
Any active calls may be lost
Please confirm (“YES” or “NO”):
```

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



Understanding DMS VoiceMail

This chapter includes a description of the capabilities and operation of DMS VoiceMail, and the relationship of DMS VoiceMail to the public switching telephone network.

DMS VoiceMail overview

DMS VoiceMail is a voice processing system designed to provide call answering and voice messaging services for the central office (CO) environment. A DMS VoiceMail system uses a service peripheral module (SPM) and voice processing software, and is administered from a local or remote terminal.

In the CO environment, DMS VoiceMail supports the DMS-100 switch as well as other central office switches. DMS VoiceMail provides a variety of voice mail services which are sold to user groups as packages. A package can include some or all of the available services.

DMS VoiceMail users are assigned a voice mailbox which they have the option of accessing with a private password. Recorded prompts guide users whenever necessary, and also assist callers to leave messages.

The Simplified Call Answering feature package includes call answering and message retrieval functions, with a subset for users with dial pulse sets. It is intended for residential and small business users.

The Voice Messaging feature package offers enhanced voice mail capabilities in addition to basic call answering and message retrieval. This feature package is primarily intended for Centrex business users.

Optional feature packages include AMIS Analog Networking, Voice Forms, Voice Menus, and Family Mailboxes.

How typical messaging systems are deployed

Messaging systems can be deployed as either a small adjunct processor located with individual end offices, or as a larger centralized messaging system that supports a number of end offices. In either case, the voice path is usually over dedicated T1 trunks and the signaling path is typically over dedicated simplified message desk interface (SMDI) links.

Figure 1-1 illustrates a typical end office deployment strategy.

Figure 1-1xxx
Typical end office deployment

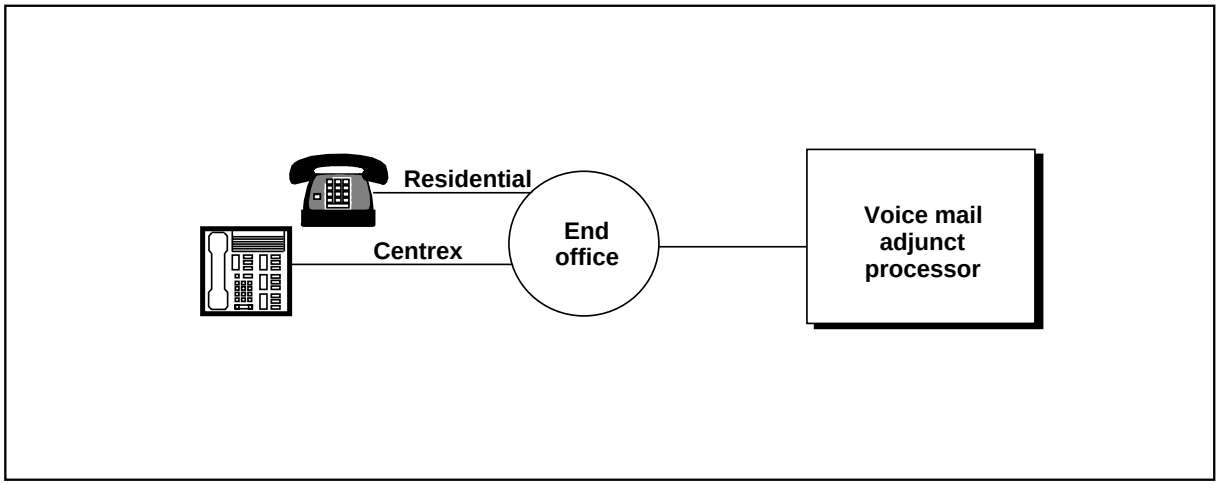
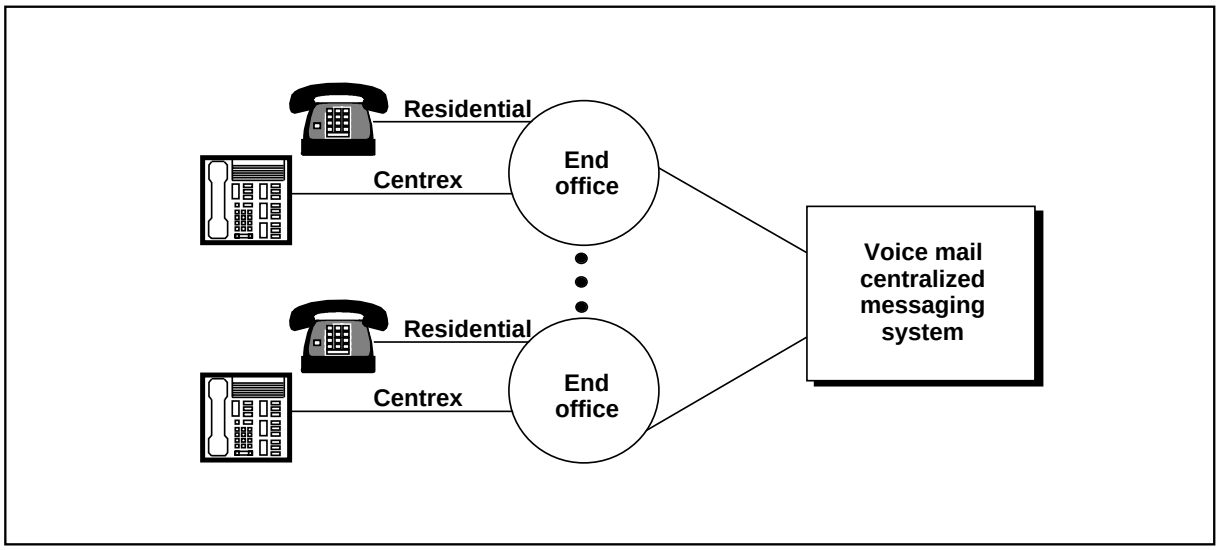


Figure 1-2 illustrates a typical centralized deployment strategy.

Figure 1-2xxx
Typical centralized deployment



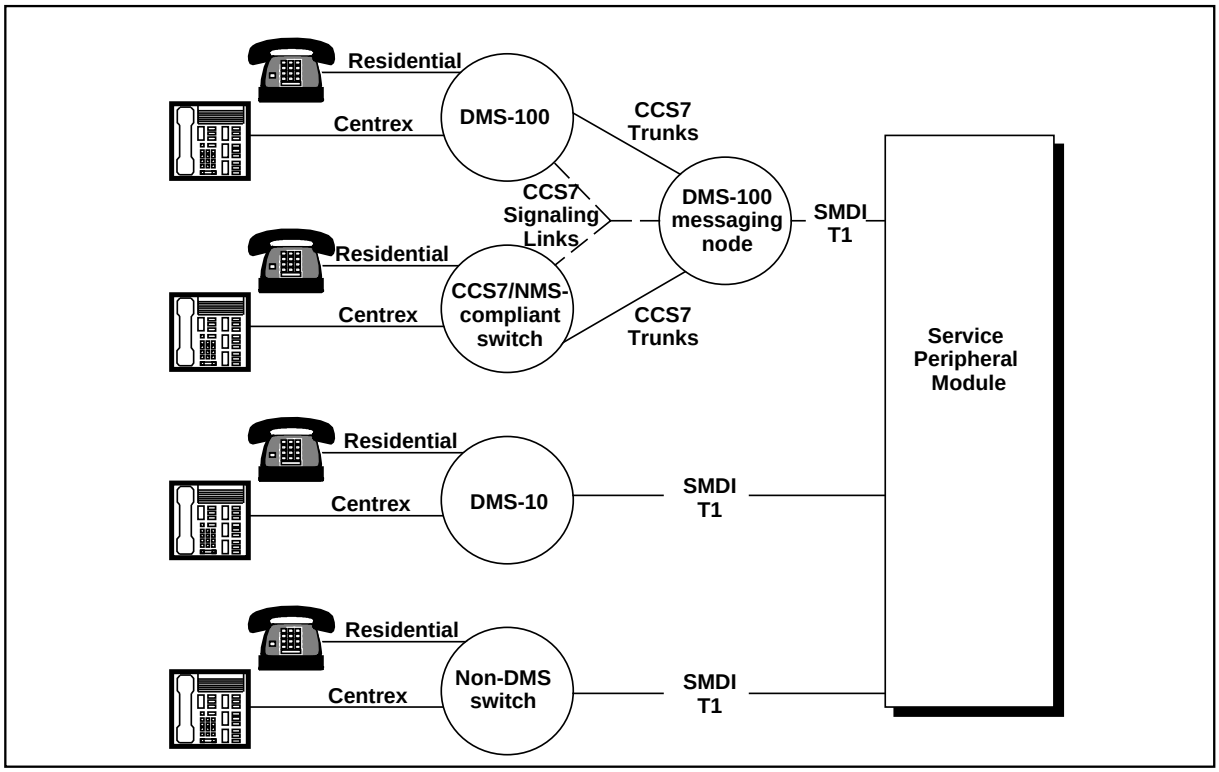
DMS VoiceMail deployment

Deploying an SPM is a solution for messaging systems serving less than 40,000 users. DMS VoiceMail provides a voice messaging system that consists of one SPM and voice processing software, administered from a local or remote terminal.

The SPM is a voice processing server developed for DMS-100 Family and other types of central office switches. The SPM contains up to 192 voice channels for the operating company to provide voice mail service to users.

Figure 1-3 illustrates a typical network configuration using an SPM.

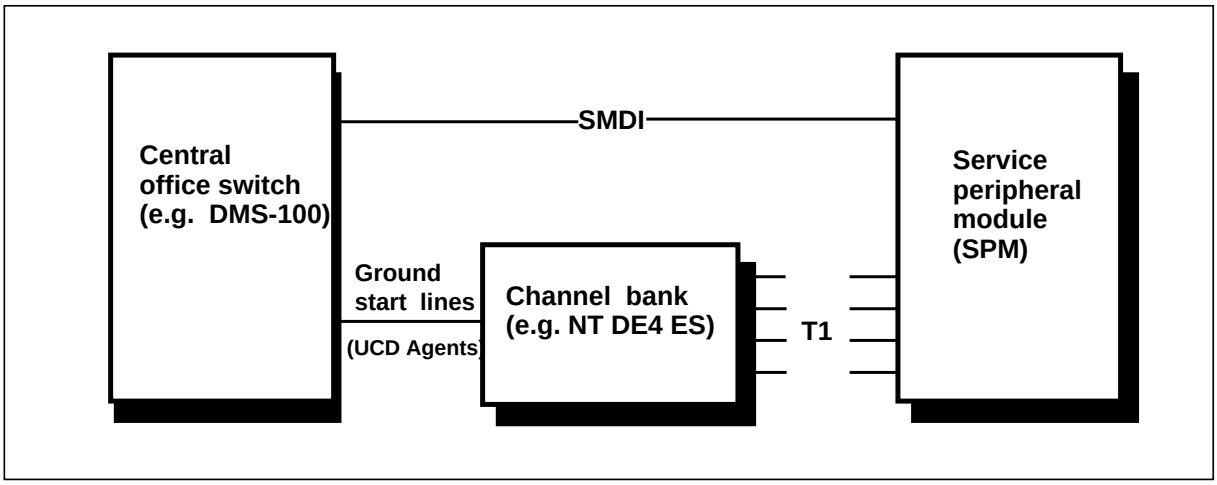
Figure 1-3xxx
SPM deployment



Note: Network Message Service (NMS) is an optional network interface for DMS VoiceMail. NMS uses common channel signaling 7 (CCS7) to offer message service to an entire city, or LATA, from a centralized DMS-100 messaging node in the network.

Figure 1-4 illustrates how the SPM is provisioned with the DMS-100 Family, or alternate, central office switch.

Figure 1-4xxx
SPM hardware configuration



System capacity

The number of mailboxes on a DMS VoiceMail system is calculated by the total available hours of storage, divided by the average time taken by each user's messages and greetings. The average per mailbox time depends on the mailbox size limits and message deletion policy, both of which are set by the service provider.

The SPM is provisioned by selecting appropriate numbers of voice ports and hours of storage. The amount of memory is fixed and is sufficient to run all the supported applications and utilities under full load even in the presence of single point failures. Capacity will be limited more by the number of ports than by limitations of the SPM.

Table 1-1 shows the maximum capacities for the SPM.

Table 1-1xxx
DMS VoiceMail system capacities

Item	System maximum
Voice messaging channels	192
Voice storage hours	1,200
Storage hours for voice menus, voice form definitions, and personal verifications	100
Customer groups per system	2,000
Registered mailboxes per system	40,000
Messages per mailbox	999
Minutes per mailbox	360
Voice service DNs	4,000
Voice menus	4,000
Classes of service	127
Distribution lists per organization	No Limit
Entries per organization distribution list	120
Distribution lists per mailbox	9
Entries per mailbox list	99
Administrative positions	4
Maintenance console	1
Maintenance printer	1
SMDI links	16
Languages	3

System response time

Under normal conditions, for most voice messaging functions, response time should be under one second 95% of the time, and over four seconds no more than one per 10,000 instances.

Administration of DMS VoiceMail

Up to four administrative positions can operate simultaneously from locally or remotely attached terminals: one main administration terminal and up to three multiple administration terminals (MATs) which can only be used to perform user administration, voice services administration, and (view-mode

only) class of service administration. System events are recorded in a log file and reports are printed on a locally attached printer.

The system can be administered remotely through modem access. However, the system cannot be administered both locally and remotely at the same time.

Translations

Translations is the process of determining the destination of a call based on the digits the caller dials and the capabilities available to the caller.

Translations also allows the DMS software to recognize the hardware components of the system. Using translations, the DMS recognizes the hardware location of the SPM and the links attached to it. This allows the DMS to use the SPM for call processing. It is in this context that DMS VoiceMail translations occurs.

Once the various hardware components of the SPM have been installed, the MPC (multi-protocol controller) data link between DMS VoiceMail and the DMS-100, and the UCD (uniform call distribution) agents for each voice channel are configured using the translations tables. This is done from the MAP (maintenance administration position) terminal for the SPM.

The following pages present the necessary information to enable the configuration. See *Simplified Message Desk Interface Set-up and Operation* (NTP 297-2051-104) for more information on the tables. See *Service Orders and Query System Reference Manual* (NTP 297-2101-310) for more information on service orders.

> ***Note:*** Translations must be setup on both the DMS-100 and the SPM for DMS VoiceMail to be properly configured.

Major components of the translations system

The translations system is a collection of data and the facilities for accessing and manipulating that data. The translations system includes the following elements:

- the translations database
- the hardware on which the database resides
- the table editor which controls data entry, storage and retrieval in the database

The translations database

The DMS translations database has the following three functions:

1 It processes and manipulates collected digits in order to convert the digits into the information required to complete the call.

2 It establishes an inventory of DMS equipment available for call processing and maintenance.

3 It records and formats system operation reports and automatic message accounting (AMA) records; for example, the log system or the operational measurement system.

DMS VoiceMail translations are associated with the second function. Using translations, the DMS recognizes the hardware location of the Service Peripheral Module and the links attached to the SPM. This allows the DMS to use the SPM for call processing.

The data that is used to process translations is contained in DMS tables, with each table having a specific purpose. These tables consist of vertical columns, or fields, and horizontal rows, or tuples.

Fields

The fields describe the type of information provided in the table. For example, the DEVTYPE field in table SLLNKDEV describes the device type used.

Tuples

A tuple is one row in a table. A tuple contains one record of data.

How translations reads tables

Each table used by translations has a specific function. Translations typically accesses a combination of tables to obtain all the information needed for routing calls.

Certain key fields in each table index the next table or set of tables. Any of the fields in the table can be key fields.

Translations involves reading specific tuples in designated data tables to determine the path that a call takes to route it to its destination as well as the termination point of a call. In the case of DMS VoiceMail translations, it is used to allow DMS to recognize the link to the SPM.

The number and sequence of tables accessed by a given call varies according to several factors, for example, the origin and destination of the call, the number of digits dialed, and the signaling system used on the incoming call.

How translations tables are datafilled

The process for datafilling translations tables differs depending on whether the switch is being datafilled for the first time, or routine modifications are being made to a few tables.

Using the table editor to modify datafill

The operating company makes routine changes, additions, and modifications to the datafill in individual tables as required, using the table editor facility at the MAP.

The table editor is entered from the CI level of the MAP display by typing:

