

297-7001-300

DMS-100

# **DMS VoiceMail**

## System Administration Guide

SPM 02 Standard 02.02 March 1994

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DMS-100

# **DMS VoiceMail**

## System Administration Guide

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## Publication history

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### **March 1994**

Standard 02.02 is the first standard release of the SPM 02 version of this document. SPM 02 is the second software release for DMS VoiceMail.

### **February 1993**

Standard 01.03 is the first standard release of the SPM 01 version of this document. SPM 01 is the first software release for DMS VoiceMail.

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## About this document

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This document details the administration procedures to be performed by the DMS VoiceMail system administrator and is intended to be used along with the DMS VoiceMail *Customer Administration Guide* (NTP 297-7001-301).

### When to use this document

This document is written for DMS-100 Family offices with a Service Peripheral Module running software load SPM 02. 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
- 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 the DMS VoiceMail *Product Guide*. (297-7001-010)

### References in this document

The following documents are referred to in this document.

Number	Title
297-7001-100	<i>DMS VoiceMail Planning and Engineering Guide</i>
297-7001-301	<i>DMS VoiceMail Customer Administration Guide</i>
297-7001-305	<i>DMS VoiceMail System Administration Tools</i>
297-7001-310	<i>DMS VoiceMail Translation Procedures</i>

Number	Title
297-7001-501	<i>DMS VoiceMail Routine Maintenance Procedures</i>
297-7001-503	<i>DMS VoiceMail Trouble-locating and Alarm-clearing Procedures</i>
297-7001-510	<i>DMS VoiceMail Maintenance Messages (SEER) manual</i>
297-7001-306	<i>Voice Forms Application Guide (if Voice Forms are installed)</i>
297-7001-307	<i>Voice Menus Application Guide (if Voice Menus are installed)</i>
297-7001-308	<i>Outcalling Application Guide</i>

## What precautionary messages mean

Danger, warning, and caution messages in this document indicate potential risks. These messages and their meanings are listed in the following chart.

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

Examples of the precautionary messages follow.

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

	<p><b>WARNING</b>  <b>Damage to backplane connector pins</b></p> <p>Use light thumb pressure to align the card with the connectors. Next, use the levers to seat the card into the connectors. Failure to align the card first may result in bending of the backplane connector pins.</p>
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**CAUTION****Loss of service**

Subscriber service will be lost if you accidentally remove a card from the active unit of the peripheral module (PM). Before continuing, confirm that you are removing the card from the inactive unit of the SPM.

## Typographic conventions

The following conventions are used throughout this guide:

- **Softkeys** - are displayed on the various administration menus and screens and indicate which keyboard function keys carry out specific DMS VoiceMail tasks. These are referred to in the document by using the label of the softkey (as displayed in the given menu), delimited by square brackets.  
Examples: [Exit], [OK to Delete], [Save]
- **Keyboard keys** - (or hardkeys) are referred to by indicating the label of the key, delimited by angle brackets.  
Examples: <1>, <2>, <Return>
- **Text input** - Where you are required to input specific text, the characters are presented in bold instead of using angle brackets.  
Examples: **servord**, **custpwd** (not <s><e><r><v><o><r><d>)
- **Fields in administration screens** - When the name of a field is referred to, it appears in italics and in a different typeface than the body of the document.  
Example: Enter a unique identifier in the *Announcement ID* field.
- **Values in fields** - When the choices presented in a selectable data field are discussed, they are in quotes.  
Examples: The default is “Enabled”.  
Select “Custom” to create a set of restriction/permission codes unique to this thru-dialer.
- **Spoken words** - Suggested wordings for prompts (such as for voice menus or voice forms), or words which you may be required to speak into the telephone receiver, are in italics and between double quotation marks.  
Example: An appropriate prompt would be “*Please wait on the line, an attendant will be with you shortly*”.

## References

In this manual, where reference is made to another part of the manual, or to another document, the following conventions are used:

- References to section headings and chapter titles are surrounded by double quotation marks.

Examples: See the section “Deleting voice menus” later in this chapter.  
See “Time-of-Day Controls” in the “Voice Administration” chapter.

- References to other NTPs or documents are in italics.

Example: See the *Translations Guide* (NTP 297-7001-310) for details.

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# Understanding DMS VoiceMail administration

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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.

For more information about SPM hardware and software requirements, see the *DMS VoiceMail Product Guide* (NTP 297-7001-010).

## 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 either 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.

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

## 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**

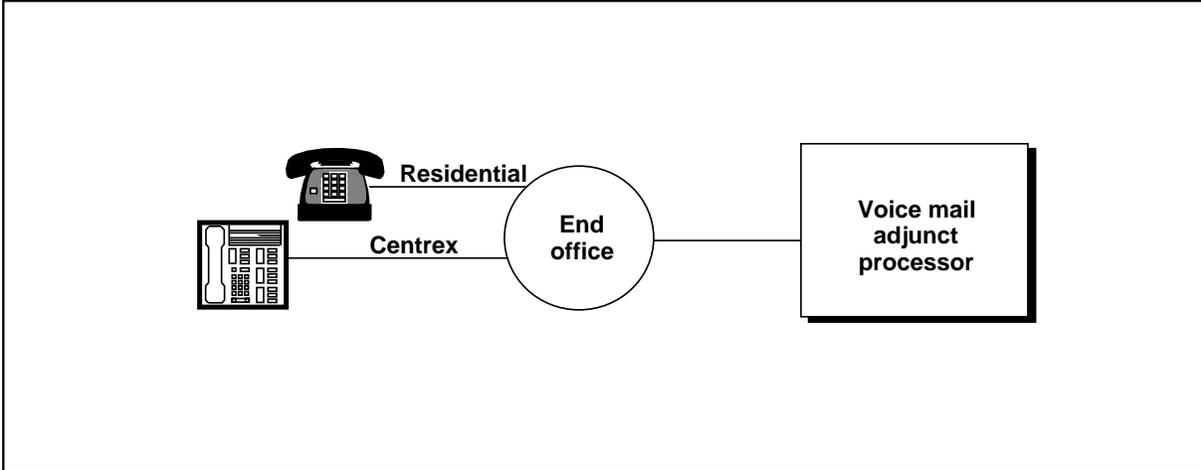
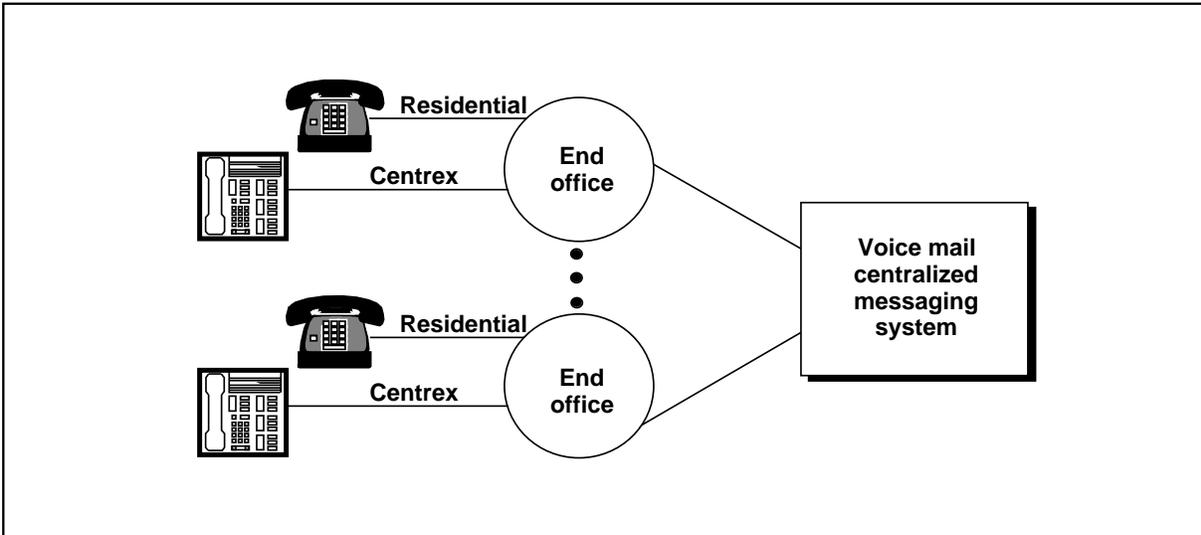


Figure 1-2 illustrates a typical centralized deployment strategy.

**Figure 1-2xxx**  
**Typical centralized deployment**



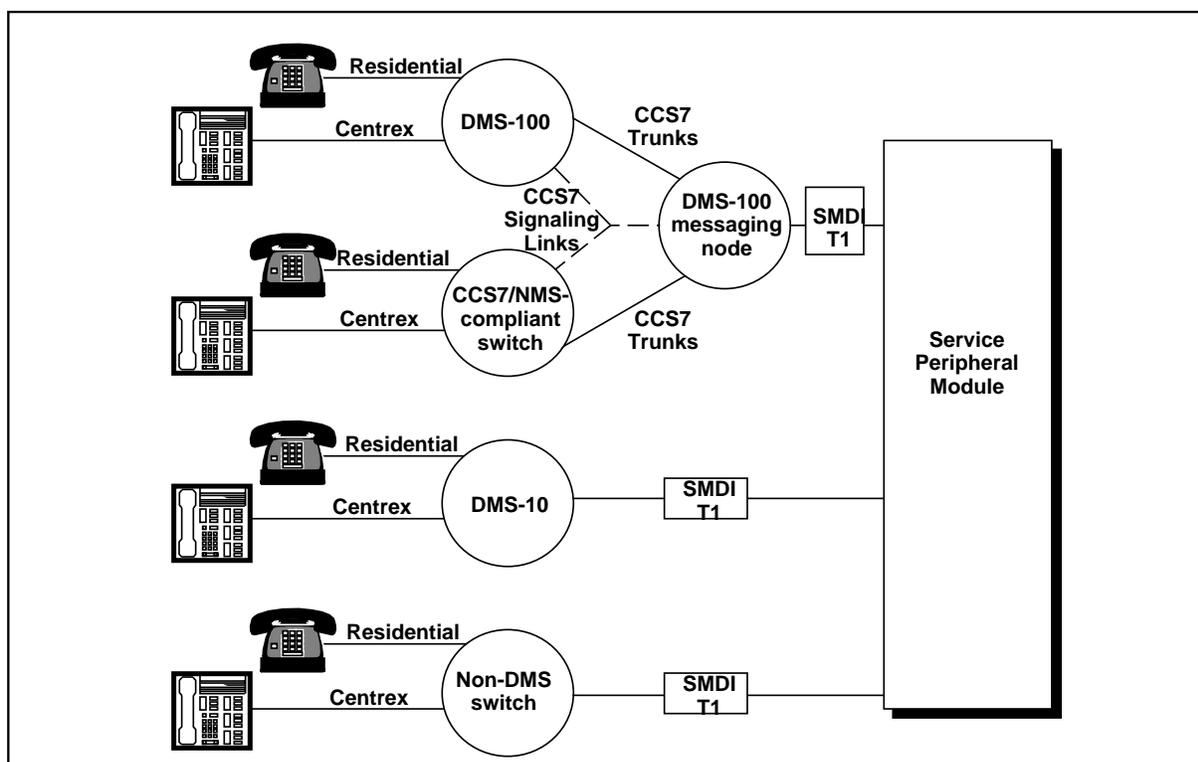
## DMS VoiceMail deployment

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.