```
TABLE tablename
```

where tablename is a valid table name.

Inside the table editor, the LIST command displays all the tuples in the table or only those tuples that meet specific conditions. A variety of commands are used to modify the information contained in a table. The table editor can also be used to add or delete tuples. For complete information on using the table editor, refer to *Table Editor Reference Guide*, 297-1001-310.

Table 1-2 illustrates a set of commands that changes information in table DIRPSSYS. The responses made by the switch appear after a right angle bracket.

Table 1-2

Step	Action	Response
1	Enter table DIRPSSYS TABLE DIRPSSYS	>TABLE DIRPSSYS
2	Identify tuple requiring modification: POS AMA	>AMA Y 2 0 AMAPOOL $ MN NA
3	Change the NUMFILES field: CHA NUM	>ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
4	Confirm the change: Y	>NUMFILES: 1

-continued-

Table 1-2

Step	Action	Response
5	Enter the new value: 5	>TUPLE TO BE CHANGED: >AMA Y 5 0 AMAPOOL $ MN NA >ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
6	Confirm the change: Y	>TUPLE CHANGED
	End	

Note: Changing datafill in some tables requires a system restart before the new values are active. Refer to *Common Customer Data Schema*, 297-1001-451, for information on the requirements of specific tables.

Preparing to datafill the DMS-100 host

How this document is organized

This document is not organized by feature package, feature or capability. Rather it lists the tables to be datafilled in order to allow the DMS-100 to recognize the DMS VoiceMail Service Peripheral Module (SPM) and to define the links attached to it.

Multi-customer vs single customer applications

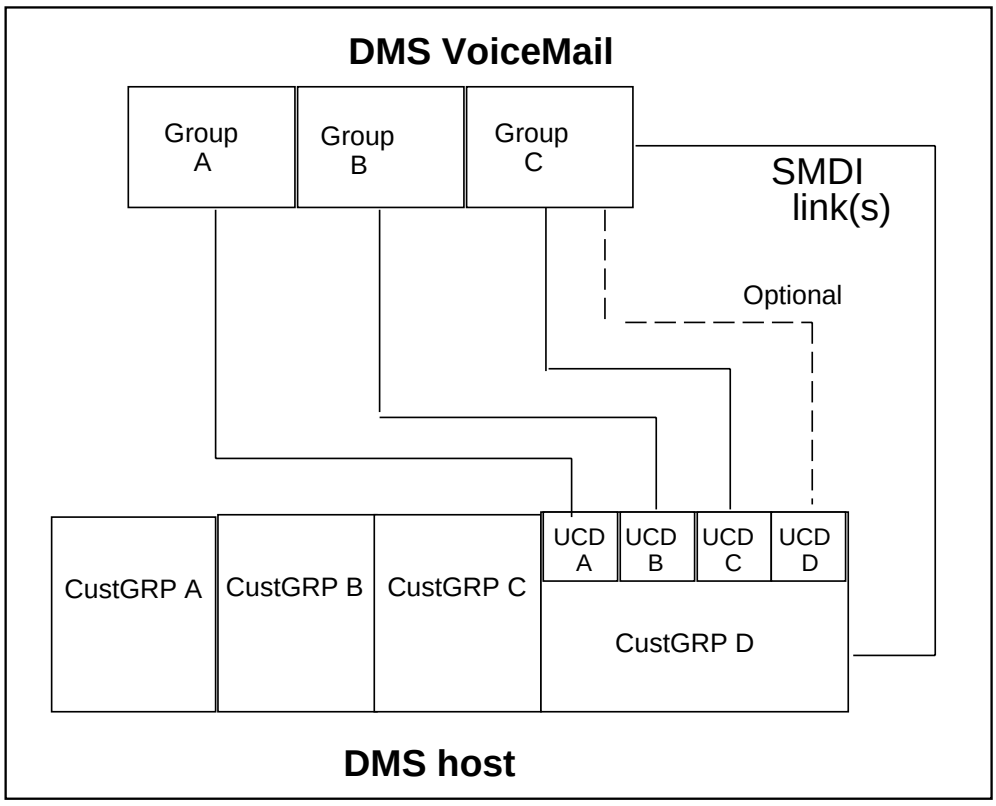
Customer groups in the DMS-100 should already have been datafilled before you datafill the DMS-100 host to interact with DMS VoiceMail. However, if multiple customer groups in the DMS-100 host will be using the DMS VoiceMail system, create a new voice mail customer group to service each customer group. For example, if the voice mail customer group serves both residential and business customer, then the UCD lines making up the customer group and representing voice mail agents should be RES lines.

Refer to the *Customer Data Schema*, 297-2001-451 for a description on the procedure for datafilling new customer groups. If multi-customer is not applicable, you do not need to create this special group (for single customer groups).

In the example below for a multi-customer configuration, there are three customer groups (A, B, and C) already defined. A fourth will have to be created for DMS VoiceMail (CustGRP D).

> ***Note:*** The customer groups defined on the DMS-100 side should correspond with those to be defined in DMS VoiceMail. See "Adding customers" in the "Administrator Logon and the Main Menu" chapter of the *DMS VoiceMail Customer Administration Guide* (NTP 297-7001-301) for the procedure to create a customer group on the DMS VoiceMail side. This can be done after the datafill has been completed.

Figure 2-1xxx
Example of a multi-customer configuration



Note: UCD D is an optional UCD group. If CRR (Call Request Retrieval) is used, all requests will be made to the UCD group with SMDI_DSK_NO = 63. For multi-customer systems, set up a UCD group "UCD D" for this purpose only.

If CustGRP A, CustGRP B and CustGRP C exist and Customer Group D (CustGRP D) is a VoiceMail group, and those groups subscribe to V oiceMail, they are given a DN which routes them to CustGRP D.

If SMDI links are required, they can be added to the customer group. SMDI redundancy can be configured on the DMS-100 host side to handle overflow conditions. This is achieved by configuring two UCD groups such that if there is a problem with one UCD group, calls are handled by the redundant UCD (that is, call overflow or call blocking).

Limitations

The multi-customer configuration described above, only supports Centrex customer groups which have Direct Inward Dialing (DID).

Datafilling the DMS-100 host

When modifications and additions are required to the way in which DMS VoiceMail translations are handled, the data in a certain number of tables must be modified. The number of tables affected varies depending on:

- the information being changed
- The interrelationships between the primary tables affected and the tables that they index.

For information on which changes affect which tables, refer to the tables in this chapter, and to *Common Customer Data Schema*, 297-1001-451.

This chapter discusses the datafill and datafill sequence of the following tables for DMS VoiceMail.

- MPC
- MPCLINK
- TERMDEV
- SLLNKDEV
- OFRT
- UCDGRP
- DNROUTE
- IBNXLA
- LNINV

Additional tables in the DMS-100 need to be datafilled to setup a DMS VoiceMail customer group to cover the multi-customer group configuration of the SPM. For further information, refer to *Customer Data Schema*, 297-2001-451.

Error messages are included after the datafill for each table if there are unique error messages associated with that specific table. For a description of common error messages, refer to *Common Customer Data Schema*, 297-1001-451.

BCS applicability

For DMS-100 use release BCS 33 or later.

Feature package prerequisites

The DMS-100 host requires the following feature packages to work with DMS VoiceMail:

Feature package prerequisites

Feature package	Feature package name
NTXE47AA01	Broadcast message feature
NTX100AA	Basic package
NTX901AA	Local features
NTX101AA	Enhanced package
NTX119AA	SMDI Message Service Package
NTX730AA	Multi-link ASCII device driver

Description

DMS VoiceMail is a Northern Telecom product that provides voice messaging and general voice processing capabilities to the DMS-100 Northern Telecom switching products. It is available on a Service Peripheral Module (SPM) hardware platform. This platform has a maximum of 192 ports, and is aimed at Central Office and Network service providers.

Some of the system features of the Service Peripheral Module for the Central Office (CO) market, are the following:

- Multi-customer
- Multiple Administrative Positions
- AMIS Networking (analog)
- Call Answering (VMUIF)
- Family Mailbox
- Increased capacity
- Improved reliability/redundancy through disk-shadowing, redundant MSPs and SPNs, dual SCSI bus
- logical/physical switch connectivity
- Operational, administrative and maintenance capabilities

DMS VoiceMail systems with multiple SMDI links

The procedure described in the following pages are applicable for systems with one SMDI link. To datafill systems with multiple SMDI links:

1 Determine the number of SMDI links required. See the *Planning and Engineering Guide*, 297-7001-100.

2 Follow the procedures listed below and repeat for Tables MPC, MPCLINK, SLLNKDEV, OFRT, UCDGRP, DNROUTE for each additional SMDI link. Table LNINV would also have to be datafilled for all the lines. In the Service Order section, prompts LINE_NO and UCDGRP must be datafilled for each SMDI link.

Theory of operation

Translations Table flow

The DMS VoiceMail translations process is shown in the flowchart that follows.

> ***Note:*** SMDI links can be setup using either the NT1X67 or NT1X89 card. If the NT1X67 card is used, datafill Tables TERMDEV and SLLNKDEV . If the NT1X89 card is used, datafill Tables MPC, MPCLINK and SLLNKDEV .

Table MPC (1x89) assigns the MPC (multi-protocol controller) card.

Table MPCLINK (1x89) is used to set up the MPC link.

Table TERMDEV (1x67) is used to set up the terminal device.

Table SLLNKDEV specifies the characteristics of data links used by the command interpreter increment LNKUTIL. Entries are required for each link in Table MPCLINK.

Table OFRT is used to set up a route between the DMS-100 switch and the DMS VoiceMail Voice Messaging/Call Answering DN. The DN is later defined in Table UCDGRP.

Table UCDGRP defines the message desk number for the Voice Messaging and Express Messaging UCD groups. Each voice channel has a corresponding UCD agent that is a member of a message desk.

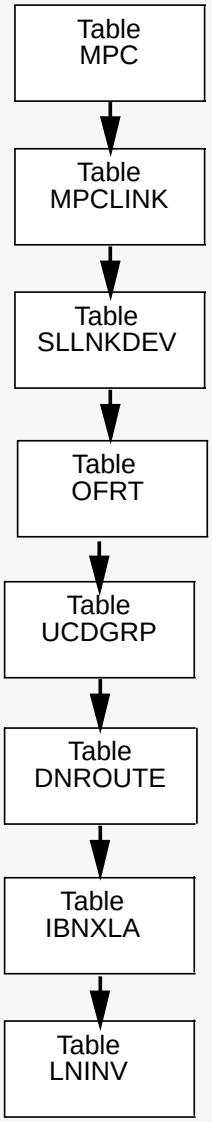
Table DNROUTE assigns the primary directory number for the UCD group as well as all the service DNs.

Table IBNXLA is used to enter the feature activation codes required to set up and access message waiting.

Table LNINV is used to define the line location. The Line Circuit Inventory table contains the assignment for each card slot on the line or remote line module.

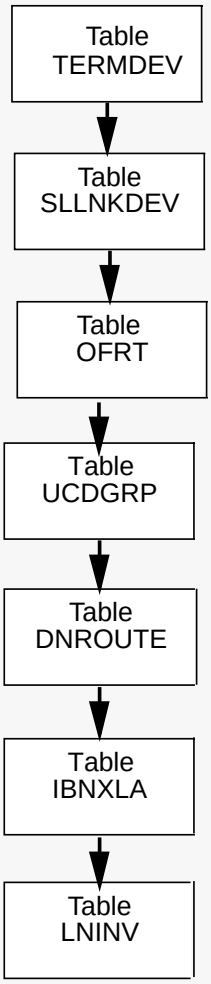
> ***Note:*** In addition to the above tables, Table IBNFEA T must be datafilled so that autolog is set to yes, and Table UCDLINES must have options COD, UCD and SMDI datafilled.

Table flow for DMS VoiceMail using the 1x89 card



End

Table flow for DMS VoiceMail using the 1x67 card



End

Billing

DMS VoiceMail does not generate any specific CO billing records unless the UCD agents are set up to do so during out-dialing. Refer to the voice security section of the *DMS VoiceMail System Administration Guide* (297-7001-300) for further details.

Datafilling office parameters

Check OFCENG values. OFCENG table values must be large enough to support the Message Waiting Indicators for a broadcast message. Check the provisioned values of existing tuples in table OFCENG below. Ensure they satisfy office requirements as per NTP 297-1001-455 provisioning rules. Change the tuple values where required.

For more information on office parameters, refer to the *DMS-100 Office Parameters Reference Manual*, NTP 297-1001-455.

Office parameters used by DMS VoiceMail

Table name **Parameter**	**Explanation and action**
OFCENG FTRQAGENTS	Specifies the number of agents that may have features active at any one time.
OFCENG FTRQ2WAREAS	Specifies the number of data store blocks that may have the call-forwarding option active.
OFCENG FTRQ2WPERMS	Specifies the number of data store blocks allocated for the message waiting feature.
OFCENG FTRQ8WAREAS	Specifies the number of data store blocks required for the UCD and SMDI options.
OFCENG FTRQ8WPERMS	Specifies the number of data store blocks allocated for executive message waiting feature.
OFCENG CFD_EXT_BLOCKS	Specifies the number of extension blocks required for call forward busy and no answer.
OFCENG CFW_EXT_BLOCKS	Specifies the number of extension blocks requested for POTS call-answering package.

Datafill example for office parameters

Check OFCVAR values. Make sure the cutoff-on-disconnect-time in table OFCVAR is set to a minimum value of at least one second (100).

Office parameters used by DMS VoiceMail

Table name **Parameter**	**Explanation and action**
OFCVAR CUTOFF_ON_DISC_TIME	Check that the value is 100 (one second) or more. If not, change the value.

Datafill sequence (1x89 card)

The following Tables require datafill to implement the DMS VoiceMail feature. The Tables are listed in the order in which they are to be datafilled.

Datafill Tables required for DMS VoiceMail (1x89 card)

Table	Form	NTP	Purpose of Table
MPC	none	297-2001-451	Assign MPC card.
MPCLINK	none	297-2001-451	Install MPC link.
SLLNKDEV	none	297-2001-451	Define datalink characteristics.
OFRT	none	297-2001-451	Define office route to DMS VoiceMail DN.
UCDGRP	none	297-2001-451	Define UCD group.
DNROUTE	none	297-2001-451	Assign primary directory number.
IBNXLA	2228A, B, C, D	297-2001-451	Enter feature activation codes.
LNINV	none	297-2001-451	Define line location.

Datafilling Table MPC (1x89 card)

The following procedure shows the datafill for Table MPC. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

Use Table MPC to assign the MPC card.

Datafilling Table MPC (1x89 card)

Field	Subfield	Explanation and action
MPCNO		A unique MPC identifier (like a key).
MPCIOC		MPC Input/Output Controller. The number of the IOC where the MPC is located.
IOCCCT #		Input/output controller circuit number. The circuit number of the IOC where the MPC is located
EQ		The circuit pack identifier of an MPC. Set to 1x89AA or 1x67.
DLDFILE		The name of the file which is downloaded from the CM to the MPC.

Note: MPC device can go in every slot except 0. IOC circuit must be the first circuit of the IOC slot. (multiple of 4).

Datafill example for Table MPC (1x89 card)

The following example shows sample datafill for the DMS VoiceMail feature in Table MPC.

Datafill example for Table MPC (1x89 card)

Example of a MAP display:

```
 1 1 32 1x89AA MPCA33CB
```

Datafilling Table MPCLINK (1x89 card)

The following procedure shows the datafill for Table MPCLINK. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

Use Table MPCLINK to install the MPC link.

Datafilling Table MPCLINK (1x89 card)

Field	Subfield	Explanation and action
MPCNO MPC link		MPC card number (from table MPC)
LINKNO		Set to either 2 or 3.
LINKALM		Set to Y.
PROTOCOL		Set to ASYNC to enable protocol datafill options.
LINKNABL		Set to 0.
PARM		APLDEFN
	APLDEFN	Set to SMDI.
	PARM	Optional parameters
	L1IDLY	Optional. L1IDLY and L2IDLY timers can be used in offices with heavy SMDI/VMS traffic to shorten the amount of time the MPC may delay sending a MWI to the DMS (default is 3 secs.).
	L2IDLY	Optional. See L1IDLY explanation.
	LNKDOWN	Optional. LKNDOWN timer adjusts the length of time the DMS takes to recognize LINK failure and sets the LINK to SYSB (default is 2 secs.).
	BAUDRATE	Set baud rate to B2400.
	PARITY	Set to EVEN.

Datafill example for Table MPCLINK (1x89 card)

The following example shows sample datafill for the DMS VoiceMail feature in Table MPCLINK.

Datafill example for Table MPCLINK (1x89 card)

Example of a MAP display:

```
1 2 Y ASYNC 0 (APLDEFN SMDI) (BAUDRATE B2400)
(PARITY EVEN) $ $
```

Datafilling Table TERMDEV (1x67)

The following procedure shows the datafill for Table TERMDEV. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

Datafilling Table TERMDEV (1x67 card)

Field	Subfield	Explanation and action
TERMDES		Terminal designation (unique name)
IOCNO		Input/output card number. The number of the IOC where the 1x67 card is located.
CKTNO		Input/output controller circuit number. The number of the IOC port where the SMDI link card is located.
TERMTYPE		Set to SMDI.
BAUDRT		Set to B1200.
INTYP		Set to EIA.
EQPEC		Set to 1X67
PRTY		Set to EVEN.
GAUR		Set to N.
MODEM		Set to None.
COMCLASS		Set to ALL.

Datafill example for Table TERMDEV (1x67 card)

The following example shows sample datafill for the DMS VoiceMail feature in Table TERMDEV.

Datafill example for Table TERMDEV (1x67 card)

Example of a MAP display:

```
MMSMDI 1 8 SMDI B1200 EIA 1X67FA EVEN N NONE ALL
```

Datafilling Table SLLNKDEV

The following procedure shows the datafill for Table SLLNKDEV. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, NTP 297-2001-451 for a description of the other fields.

Use the device table SLLNKDEV to specify characteristics of data links used by the command interpreter increment LNKUTIL.

Datafilling Table SLLNKDEV

Field	Subfield	Explanation and action
DEVNAME		Device name (up to 8 unique characters long). For NT1X67 cards, use the Terminal Designation that is datafilled in Table TERMDEV.
DEVTYPE		Device type used. For BCS29 and earlier releases, use **RS232.** For BCS30 and later releases, use **IX67** or **HSX67** (for the 1X67FA pack). For MPC card use **1X89**.
MPCNO		A unique MPC identifier (like a key). If DEVTYPE = 1X89, then this will be the same as the MPCNO identified in Table MPC.
LINKNO		MPC link number. This will be the same as that identified in table MPCLINK. Valid only if DEVTYPE = **1X89**.
XLATION		No translation is used for outgoing and incoming datalinks. Set to NONE.
PROTOCOL		No protocol is used by the data link and the CSE for connecting and starting messages. Set to NONE.
DRECTION		Direction that the data travels through the data link. Set to INOUTLK.
XFERS		Report type currently allowed on the data link. SMDIDATA is for SMDI I/O communication. Set to SMDIDATA.

Note: Depending on your BCS load some prompts may differ. See Simplified Message Desk Interface Set-up and Operation (NTP 297-2001-104) if more information is required.
Note: If you need to block the calling ID, select the DNSUPPR option. See the SMDI Set-up and Operations (NTP 297-2051-104) for more details.
Note: The NONMS option is present when the Network Message Service software package is present in the switch. It controls both CCS7 signal transfer to SMDI links and CLID delivery on SMDI links.

Datafill example for Table SLLNKDEV (1x89)

The following example shows sample datafill for the DMS VoiceMail feature in Table SLLNKDEV for the 1x89 card.

Datafill example for Table SLLNKDEV (1x89)

Example of a MAP display:

```
VMS 1x89 1 2 NONE NONE INOUTLK (SMDIDATA (NUMOFDIGS
10) $)$
```

Note: In the previous example NUMOFDIGS refers to the number of digits passed over an SMDI link.

Datafill example for Table SLLNKDEV (1x67)

The following example shows sample datafill for the DMS VoiceMail feature in Table SLLNKDEV for the 1x67 card.

Datafill example for Table SLLNKDEV (1x67)

Example of a MAP display:

```
MMSDI HS1X67 NONE NONE INOUTLK (SMDIDATA NUMOFDIGS
10 $)$
```

Note: In the previous example NUMOFDIGS refers to the number of digits passed over an SMDI link.

Datafilling Table OFRT

The following procedure shows the datafill for Table OFRT. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, (NTP 297-2001-451) for a description of the other fields.

Use Table OFRT to set up a route between the DMS 100 switch and a DMS VoiceMail. The DN is later defined in Table UCDGRP. This table is optional. Either this table or Table IBNRTE will be used with Table UCDGRP. It would depend on how the customer wants unanswered calls to be routed. It may be more helpful to route the call to a treatment. The example below shows unanswered calls routing back to the voice mail again.

Datafilling Table OFRT

Field	Subfield	Explanation and action
RTE		Route number
RTELIST		Route the call will use.

Datafill example for Table OFRT

The following example shows sample datafill for the DMS VoiceMail feature in Table OFRT.

Datafill example for Table OFRT

Example of a MAP display:

```
66 (RT 416 NP LCL 2326050 N N $)$
```

Datafilling Table UCDGRP

The following procedure shows the datafill for Table UCDGRP. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

The Uniform Call Distribution Group (UCDGRP) table defines the message desk number for the Voice Messaging and Express Messaging UCD group(s). Each voice channel has a corresponding UCD agent that is a member of a message desk.

In order to properly configure UCD queues and SMDI links for a DMS VoiceMail system with the multicustomer feature, you must determine if the voice ports are to be dedicated or shared. In most cases, voice ports should be shared to maximize resource utilization.

However, if a customer is to have guaranteed access to a certain number of ports, then those ports must be dedicated to that customer group. A UCD group must be defined for each customer group that will have dedicated voice ports. Each UCD group should be assigned a unique primary DN in the DNROUTE table. See “Datafilling DNROUTE” in the next section of this chapter.

Datafilling Table UCDGRP

Field	Subfield	Explanation and action
UCDNAME		Name assigned to the UCD group (1-16 characters. First 8 must be unique)
ACDN		Automatic call distribution is not supported. Set to N.
CUSTGRP		Name of the customer group to which the UCD group belongs (1-16 chars.). Note that for multi-customer systems, all the UCD groups would be in CUSTGRP D, the DMS VoiceMail customer group.
UCDRNGTH		Ringing threshold, in one-second intervals, after which an unanswered call to a UCD agent is forwarded to the route specified in the THROUT field (Range 0-63). Set to 30.
TABNAME		Table to which translations are routed, either IBNRTE or OFRT. Set to OFRT. This is the Threshold route.
INDEX		Number assigned to the route list in table IBNRTE or OFRT (1-1023)

Datafilling Table UCDGRP (continued)

Field	Subfield	Explanation and action
TABNAME		Table to which translations are routed, either IBNRTE or OFRT. Set to OFRT. This is the Night Service Route. It may also be routed to a treatment.
INDEX		Number assigned to the route list in table IBNRTE or OFRT (1-1023)
PRIOPRO		Maximum time, in seconds, a call can wait in a queue (0-255)
MAXPOS		Maximum number of the UCD agent positions that can be active at one time. Corresponds to the number of voice ports allocated to the group on the DMS VoiceMail system (0-192).
DBG		Delayed Billing. Set to “Y” if billing starts when the call is answered by a UCD agent. Set to “N” if billing starts when the caller receives a recorded announcement.
DEFPRIO		Default priority number applicable to local calls terminating on the primary UCD number (0-3). Set to 0.
RLSCNT		Maximum number of calls that terminate on a UCD station but are not answered (0-31). Set to 0.
MAXWAIT		Maximum time, in seconds, that a call waits in the incoming call queue before being answered (0-1800).
MAXCQSIZ		Maximum number of calls that can be in the incoming queue (0-511) waiting for an idle voice port.
OPTIONS		Number is part of an SMDI UCD group. Set to UCD_SMDI. Once option set to UCD_SMDI another next field will be SMDI_LINK followed by SMDI_DESK_NO.
SMDI_TERMDEV		Terminal designation defined in tables TERMDEV and SLLNKDEV.
SMDI_DESK_NO		Message desk number (1-63). The first UCD group on a data link must be set to 63. The second would be set to 62, then regressing through 61, 60 . . . 2, 1. This is necessary because of the message desk UCD group requirement that two UCD groups cannot be on the same datalink without one being desk number 63.
MCOS_LIST		

Note: If CRR (Call Request Retrieval) is used, all requests will be made to to UCD group with SMDI_DSK_NO = 63. For multi-customer systems, set up a UCD group “UCD D” for this purpose only.

Datafill example for Table UCDGRP

The following example shows sample datafill for the DMS VoiceMail feature in Table UCDGRP.

Datafill example for Table UCDGRP

Example of a MAP display:

```
BNRCOVM N BNR 30 OFRT 66 OFRT 66 20 20 N 0 5 1800
511 (UCD_SMDI VMS 63 $)$
```

Datafilling Table DNROUTE

The following procedure shows the datafill for Table DNROUTE. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

Note: For BCS 31 and earlier, datafill Table WRDN instead.

The primary directory number for the UCD group is assigned in the DNROUTE table. All service DN should be forwarded to this number.

Datafilling Table DNROUTE

Field	Subfield	Explanation and action
DNNM		SVGNPA, NNX and DEFGDIGS values.
AREACODE		
OFCCODE		
STNCODE		
DNRESULT		
DN_SEL	FEAT	DN selector FEAT
FEATURE	UCD	Feature UCD
UCDGRP		Name as entered in table UCDGRP, field name UCDNAME for this directory number.
DNTYPE		Set to “PRIM” where the DN is the primary UCD DN for this UCD group.
TOLLPRIO		Priority of toll calls terminating on the primary UCD DN. The highest priority is 0. Set to 0.

Datafill example for Table DNROUTE

The following example shows sample datafill for the DMS VoiceMail feature in Table DNROUTE.

Datafill example for Table DNROUTE

Example of a MAP display:

```
919 232 6050 FEAT UCD BNRCOVM PRIM 0
```

Datafilling Table IBNXLA

The following procedure shows the datafill for Table IBNXLA. This procedure contains only those fields that apply to the the DMS-100 host. Refer to the *Customer Data Schema*, 297-2001-451 for a description of the other fields.

Enter the feature activation codes required to set up and access message waiting in the IBNXLA table.

Datafilling Table IBNXLA

Field	Subfield	Explanation and action
KEY		*Key* This field consists of the subfields XLANAME, and DGLIDX. Description of the subfield follows.
	XLANAME	*Translator name* Enter the name (one to eight characters) that is assigned to the customer, feature, or octothorpe translator.
	DGLIDX	*Digilator index* Enter the digits that are to be used as an activation code for the feature.
RESULT		Consists of subfields TRSEL, ACR, SMDR, and FEATURE
	TRSEL	The feature translation selector. Enter “FEAT”.
	ACR	Account codes not required. Enter “N”.
	SMDR	Station Message Detail Recording off. Enter “N”.
FEATURE	UCDD UCDA	Universal Call Distribution Deactivate Universal Call Distribution Activate

Datafill example for Table IBNXLA

The following example shows sample datafill for the DMS VoiceMail feature in Table IBNXLA.

Datafill example for Table IBNXLA

Example of a MAP display:

```
BNRXLA 98 FEAT N N UCDA
BNRXLA 99 FEAT N N UCDD
```

Datafilling Table LNINV

The following procedure shows the datafill for Table LNINV. This procedure contains only those fields that apply to DMS VoiceMail on the the DMS-100 host. Refer to *Customer Data Schema*, (NTP 297-2001-451) for a description of the other fields.

The Line Circuit Inventory table contains the assignment for each card slot on the line or remote line module.

Datafilling Table LNINV

Field	Subfield	Explanation and action
LEN		Line equipment number of the card slot
CARDCODE		Product engineering code for the line card; either 6X18AA or 6X18AB. Enter “6X18nn” for UCD Agent. Enter “6X17ac ” for Userphone or VSDN.
PADGRP		Name of the appropriate pad group in the PADDATA table. Enter “STDLN”.
STATUS		Line inventory availability status should be “HASU” (Hardware Assigned, Software Unassigned). Enter “HASU”.
GND		Ground start line. Enter “Y” for UCD Agent. Enter “N” for Userphone or VSDN.
BNV		Balanced network value is non-loaded. Enter “NL”.
MNO		Manual override set to YES, so that on-hook balance network tests do not update this field. Enter “Y”.
CARDINFO		Not relevant to normal UCD lines. Set to “NIL”.

Datafill example for Table LNINV

The following example shows sample datafill for the DMS VoiceMail feature in Table LNINV.

UCD Agent Datafill example for Table LNINV

Example of a MAP display:

```
HOST 00 0 00 06 6X18AB STDLN HASU Y NL Y NIL
```

Userphone and VSDN Datafill example for Table LNINV

Example of a MAP display:

```
HOST 00 0 00 06 6X17Ac STDLN HASU N NL Y NIL
```

Service orders

UCD agents are defined through the Service order.

There must be one UCD agent for each voice processor channel. The UCD agents are defined as standard sets using the following service order procedures (for ground start lines). Set option UCD to designate them as UCD agents. The DNs assigned to these agents must also be assigned in the Channel Allocation Table on the Service Peripheral Module (See *System Administration Guide* (NTP 297-7001-300) for details).

> ***Note:*** When allocating line equipment numbers (LENs) to be used for the UCD agents, ensure that channels are spread across sufficient LCMs to support the DMS VoiceMail traffic. Refer to the DMS VoiceMail *Planning and Engineering Guide* (NTP 297-7001-100) for more information.

Service order prompts

The following table shows the service order prompts used to assign the DMS VoiceMail feature to the DMS-100. UCD agents are defined here.

Service order prompts for UCD agents in DMS VoiceMail

Prompt	Valid input	Explanation
	SERVORD	Allows entry to service order facility.
SONUMBER		Enter current date and time.
DN		DN of the line
LCC	IBN	Line class code of service
GROUP		Name of the IBN customer group to which the line belongs.
SUBGRP		Subgroup number
NCOS		Network class of service
SNPA		Service Numbering Plan Area
LATANAME	NILLATTA	Local Area Transport Access name
LTG		Line treatment group
LEN_OR_LTID		Line Equipment Number or Line Terminal ID
OPTION	COD UCD DGT 3WC $	Cut_off on disconnect Uniform Call Distribution (for UCD agent) Digitone 3-way conferencing

Example service orders for implementing UCD agents

The following service order example shows how to add UCD agents using the NEW command. If you have lines already set up, you can add the options (COD, UCD, DGT, 3WC, SMDI) with the ADO command.

Setting up UCD agents using the NEW command

Input and response

*Input in **Prompt** mode*

```
>NEW
 SONUMBER: NOW 92 4 2 AM
>
 DN_OR_LEN
>7201234
 LCC
>IBN
 GROUP
>BNR
 SUBGROUP
>0
 NCOS
>0
 SNPA
>619
 LATANAME
>NILLATA
 LTG: 0
><Return>
 LEN_OR_LTID
>0 0 8 16
 OPTION
>COD
 OPTION
>UCD
 OPTION
>DGT
 OPTION
>3WC
```

*Input in **No-prompt** mode*

```
>NEW $ 7201234 IBN BNR 0 0 619 NILLATA 0 HOST 00 0 08 16 COD UCD
DGT 3WC $
```

Service order prompts for UCD agents

The following table shows the service order prompts used to assign the DMS VoiceMail feature subscriber's line. Adding the SMDI option to the ground start lines defined above is done here. It assigns the voice channels to a UCD group.

Service order prompts for UCD agents in DMS VoiceMail

Prompt	Valid input	Explanation
SO	ADO	
SONUMBER		Current date and time
DN OR LEN		Directory Number or Line Equipment Number of the line
OPTION	SMDI	Simplified Message Desk Interface (for UCD agent)
LINENO		UCD terminal number. This is the line number associated with the SPM voice (SMDI) channel. Create a new LINE_NO for each SMDI channel in your system.
UCDGRP		Name as entered in table UCDGRP. For systems with multiple SMDI links, there would be a separate UCDGRP assigned to each SMDI link. In this field, enter the UCDGRP name associated with the SMDI link you want to use.
AUTO_LOG	Y	
OPTION	$	

Example service orders for implementing SMDI options

The following service order example shows how to add the SMDI option to ground start lines using the Add Option (ADO) command.

Setting up SMDI options using ADO command

Input and response

*Input in **Prompt** mode*

```
>ADO
 SONUMBER: NOW 91 1 2 AM
>
 DN_OR_LEN
 0_0_8_16
>0086
 OPTION
>SMDI
 LINE_NO
>1
 UCDGRP
>COVM
 BNRCOVM
 AUTO_LOG
>Y
 OPTION $
```

*Input in **No-prompt** mode*