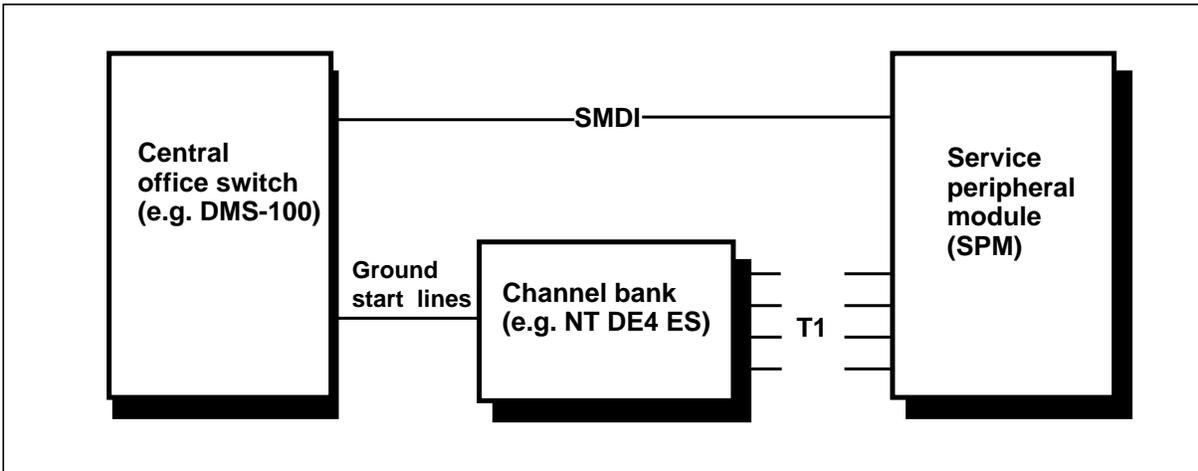
Figure 1-3xxx  
SPM deployment



**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.

**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

Item	System maximum
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

The administration and maintenance interface for the Service Peripheral Module can be monitored by the service provider either locally or remotely. Local versus remote administration is a toggle.

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 be used to perform a subset of administrative tasks (namely user administration, voice services administration and class of service administration in read-only mode).

**Note:** In the previous release of DMS VoiceMail, MATs were referred to as UATs (user administration terminals) because they only provided access to user 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. In other words, local versus remote administration is a toggle.

## Multi-Customer

The Multi-Customer feature allows you to partition your DMS VoiceMail system to support the needs of different groups, known as *customer groups*, thus giving you the ability to selectively configure features and collect billing data for each customer. Up to 2,000 customer groups are supported.

Certain administrative tasks are performed on the system as a whole. These include system backups, setting restriction and permission codes for various features, configuring the Channel Allocation Table, checking system status and performing system maintenance.

Other tasks, such as adding users to the system (to particular customer groups more specifically), creating voice menu applications and voice forms (if installed), and setting voice messaging options, are performed individually for each customer group. Because of this, there are actually two levels of administration (or administrative paths): system administration and customer administration.

Only users within the same customer group are considered internal callers. Other users on the same DMS VoiceMail system, but in other customer groups are considered external. Users in one customer group generally can not send voice messages to users in another customer group. However, you can allow users to send messages between customer groups in one of two ways.

- Set the *Send Messages to External Users* field in the subscriber's class of service to "Yes".
- If AMIS networking is installed and if both users (the sender and the recipient) belong to classes of service in which the following fields are set to "Yes", then voice messages can be passed between customer groups:
  - Receive AMIS messages
  - Compose/send AMIS messages

### System administration and customer administration

There are two levels of administration for multi-customer systems: system administration for performing administrative functions that affect all customer groups and customer administration which involves the configuration of parameters that affect a single customer group only.

When you log on as system administrator (using the system administrator password as opposed to the customer administrator password), the Main Menu is displayed. From this menu, you can choose to do either system administration or customer administration. To perform customer administration, select Customer Administration from the Main Menu. Once in Customer Administration, you can modify parameters for a particular customer group. All other menu items in the Main Menu give you access to system administration screens. Parameters that are found in these screens affect the entire system, and therefore, all customer groups.

If you are responsible for the initial configuration of the DMS VoiceMail system, you will be referring to both this guide (the *System Administration Guide*) and the *Customer Administration Guide* (NTP 297-7001-301) since tasks are split between the two administrative levels. System setup is described in the following chapter “Setting up the system”.

## Voice messaging interfaces

The DMS VoiceMail interfaces allow users to interact with the DMS VoiceMail system to perform the various activities associated with sending and receiving messages and logging into the mailbox.

DMS VoiceMail supports two interfaces:

- Voice Messaging User Interface Forum (VMUIF)
- Meridian Mail User Interface (MMUI), a proprietary voice messaging interface

When a customer group is added to the system, it is defined as either VMUIF or MMUI. Both interfaces cannot be supported by a single customer group.

Whereas the MMUI interface is a command-drive user interface, the VMUIF interface provides a more user-friendly menu-driven user interface.

The following features are common to MMUI and VMUIF:

- handling of forwarded calls
- personalized greetings
- MWI support
- remote notification (the capability for users to change their own remote notification schedules from the telset is only available in the MMUI interface)
- password-protected mailboxes

Passwords are required for MMUI subscribers but optional for VMUIF subscribers. (In fact, the default password for VMUIF subscribers is nil). However, a VMUIF subscriber requires a password in order to log in to his or her mailbox from a phone other than the “home phone”.

- mailbox summaries and message playback
- message reply, reply all and forward
- personal distribution lists
- message compose and send
- AMIS open networking
- class of service
- 18-digit mailbox

## **VMUIF**

VMUIF is an interface for users with dual tone multi-frequency (DTMF) telephone sets. The VMUIF interface is primarily intended for service bureaus and telcos in order to rent voice mailboxes to residential consumers and small business customers.

Users enter a password to log in to a mailbox. While in their mailbox, they can play, delete and skip voice messages. Users can request context-sensitive help at any time. Compose capability is disabled by default for users belonging to VMUIF customer groups. However, it can be enabled to allow users to:

- compose and send messages to other users;
- reply to the sender of a message or reply to all recipients (and the sender) of the message;
- forward a message;
- immediately call back the sender of a message (call sender);
- create personal distribution lists.

The following features are specific to the VMUIF interface:

- call answer only mailbox (compose and send turned off)
- send only mailbox (call answering turned off)
- rotary set interface (message retrieval with no DTMF input required)
- greeting change service (greeting change without DTMF input required)
- introductory tutorial (special greeting on first access)
- volume control (DTMF control of volume and setting default volume)
- submailboxes (up to 8 telset administratable submailboxes-see next section for more details)
- “save as new” (read messages can be reverted to “unread” or “new” status)
- send on disconnect (implicit send command if user hangs up after composing a message)

- mailbox resources (limiting receipt of messages based on mailbox resources)
- enhanced personal distribution lists (personal distribution lists with DNU and AMIS addresses)
- login greeting (customizable login greeting that plays on each login)
- disable reset (automated, timed reset of lockout due to password violation)
- lockout revert (if locked out from the mailbox, a revert DN is possible)

### **Submailboxes**

A mailbox can be partitioned into a main mailbox, plus up to 8 submailboxes. This feature is primarily intended for residential subscribers or environments such as university dormitories where a number of people share a room or a residence. Submailboxes allow each resident to have his or her own mailbox and a personal password to ensure privacy.

When a caller reaches a submailbox, a menu of users is played. For example, a call might hear *“To leave a message for William, press 1 or stay on the line. To leave a message for Paul, press 2. To leave a message for Joan, press 3. To leave a message for Jack, press 4.”* If the caller does not press a key (e.g., the caller is using a rotary phone), and the user stays on the line, he or she can leave a message which will be deposited in the main mailbox. The main mailbox owner can then redirect the message to the appropriate submailbox.

The main mailbox and all associated submailboxes have the same mailbox number but distinguishing passwords. As a result, there is no auto login feature because the password is required to determine the correct mailbox. All passwords must begin with the submailbox number. The password for the main mailbox must begin with “1”. Subsequent submailboxes are numbered beginning with “2” through “9”. When the main mailbox owner initially creates the submailboxes, he or she must define a password and must record a personal verification for each submailbox. Otherwise, the submailbox is not created. Afterwards, each submailbox owner can change their password and personal verification if desired.

A message waiting summary is played after a mailbox owner dials the DMS VoiceMail access number if:

- submailboxes have been created by the main mailbox owner
- the user is calling from the home phone (if the user is calling from a phone other than the home phone, he or she will have to log in, i.e., enter their password, to find out if they have any messages)
- there is at least one new message

This summary is in the form *“Messages are waiting for Joan, Jack.”*

Submailbox capability is enabled in the DMS VoiceMail class of service (COS) assigned to the user. Therefore, if a subscriber asks for submailboxes, you will have to assign him or her to the appropriate class of service. The maximum number of submailboxes allowed is determined by the value entered in the *Maximum Number of Submailboxes* field in the class of service. This value can be between 1 and 8. (A value of “0” in this field indicates that submailbox capability is disabled.) For more information about creating classes of service, refer to the “Class of service administration” chapter. For information about assigning users to classes of service, see the “User administration” chapter in the *Customer Administration Guide*.

Although a main mailbox can be divided up into a number of submailboxes, this is done by the owner of the main mailbox only. For example, if a residential subscriber belongs to a class of service in which submailboxes are enabled, they will not automatically be available. It is up to the owner of the main mailbox, not the administrator, to create and administer the submailboxes. All the administrator does is enable submailboxes and specify the maximum number of submailboxes that can be created in the class of service. The rest is up to the owner of the main mailbox. (You cannot determine how many submailboxes a main mailbox owner has activated.)

Submailboxes can receive call answering and redirected messages only. Submailboxes can redirect any message to the main mailbox or another submailbox.

## **MMUI**

MMUI is the full-featured Northern Telecom proprietary voice mail interface and is primarily intended for business users. The following features are specific to the MMUI interface:

- mailbox thru-dial (user can press “0” + number to call a number while logged into the mailbox)
- name addressing (users can dial other users by name instead of by extension)
- message tagging options (during message composition, users can tag messages as urgent, or for timed delivery)
- retention of unsent/sent messages
- internal and external greeting
- user-changeable personal verification
- customizable customer greeting and customer attendant
- custom operator revert
- user-changeable remote notification schedules through the telset
- express messaging
- bilingual prompting (if more than one language is installed)

- record, playback, message tagging during call answering

The following capabilities are offered with MMUI compose and send:

- message tagging (urgent, private)
- timed delivery
- adding to recorded message
- save a copy of the message

## Contents of this guide

This manual describes the basic administration tasks that you will carry out on your DMS VoiceMail system. It assumes that all the hardware, including the administrator's terminal and optional printer, is in place. DMS VoiceMail administration facilities are used in the initial setup of your system as well as for routine maintenance.

Additional administrative tools and utilities are available. These are described in the *System Administration and Maintenance Tools Guide* (NTP 297-7001-305).

This guide covers the following topics:

- ***Administrative role and responsibilities*** - Your role and responsibilities as administrator are covered in this chapter and in the chapter "Setting up the system".
- ***Procedures for setting up and administering the system*** - If you are setting up DMS VoiceMail, read the chapter "Setting up the system" before commencing with any of the procedures described in this guide. When setting up for the first time, certain procedures need to be performed before others. This chapter explains this order and points out those parameters that *must* be configured. Procedures required to set up and maintain the DMS VoiceMail system are described throughout this guide. This includes basic setup procedures, some maintenance procedures (such as backing up the system), voice services, and procedures for administering optional features such as AMIS Networking.