```
>ADO $ 0_0_8_16 SMDI 1 COVM Y
```
and press the Enter key.

Service order prompts

The following table shows the service order prompts used to assign the DMS VoiceMail feature to the DMS-100. The following service order procedure is for setting call routing options for each user's telephone set.
The following call routing options and features are available.

- Three-way calling
- Digitone
- Call Forward Don't Answer. Specify the Voice Messaging DN as the forwarded DN and call answering will be activated for the user when the user is not available to answer the call.
- Call Forward Busy. Specify the Voice Messaging DN as the forwarded DN. Call answering will be activated the user is on the phone.
- Call Forward Universal. If Call Forward Universal is activated (this is controlled by the user at the telephone set), the call can be re-routed to the Voice Messaging DN.

- Message Waiting. A user is notified of a new message by a lit message-waiting lamp, or an audible indication (interrupted dial tone).

  Note: The Key-Short-Hunt (KSH) option is not compatible with DMS VoiceMail.

Service order prompts for call routing options

Prompt	Valid input	Explanation
SONUMBER		Enter current date and time.
DN		User's DN
LCC	IBN 1FR	Line class code of service. For centrex, use IBN. For a residential group, use 1FR.
GROUP		Name of the IBN customer group to which the line belongs. For a residential group (LCC=1FR), this prompt will not appear.
SUBGRP		Subgroup number (will not appear for IFR)
NCOS	3 (may vary)	Network class of service (if creating a new line)
SNPA		Serving NPA of the DN (if creating a new line)
LEN		LIne equipment number of the line (if creating a new line)
OPTION	 DGT CFU CFB	These inputs are for centrex customers. Digitone Call Forward Universal Call Forward Busy
OPTION	 CFDA CFBL MWT STD YES NO CRRCFW ALL DISPLAY NO	These inputs are for residential customers. Call Forward Don't Answer Call Forward Busy (line) Message Waiting Notice CRR CRX Call Request Retrieval Call forwarding Call forward Call forward only if telephone has a display Do not call forward
CFBCNTL	N	Normal assignment for CFB
CFBDN		Enter the DMS VoiceMail UCD DN that this user is being forwarded to.
OPTION	CFD	Call Forward Don't Answer
CFDCNTL	N	Normal assignment for CFD
CFDDN		Enter the DMS VoiceMail UCD DN that this user is being forwarded to

Service order prompts for call routing options

Prompt	Valid input	Explanation
OPTION	MWT	Message Waiting
NOTICE	STD	Message Waiting notification by stuttered dial tone
CAR	N	No call request feature
CRX	N	Not call request exempt
OPTION	$	

Example service orders for implementing SMDI option

The following service order example shows how to assign the DMS VoiceMail feature to a subscriber's line.

Setting up the SMDI option using ADO command

Input and response

*Input in **Prompt** mode*

```
>ADO
 SONUMBER: NOW 92 4 8 PM
>
 DN_OR_LEN
>7212721
 OPTION
>DGT
 OPTION
>CFU
 OVRDACR
>N
 OPTION
>CFD
 CFDCNTL
>N
 CFDDN
>7202770
 OPTION
>CFB
 CFBCNTL
>N
 CFBDN
>7202770
 OPTION
>MWT
 NOTICE
>STD
 CAR
>N
 CRX
>N
 OPTION
>$
```

*Input in **No-prompt** mode*

>ADO $ 7212721 DGT CFU I $ CFD N 7202770 CFB N 7202770 MWT STD N N $
and press the Enter key.

Example service orders for implementing VSDN

The following service order example shows how to add VSDN for express messaging and other optional DNs using the NEW command. VSDNs have to be installed on Loop Start Lines. For information about adding Loop Start Lines, see the table for LNINV on page 3-20

Setting up VSDN using the NEW command

Input and response

*Input in **Prompt** mode*

```
>NEW
 SONUMBER: NOW 92 4 2 AM
>
 DN_OR_LEN
>7201234
 LCC
>IBN
 GROUP
>BNR
 SUBGROUP
>0
 NCOS
>0
 SNPA
>619
 LATANAME
>NILLATA
 LTG: 0
><Return>
 LEN_OR_LTID
>0 0 8 16
 OPTION
>COD
 OPTION
>DGT
 OPTION
>CFF
 CFFDN
>2326050
 OPTION
>$
```

*Input in **No-prompt** mode*