**Note:** Your system may not include all of the features described in this guide. To obtain features that you do not have, contact your sales representative.

## Organization of chapters

The division of this manual reflects the hierarchical set of procedures accessible from the Main Menu. Each item that appears in the Main Menu has a corresponding chapter describing the administrative tasks, and the screens and fields one interacts with to complete the tasks. Each screen and sub-screen in the DMS VoiceMail administrative facility is described using the following structure:

- **Introduction** - a brief description of the menu, and any concepts or rules necessary to use the menu
- **Menu** - an illustration of the menu and its softkeys.
- **Screens** - an illustration of the screen and its softkeys.
- **Field descriptions** - a description of each field as it appears on the screen, stating requirements your entries must meet and any default information supplied by the system.
- **Choice of Actions** - A description of available softkeys and their actions.
- **Task-oriented Procedures** - are step-by-step descriptions of administrative tasks. They are provided when additional steps are required to complete a task (i.e., in addition to filling in the described fields and using the softkeys).
  - **Starting point** - tells you where in the menu hierarchy the procedure begins.
  - **Body of procedure** - is a numbered list of the required steps and any additional information you may require to complete a task.

## An overview of administration

As administrator of DMS VoiceMail, your functions include setting up the initial system configuration (normally a once-only operation) and performing some routine procedures needed for effective operation of the system. Before proceeding with the initial setup of your system, review the DMS VoiceMail *Planning and Engineering Guide* (NTP 297-7001-100). This document provides guidelines for planning and preparing information that is required during the initial setup of your system.

If you are working with an engineering organization to set up your system, you may also have to deliver collected data related to the performance and use of the DMS VoiceMail system (Service Peripheral Module). Your role as administrator in supporting engineering is to review and analyze the data to identify early indications of resource shortages. This data is used in office provisioning calculations. In addition, the administrator collects and supplies data to the maintenance organization for detecting equipment faults.

Administrative procedures are performed either through easy-to-follow, menu-driven screens at your administration terminal or through your telephone. You may need to carry out some procedures frequently, perhaps daily, others only occasionally.

### **At the DMS VoiceMail administration terminal**

The setup and operation of your DMS VoiceMail system involves work at the main administration terminal. (You cannot use one of the secondary MATs since they only give you access to a subset of capabilities.)

Through the administration terminal you can access the screens and menus used to define the characteristics and parameters of your system. Each chapter in this manual describes procedures carried out at a particular menu or set of screens.

System administration can be broken down into the following categories:

- **General Administration** - involves configuring General Options (enabling SEER printing, specifying the SEER printer port name); backing up the system from the hard disk onto tape; changing the system and/or customer administrator password; and changing the system time.
- **Voice Administration** - involves defining restriction and permission codes (Voice Security Options), maintaining DN information and voice services (voice menus, announcements, thru-dialers, time-of-day controllers and voice forms) once they have been created (at the customer administration level), setting Outcalling options (such as how many days of audit data should be stored and the maximum number of outcalling channels) and viewing the outcalling audit trail report.

**Note:** Voice services can only be created and maintained at the customer administration level. (They can however, be viewed and modified while you are logged on as system administrator.)

- **Hardware Administration** - involves viewing the contents of the hardware database for your DMS VoiceMail system. This will give you an idea of the number of nodes in your system, and the type of cards and ports that have been configured for those nodes. You can also print node and data port information while in the Hardware Administration menu. Hardware Administration does not, however, involve modification of the hardware database. The database is modified using System Administration Tools described in the *System Administration Tools Guide* (NTP 297-7001-305).

- **System Status and Maintenance** - involves monitoring the operational status of the system, including System Event and Error Reports (SEERs) for use in troubleshooting and configuring the Channel Allocation table (where voice channels can be dedicated to specific voice services). Should any components, such as nodes or cards, require servicing, this also involves disabling those components prior to servicing.
- **Operational Measurements** - involves setting operational measurement options and viewing system usage statistics. This information is presented to you in the form of various reports, such as traffic reports for various features (voice messaging, voice menus, AMIS networking and outcalling), disk usage reports and DSP port usage reports.
- **Network Administration** - involves the administration of AMIS Networking (if installed on the system). AMIS Networking allows DMS VoiceMail users to send messages to and receive messages from users of other voice messaging systems subscribing to the AMIS protocol (which may include non-DMS systems).
- **Class of Service Administration** - involves the definition and maintenance of class of service (COS) definitions. A class of service functions as a template when adding users. It determines the features that are available to the user you are adding as well as a wide variety of settings (such as maximum limits for maximum greeting length, number of days read messages are retained, etc.).  
*Note:* Classes of service can be viewed (only) from a MAT, if configured.

Customer administration involves the following:

- **User Administration** - involves adding new users and maintaining an up-to-date database of users and system distribution lists as well as carrying out other user-related functions such as recording personal verifications for users.
- **General Administration** - involves selecting up to 15 classes of service for the customer group, enabling voice menus and voice forms for the customer group (if installed), configuring an attendant DN for each customer group, and changing the customer administrator password on a regular basis to ensure a secure system.
- **Voice Administration** - involves the administration of all voice services used by your organization, assigning phone numbers (DNs) to voice services, setting operational parameters and security for voice services and administering voice services (such as voice menus, announcements, thru-dialers, time-of-day controllers, voice forms), and Outcalling (Remote Notification and Message Delivery to Non-users).

- **System Event and Error Reports** - display continual information about errors and events occurring in the system. This information is used for troubleshooting purposes.
- **Operational Measurements** - involves collecting statistical data on user usage of the system. This includes local usage and AMIS networking usage.
- **Network Administration** - involves setting the AMIS compose prefix and local number (part of the system access number). Both of these numbers are customer-specific. You can also disable/enable outgoing and incoming messages for a particular customer group if necessary. All other AMIS administration is done at the system administration level.
- **Class of service administration** - involves viewing existing classes of service. Class of service administration at the customer level only allows you to view class of service definitions to verify their configuration. Classes of service can only be created, modified and deleted from the system administration level.

### At the telephone

To create the various voice recordings required for your system, you must use a telephone as well as the administration terminal. The basic procedures for creating voice recordings are described in detail in the chapter “Making recordings”. You may create the following types of voice recordings:

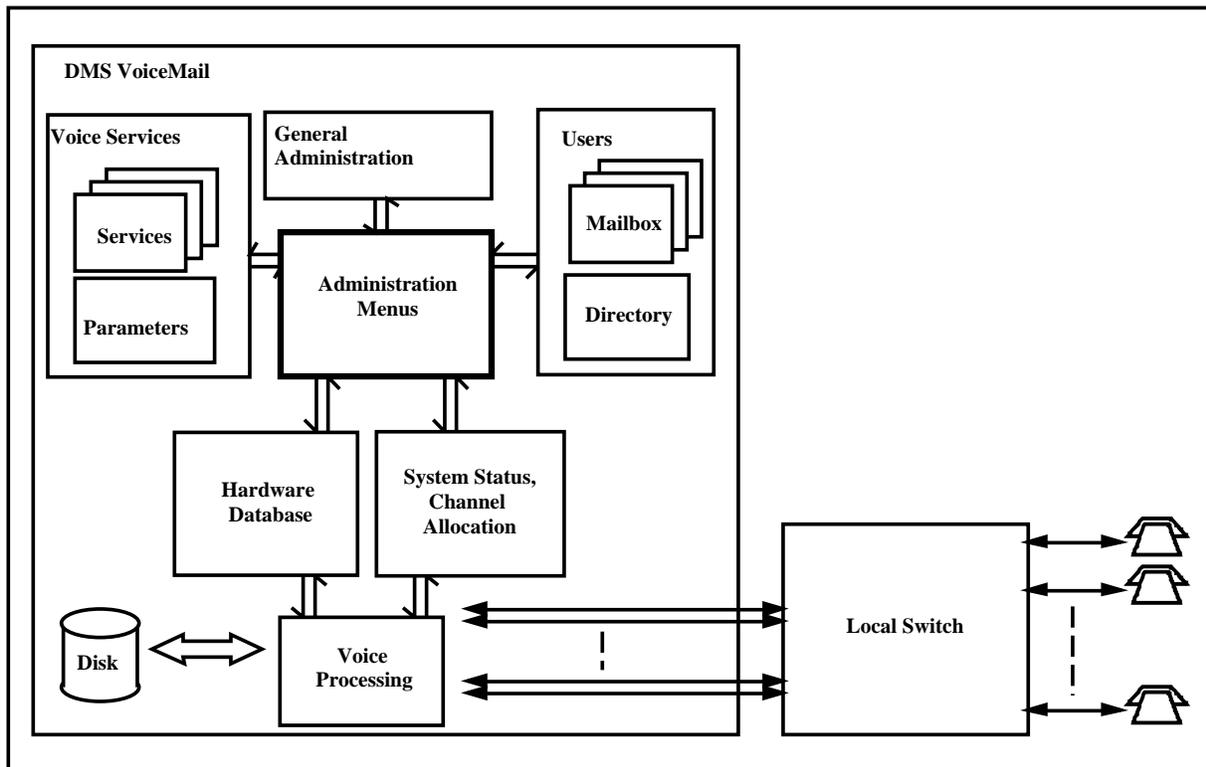
- **Personal Verification Recordings** - A recording of a person’s name (and extension) may be recorded for each user. When recorded, it is played to callers instead of the user’s phone number, making identification easier. Personal verifications can either be recorded by the administrator at the administration terminal, or by users with their telephone sets.
- **Custom Call Answering Greeting** - This greeting is played to external callers who reach the call answering service and is simply a recording of the customer’s name. It is played before any personal greetings.  
*Note:* This greeting only applies to MMUI customer groups.
- **VMUIF Introductory Tutorial Greeting** - This greeting is played to subscribers belonging to VMUIF customer groups the very first time they log on to their mailbox. It describes how to use the voice messaging system and the features that are available.  
*Note:* This greeting does not apply to MMUI customer groups.
- **Broadcast Messages** - A broadcast message is deposited in the mailboxes of all DMS VoiceMail users in a customer group.

- **Voice Prompt Maintenance** - This is a service that allows you to record and maintain prompts that are used in voice services (voice menus, thru-dial services, and announcements). For voice menus, you can record the menu greeting, the menu choices prompt, the no response prompt or any play prompts that are included in the menu. However, this service cannot be used to record the prompts that are used in voice forms.