```
>NEW $ 7201234 IBN BNR 0 0 619 NILLATA 0 HOST 00 0 08 16 COD DGT
CFF 2326050 OPTION $
```

Appendix A:
Customer data form

Customer: _____ NT Rep. _____

Location: _____ Customer Rep. _____

Date: _____ Job #____ VoiceMail Release: _____

Use the following forms to enter data specific to this installation. The default parameters will be correct for most installations; change them only if required by special circumstances.

Optional features

Optional features which can be installed are as follows, check only those that apply to this installation:

NT PEC	**Package Name**	
NTG622AA	AMIS Analog Networking	_____
NTG628AA	Family Mailboxes	_____
NTG623AA	Voice Menus	_____
NTG624AA	Voice Forms	_____
NTG621AA	Dedicated SPM Multi-SMDI	_____
NTG630AA	North American English Prompts	_____
NTG631AA	Canadian French Prompts	
NTG632AA	Spanish Prompts	_____

NTG626AA Voice Messaging *
NTG627AA Full Feature Voice Messaging *
NTG625AA Call Answering *
* These features are automatically installed during initialization of the system

Customer name

The customer name will differ from site to site. Write in the name to be used for this specific site.

Customer Name: _____

Hardware configuration

A major consideration in determining the hardware required is the number of ports versus the number of storage hours. Configurations available per SPM are:

Ports/storage hours

48 Ports/150 hour system	48 Ports/300 hour system
72 Ports/300 hour system	72 Ports/600 hour system
96 Port/300 hour system	96 Ports/600 hour system
120 Ports/450 hour system	120 Ports/900 hour system
144 Ports/450 hour system	144 Ports/900 hour system
168 Ports/600 hour system	168 Ports/1200 hour system
192 Ports /600hour system	192 Ports/1200 hour system

Hardware configuration display

The software displays the current hardware configuration. Normally this will be accepted as the default. If it is not correct for this installation, refer to your sales representative. An **example** for a 48 port/150 hour installation is shown below.

Node	Card1	Card2	Card3
1	EMPTY	SBC	BUS
2	BUS	EMPTY	SBC
3	SBC	NVP12p	NVP12p
4	NVP12p	NVP12p	SBC
13	T1	EMPTY	SBC
14	T1	EMPTY	SBC

Languages

Languages available are displayed by the system. They should be correct for a new installation as provided by the factory. You can install up to three languages. The listing will normally be accepted as presented. Languages available are:

North American English _____

Canadian French _____

Spanish _____

CPTD country index

The Call Progress Tone Detection (CPTD) country index number is required for all new installations. Indexes available are:

1: Generic Settings _____

2: Canada _____

3: United States _____

4: France _____

5: Germany _____

6: United Kingdom _____

DSP Parameters

Default DSP parameters are as indicated below. Enter the required parameter and change it only if necessary.

Parameter	Default	Range	Value Req'd
DSP Encoding Type	**MuLaw**	MuLaw ALaw	_____
Disable Silence Compression	**Yes**	Yes No	_____
Transmit Level	**0**		_____
Receive Level	**0**		_____
DTR Reject Level	**(-57)**		_____
DTR Max Accept Level:	**(-2)**		_____

Parameter	Default	Range	Value Req'd
Disable AGC:	**NO**	Yes No	_____
AGC Center:	**-20**		_____

AGC Span:	**16**	_____
Telescan Debounce	**(128)**	_____
Hook Flash Pulse:	**(320)**	_____

T1 Span Line Parameters

The default span line parameters are correct for most installations. *Non-default values are not presently supported.*

Parameter	Default	Range	Value Req'd
T1 Span	**Span A: Internal BC Timing**	Internal BC Timing External T1 Timing *(Select Internal BC timing if a span is connected to the switch via a DMS, DTC, LTC or DAX. If a system has 24 channels, you will be prompted for Span A only. If there are 48 channels, prompts for Span A and Span B will appear. Similarly, for 72 channels, you will be prompted for Spans A through C. For 192 channels, prompts for Spans A through H will be shown.)*	_____
Line Signaling:	**DTMF**	DTMF DP *(Refers to the type of line card used on the switch side)*	_____
Line Intf Type:	**FXOGrdStart**	FXOGrdStart FXOLoopStart * FXSGrdStart * FXSLoopStart * 4WE&M *(Refers to the type of line card used on the switch side)* * Reserved for future use	_____

Parameter	Default	Range	Value Req'd
Start Type:	**WinkStart**	WinkStart ImmedStart DelayStart *(Refers to the Channel Bank parameter settings*)	_____
Trunk Type:	**DIDTrunk**	DIDTrunk NonDIDTrunk ASPTrunk *(Refers to the Channel Bank parameter settings)*	_____
Frame Format:	**D4**	D4 ESF *(Refers to the Channel Bank parameter settings)*	_____
Line Code Format:	**B8ZS**	B8ZS B7 *(Refers to the Channel Bank parameter settings, or Line Code format on DMS line cards)*	_____
Line Length:	**0 to 133**	0 to 133 133 to 266 266 to 399 399 to 533 533 to 655 *(Refers to the line length between the Channel Bank and DMS VoiceMail [in feet])*	_____

Card Type	***DMS***	***SPM***
NT6X50AA	*ZCS*	*B7*
NT6X50AB	*B8ZS*	*B8ZS*
	ZCS	*B7*

Parameter	Default	Range	Value Req'd
T1 Alarm:	**Bit_Two**	Bit_Two s_Bit (Use with D4 Frame Type) Alternate Bit_2 (Use with ESF Frame Type) *(Refers to the Channel Bank parameter settings)*	_____
T1_Debounce:	**130**	1 to 32767 *(Refers to the Channel Bank parameter settings)*	_____
T1_GuardTime:	**130**	1 to 32767 *(Refers to the Channel Bank parameter settings)*	_____
ESFD:	**0**	0 to 15 *(Inverse of error threshold)*	_____
BCVR:	**0**	0 to 15 *(Inverse of error threshold)*	_____
OOFD:	**0**	0 to 15 *(Inverse of error threshold)*	_____
Ring Pulse:	**130**	1 to 32767 *(Refers to the Channel Bank parameter settings)*	_____
Hook Flash Pulse:	**300**	1 to 32767 *(Refers to the Channel Bank parameter settings)*	_____

T1 Channel Information

The T1 channel information default values are normally correct, enter new values only if required. Each group of channels requires definition, if other than the defaults are to be used.

Parameter	Default	Range	Value Req'd
First Channel:	**1**	1-192 *(Depends on size of system purchased)*	_____
Last Channel:	**1**	1-192 *(Depends on size of system purchased)*	_____

Dataport Types

Dataport types are displayed based on the optional features selected during feature enabling and cards actually installed. For example:

Chan #	DN	UCD DN	Login	Logout	AgtID	LinkID	AgtPos
1	**2800**	**3650**	***88**	***89**	**3650**	**1**	
2	**2801**	**3650**	***88**	***89**	**3650**	**1**	
3	**2802**	**3650**	***88**	***89**	**3650**	**1**	
4	**2803**	**3650**	***88**	***89**	**3650**	**1**	

Channel Range

From 48 to 192 channels can be configured per SPM. Enter the starting and ending channel numbers in each group in the space provided below. This allows non-contiguous blocks of channels and channels owned by different groups.

Parameter	Default	Range	Value Req'd
First Channel:	**1**	1-192 *(Depends on size of system purchased)*	_____
Last Channel:	**48**	1-192 *(Depends on size of system purchased)*	_____

Channel Parameters

The default values shown below may be accepted if desired.

Parameter	Default	Range	Value Req'd
DN:	**2800**	0 to 99999999 (numeric) *(This is the DN of the Agent)*	_____
Service ID:	**-1**	(Standard entry, do not change)	
Class:	**-1**	(Standard entry, do not change)	
Link Type:	**SMDI**	SMDI *(Use for SL100 or DMS)* NoLink CSL *(Use for SL1)* ASP *(Use for DMS)* SCAI	_____
UCD DN:	**3650**	0 to 99999999 *(This is the DN for Voice Mail Service)*	_____
Login Code:		blank to ABCDEFGH (alpha-numeric) *(Refer to Table IBNXLA)*	_____
Logout Code:		blank to ABCDEFGH (alpha-numeric) *(Refer to Table IBNXLA)*	_____
Agent ID:	Normally same as UCDDN		_____
NRDD Code:	**(blank)**	blank to ABCDEFGH (alpha-numeric)	_____
Message Desk:	**63**	0 to 32767	_____
Message Terminal:	**1**	0 to 32767	_____

Parameter	Default	Range	Value Req'd
Link ID:	**1**	blank to ABCDEFGH (alpha-numeric) *(If more than 1 SMDI Link, you must enter the second SMDI Link ID as a unique ID*)	_____
Agent Position ID:	**(blank)**	blank to ABCDEFGH (alpha-numeric)	_____
Switch Type:	**DMSCENTREX**	SL1 DMSPOTS SL100 1A_ESS 5_ESS DMS10 AT&T_DEFINITY ROLM NEC *(Depends on switch type being used*)	_____

Range of channels for each SPM

The information collected in the following part of the customer data form is used as follows:

Channel DN

Channel DN is the directory number associated with the SPM port number.

UCD DN

Uniform call distribution (UCD) directory number (DN) is the primary DN that is assigned to the UCD group by datafilling Table DNROUTE.

Agent Login

Agent login is the digilator index that is entered in Table IBNXLA as the activation code for Universal Call Distribution Activate (UCDA).

Agent Logout

Agent logout is the digilator index that is entered in Table IBNXLA as the deactivation code for Universal Call Distribution Deactivate (UCDD).

Agent ID

Agent ID defaults to the UCD DN that is assigned through TABLE DNROUTE.

Message Desk Number

Message desk number is the value (63-1) that is assigned to the UCD group on an SMDI datalink.

SMDI Link ID

SMDI link ID is the unique terminal designation or device name that is assigned though either Table TERMDEV or Table SLLNKDEV respectively.

For further details about datafill requirements, refer to the *DMS VoiceMail Translations Guide*, NTP 297-7001-310, as well as the *DMS-100 Family Customer Data Schema*, NTP 297-1001-451.

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
73							
74							
75							
76							
77							
78							
79							
80							
81							
82							
83							
84							
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88							
89							
90							
91							
92							
93							
94							
95							
96							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
97							
98							
99							
100							
101							
102							
103							
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
115							
116							
117							
118							
119							
120							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
121							
122							
123							
124							
125							
126							
127							
128							
129							
130							
131							
132							
133							
134							
135							
136							
137							
138							
139							
140							
141							
142							
143							
144							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
145							
146							
147							
148							
149							
150							
151							
152							
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162							
163							
164							
165							
166							
167							
168							

Port Number	Channel DN	UCD DN	Agent Login	Agent Logout	Agent ID	Message Desk Number	SMDI Link ID
169							
170							
171							
172							
173							
174							
175							
176							
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181							
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188							
189							
190							
191							
192							

Appendix B: **List of Terms**

68K card

68010 Processor card. Card with a 12Mhz 68010 processor, SCSI interface, serial port and the capability of addressing either 8 or 16 Mb and either 6 or 8 Mb of accessible RAM.

AMA

Automatic Message Accounting

AMIS

See audio messaging interchange specification.

Audio messaging interchange specification (AMIS)

An industry standard specification that allows users of voice messaging products residing on systems of differing architectures to exchange voice messages.

Analog

Pertains to representation by means of continuously variable physical quantities.

Automatic Message Accounting (AMA)

An automatic recording system that documents all the necessary billing data of subscriber-dialed billable calls.

Batch Change Supplement (BCS)

A DMS-100 Family software release.

BCS

Batch Change Supplement

Call

In DMS, any demand to set up a connection through the switch. Also used as a unit of telephone traffic.

Call Processing

The software system that handles the processes involved in setting up connections through the DMS-100 Family network between calling and called party.

Card

A plug-in circuit pack containing components. In DMS, “card” is the preferred term for a printed circuit pack or printed circuit board.

CCS

see *Hundred Call Seconds*

Central office (CO)

A switching office arranged for terminating subscriber lines and provided with switching equipment and trunks for establishing connections to and from other switching offices. Synonymous with class 5 office; end office; local office. *See* office classification.

Central processing unit (CPU)

A hardware entity, located in the central control complex frame, that contains the central data processor for the DMS-100 Family,

Centrex

Centralized PBX. A service that provides a Business telephone subscriber with direct inward dialing to extensions on the same system and direct outward dialing from all extensions. Centrex switching equipment is normally located at the central office, but may be located on the operating company client’s premises.

Channel capacity

A measure of the maximum possible information rate through a channel, subject to specified constraints.

Circuit pack (CP)

In DMS-Supernode, consists of multi-layer PCB, through-hole electronic components, backpanel connector, faceplate, lock latches, and stiffeners.

CO

see *Central office*

CPE

see *Customer Premises Equipment.*

Customer Premises Equipment (CPE)

Refers to equipment, such as an ISDN terminal, that is located on the customer’s premises.

Data

In translations, tables contain data. Each field or subfield has specific data values which are valid for that field. For example, a field called SECONDS may accept integer values from 0 through 60. A field called DAY may accept values of SUNDAY, MONDAY, TUESDAY. The set of all possible data values for a field is known as the *range* fo the field.

Datafill

In translations, datafill is the process of entering data into a table, for example, “I am going to datafill the table now”. Datafill is also used as a synonym for data, for example, “The datafill in that table is incorrect”.

Data set

In data communication, an electronic device that provides an interface between a data processing machine and a telephone or telegraph line. Synonymous with modem.

Directory

In DMS, a software structure that may be used to look up, store, and delete symbols.

Directory Number (DN)

The full complement of digits required to designate a subscriber’s station within one NPA - usually a three-digit central office code followed by a four-digit station number. A DN can also be ten digits: three-digit NPA plus three-digit office code, plus four-digit station number.

DMS

Digital Multiplex System

DMS-100 family of switches

A family of digital multiplexed switch systems, which includes the following:

DMS*-100
Local switch

DMS*-200
Toll switch

DMS*-100/200
Switch of mixed function, in this case a combined local/toll switch. Other combinations are possible.

* Trademarks of Northern Telecom.

DMS*-250
Toll switch designed for private toll networks.

DMS*-300
Gateway switch

DMS-100* switching cluster
A DMS-100 host, up to eight large business remotes, and a centralized operation, administration, and maintenance application. Together these components operate and are maintained as a single switching center.

DMS-100* switching network
Multiple DMS-100 Family products that are maintained from a centralized operation, administration and maintenance application.

DN

see *Directory Number*

DOD

Direct outward dialing

Field

In translations, a field is one column of a table. Each field has a name that describes the content of the field. Field names are written using capital letters.

Function

In DMS call processing, refers to one of several procedure-type capable of accomplishing a specific task.

General specification (GS)

A document that provides general information about the associated product so that it may be evaluated by marketing, programming, and engineering personnel.

Ground start line

A line circuit arrangement in which dial-tone is sent in response to a ground signal on the ring conductor applied by the calling station or PBX. This differs from the more common loop start configuration, in which seizure is accomplished by bridging the tip and ring conductors.

GS

General specification

Hundred call seconds (CCS)

Calculated by multiplying the average number of calls during busy hour by the average holding time in seconds, divided by 100. 36 CCS=1 Erlang.

IBN

see *Integrated Business Network*

IF

Interface (card)

Input/output (I/O)

Refers to a device or medium that is used to achieve a bi-directional exchange of data. Data exchange in the DMS-100 Family system is performed in accordance with the input/output message system.

Input/output device (IOD)

A hardware device that interprets input and formats output for human users or remote computes.

Integrated Business Network (IBN)

Now known as Meridian Digital Centrex. A special DMS business services package that utilizes the data-handling capabilities of a DMS-100 Family office to provide a centralized telephone exchange service. Many optional features are also available.

Integrated Services Digital Network (ISDN)

A set of standards proposed by the International Telegraph and Telephone Consultative Committee (CCITT) to establish compatibility between the telephone network and various data terminals and devices. ISDN provides a path for transmission of voice, data, and images.

I/O

see *Input/output*

IOD

Input/output device

ISDN

Integrated Services Digital Network

Key field

Each table has a key field or fields. The key fields in a table are those fields that can uniquely identify any tuple in the table. Knowing the key fields of a table is important when writing about translations table flow, and when using the table editor.

Line hunting

Procedure for searching a number of lines to find one that is idle. See Multi-line Hunt.

Link

- In DMS, a connection between any two nodes. *See* node.
- A four wire group of conductors providing transmit and receive paths for the serial speech or message data between components of DMS-100 Family systems. Speech links connect peripheral modules to the network modules. Message links connect network message controllers or input/output controllers to the central message controller.
- A two wire connection as used in data communications between some modems (the telephony part).

Link protocol

A set of rules for data communication over a data link. Link protocols exist for transmission codes, transmission nodes, and for data control and recovery procedures.

Log system

Used by the DMS software to record (that is, log) the occurrence of all significant events (for example, equipment failure), and then report the events to operating company personnel.

Maintenance and administrative position (MAP)

The MAP provides a man-machine interface between operating company personnel and the DMS-100 Family switch. It consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture.

Meridian digital centrex (MDC)

A special DMS business services package that utilizes the data-handling capabilities of DMS-100 Family offices to provide a centralized telephone exchange service. It is formerly known as the integrated business network (IBN).

Meridian Mail (MMail)

A voice processing system designed for use with Northern Telecom's Meridian 1 Communication Systems.

Meridian Mail user interface (MMUI)

It is Northern Telecom's proprietary voice messaging user interface.

Message waiting indication (MWI)

MWI is a visible or audible indicator (that is, lamp or stutter dial tone) at the subscriber's set that informs the subscriber of a message waiting in his or her voice mailbox.

MMail

See Meridian Mail.

MMUI

See Meridian Mail user interface.

Modem

Contraction of modulator/demodulator; a device that modulates and demodulates signals for transmission and reception, respectively, over communication facilities. A modem is used to permit digital signals to be sent out over analog lines.

Module

- The basic building block of software structure. A module consists of interface and implementation sections.
- A discrete hardware package, designed for use in conjunction with other components.

MPC

see *Multi-protocol Controller*

MSP

see *Multi-server Processor*

Multi-line Hunt

A service-related telephony feature that permits calls to a busy line be routed to other specified lines without assigning a directory number to each line. Refer to line hunting.

Multi-protocol controller (MPC)

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

Multi-server Processor

A node running multi-server programs in a multi-node environment, i.e. on the Service Peripheral Module.

NAS

see *Network Administration System*

Network

- An organization of stations capable of intercommunication but not necessarily on the same channel.
- Two or more interrelated circuits.
- A combination of terminals and circuits in which transmission facilities interconnect user stations directly.
- A combination of circuits and terminals serviced by a single switching or processing center.
- An interconnected group of computers or terminals.
- (NET) The network module frame of the DMS-100 Family system.

Network administration system (NAS)

A stand-alone computer that is involved in operation, administration and maintenance of ISDN services. The NAS uses data on service and system operation to generate files that contain information on alarms, accounting, billing, and network operation.

Network module (NM)

The basic building-block of the DMS-100 Family switching network. The NM accepts incoming calls and, using connection instructions from the central control complex, connects them to the appropriate outgoing channels. Activities in the NM are controlled by the network message controllers.

NM

Network module

Node

The terminating point of a link. Node is a relative term; its meaning depends entirely on the context within which it is used. For example, a circuit may be a node in the context of another circuit within a module; the module itself may be a node in the context of another component of the network, and so forth.

Northern Telecom practice

A document that contains descriptive information about the DMS-100 Family hardware and software modules, and performance oriented practices

for testing and maintaining the system. NTPs are supplied as part of the standard documentation package provided to an operating company.

NT

see *Northern Telecom*

NTP

see *Northern Telecom Practice*

O,A &M

see *Operation, Administration, and Maintenance*

Operating company

The owner/operator of a DMS switch.

Operation, administration, and maintenance (OA&M)

Consists of all the tasks necessary for providing, maintaining, or modifying the services provided by a switching system. These tasks include provisioning of hardware, creation of service, verification of new service, and trouble recognition and clearance.

Operational measurements (OM)

The hardware and software resources of the DMS-100 Family switches 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.

Paddle board (PB)

A short circuit pack, based on the standard circuit pack. The PB carries the cable interfaces and/or local service functions such as local clock sources and bus terminations, located on the back of a shelf. See Transition Module.

PBX

see *Private Branch Exchange*

PE

see *Peripheral Equipment*

PEC

see *Product Engineering Code*

Peripheral Equipment (PE)

Equipment which works in conjunction with a communication system or a computer but is not part of it. In the DMS-100 Family of switches, it is a general term applied to peripheral modules.

Peripheral Module (PM)

A generic term referring to all hardware modules of the DMS-100 family systems that provide interfaces with external lines, trunk, or service facilities. PM contains peripheral processors which perform local routines, thus relieving the load on the central processor unit.

Plain ordinary telephone system (POTS)

POTS is an acronym used in the telephone industry to denote basic, conventional telephone services.

PM

see *Peripheral Module*

Port

In DMS, the point at which a speech or message link is connected to a peripheral module, network module, input/output controller, or central message controller.

POTS

Plain Old/Ordinary Telephone Service

Private branch exchange (PBX)

A private telephone exchange, either automatic or attendant-operated, serving extensions in an organization and providing access to the public network.

Product engineering code (PEC)

An eight-character code that provides a unique identification for each marketable product manufactured by Northern Telecom Ltd.

Range

In translations, the range of a field is the set of data values which can be entered in the field. For example, a field called NUMBER may have a range of 1 through 20. RANGE is also a command that can be entered at the switch to determine the range of a table or field.

Service Order System (SERVORD)

A user interface used to change, add, or delete a subscriber line. Standard telephone industry command-format is used.

Service Peripheral Module (SPM)

A voice processing hardware platform in the DMS Family that provides advanced subscriber services with external line, trunk, or service facilities.

SERVORD

Service Order System

Shelf

A container for drawers, cards, or both.

Signal Processing Node (SPN)

A node on the Service Peripheral Module that is used for signal processing.

Simplified message desk interface (SMDI)

An interface feature that enables a DMS-100 switch to communicate with a message desk. If provides the directory number of the called station, the calling station number (if available), and the reason for the call being forwarded to a message desk. In addition, it provides the message desk with the ability to activate or deactivate the message waiting indication for any station able to forward calls to the desk.

SMDI

see *Simplified Message Desk Interface*

SPM

see *Service Peripheral Module*

SPN

see *Signal Processing Node*

Subfield

Some fields are made up of subfields, For example, the field named Line Equipment Number (LEN) consists of five subfields; SITE, FRAME, UNIT, DRAWER, and CIRCUIT. Subfield names are written using capital letters.

Subscriber

An individual user of a telephone station set that is connected to a DMS switch. Also known as end user.

Subtable

A small number of tables contain subtables. A subtable contains extra data for the table.

Table

Two-dimensional entities in which data associated with the hardware and software systems of the DMS-100 Family are stored.

Table editor

The table editor is the user interface to the translations data base. The table editor allows the user to view tables, add or delete tuples, and change the data in a tuple.

Tape unit

See magnetic tape unit.

Telephony Interface Node (TIFN)

A node that is used to interface between incoming telephony lines and place the communications on the MM bus of the Service Peripheral Module.

Terminal

- The point of origination or termination in a communications network.
- Any device capable of sending and/or receiving information over a communication channel.
- Also, in DMS, the smallest unit of address space within the input/output system.

Three-Way Calling

A service-related telephony feature that permits a subscriber in the talking state to add a third party to the call without operator assistance.

TIFN

see *Telephony Interface Node*

TM

see *Transition Module*

Transition Module (TM)

A board that is plugged into the back of the Service Peripheral Module. This board is used for external connections to the Service Peripheral. Alternately called a paddle board.

Translations

Translations is the process the DMS-100 family of switches uses to determine the destination of a call based on the digits the caller dials and the capabilities available to the caller. It also allows the DMS software to recognize the hardware components fo the system.

Translations database

In order to perform translations, the DMS switch must access data which is stored in its memory. This area of memory is the translations database.

Tuple

In translations, a tuple is one row in a table. A tuple contains one record of data.

T1

The standard 24-channel, 1.544 Mb/s pulse code modulation system as used in North America. This digital carrier carries a signal whose designation is DS1.

UCD

see *Uniform Call Distribution*

Uniform Call Distribution (UCD)

A Meridian Digital Centrex feature which allows calls to be evenly distributed to a number of pre-designated stations known as UCD stations or UCD positions. This feature is used to queue incoming calls to the message desk.

VMUIF

See Voice Messaging user interface forum.

Voice Messaging user interface forum (VMUIF)

The call answering interface that has been defined by the Voice Messaging user interface forum.

Voice Processor-12 (VP12) card

A twelve port card that is used in the Service Peripheral Module for voice processing.

VP12

see *Voice Processor-12 card*

XMS

A workstation-based microcomputer with networking capabilities based on a Motorola 68000 microprocessor with system software written in BNR Pascal.

DMS-100 Family

DMS VoiceMail

Translations Guide

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