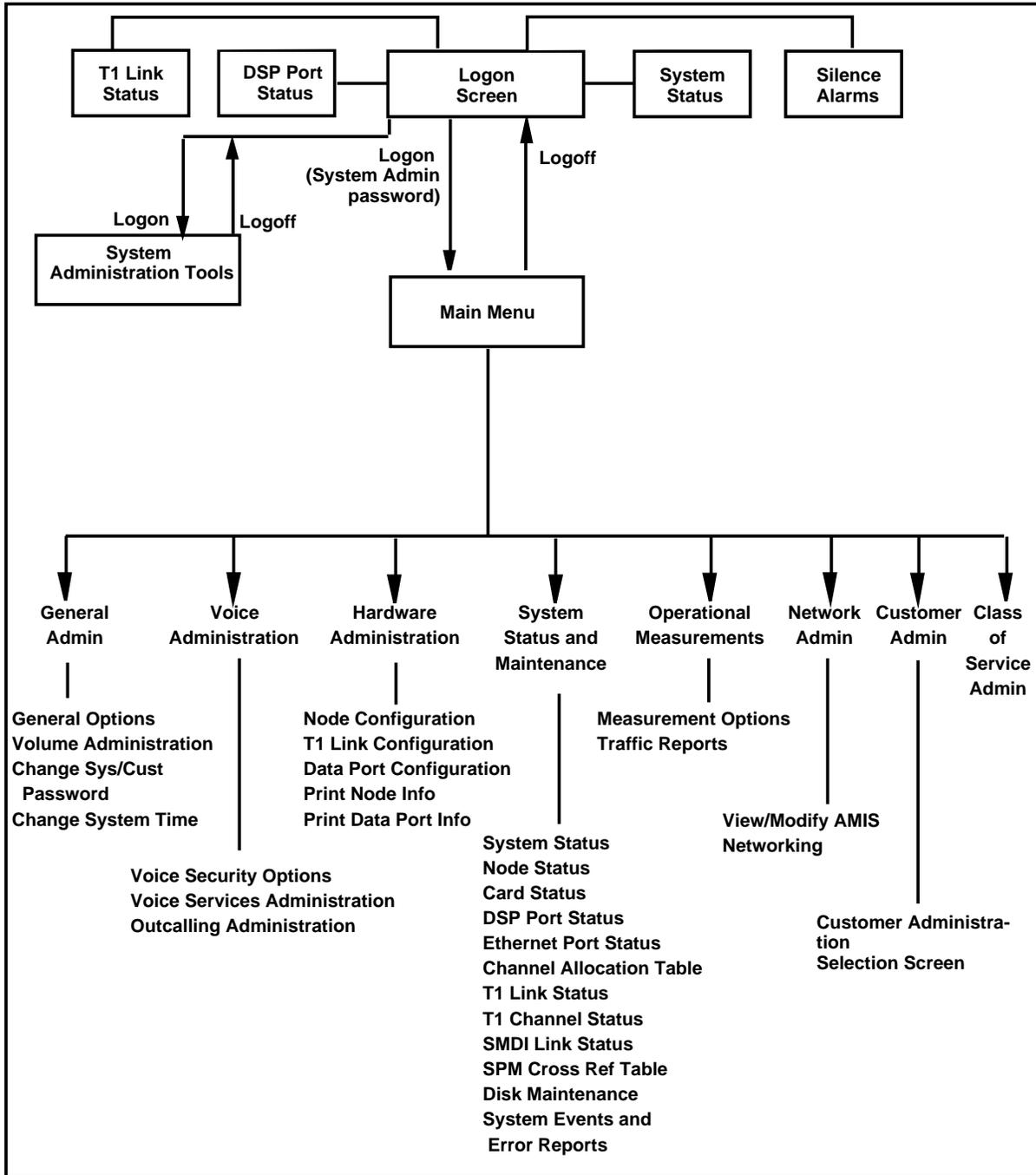
## Administration overview

For a better picture of what your administrative responsibilities are and how they relate to each other, Figure 1-5 illustrates a conceptual view of administration and Figures 1-6 and 1-7 illustrate the hierarchy of menus available at the administration terminal.

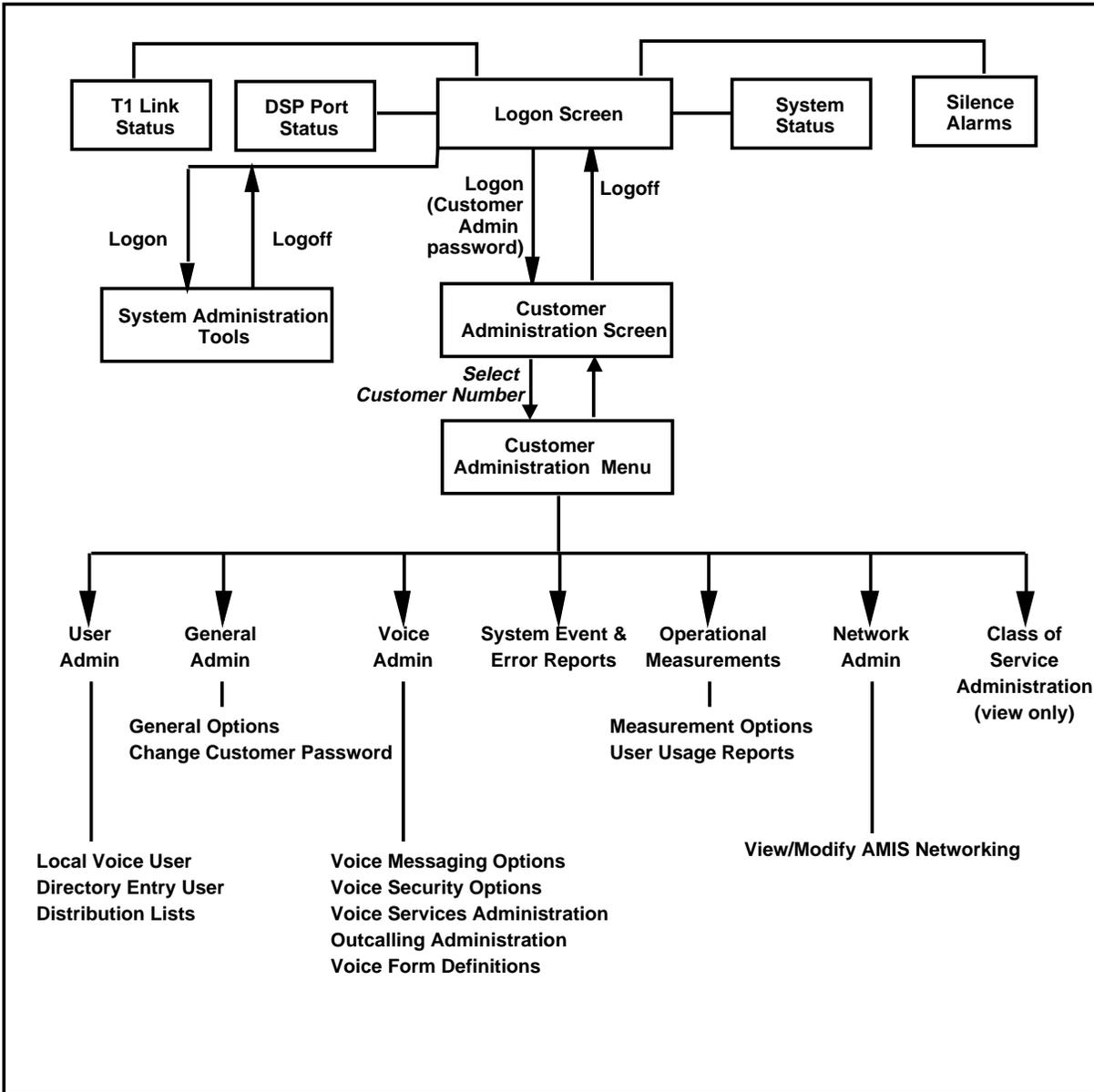
Figure 1-5xxx  
Administration overview



**Figure 1-6xxx**  
**System Administration main menu hierarchy**



**Figure 1-7xxx**  
**Customer Administration menu hierarchy**

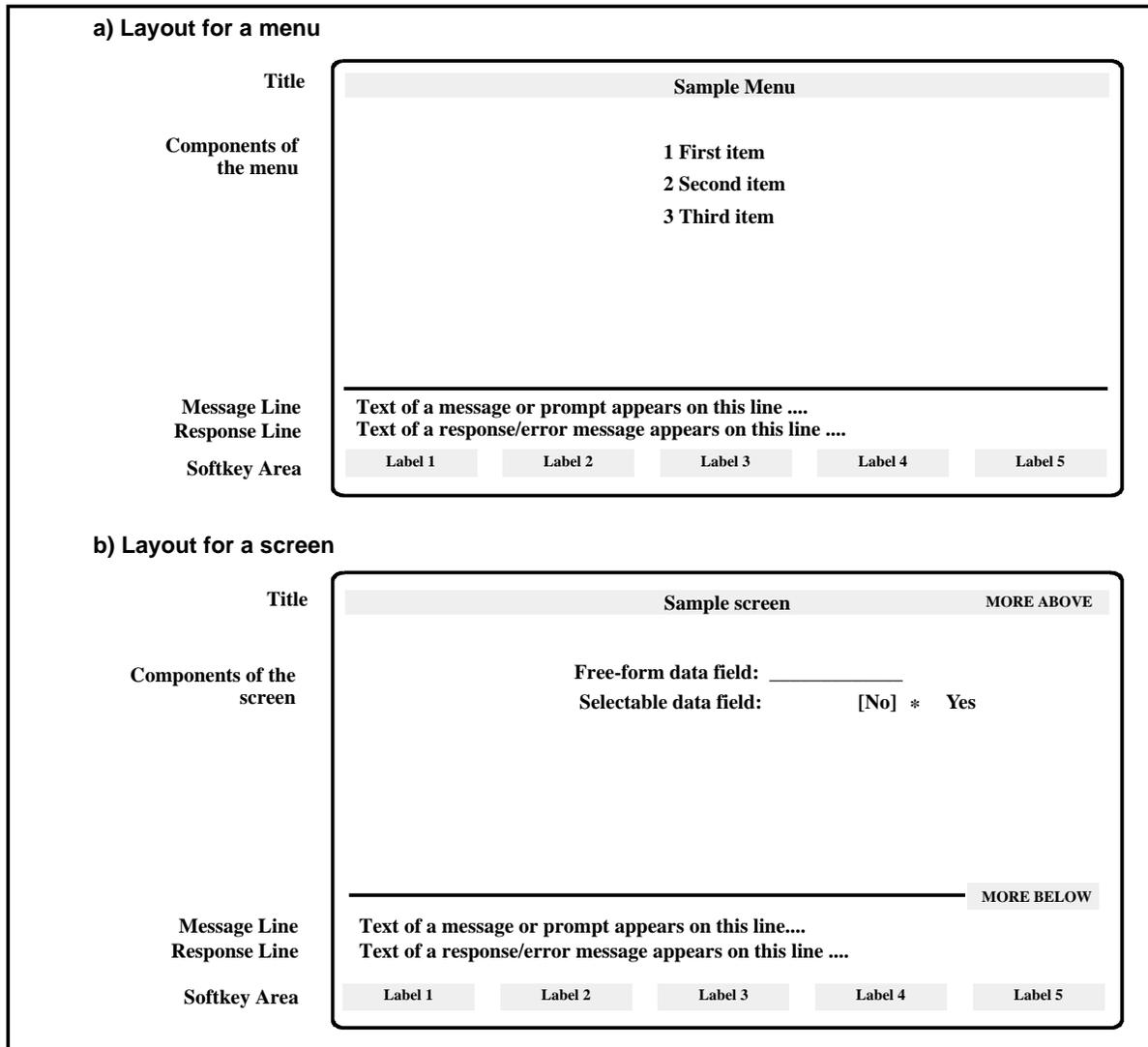


## **System Administration screens: menus and screens**

Menus and screens in the System Administration facility conform to the general layout shown in Figure 1-8. Menus present a list of numbered items from which to choose. Each major administrative task has a corresponding menu (User Administration Menu, Voice Administration Menu, for example). When an item is selected from a menu, either another menu (a submenu) or a screen will be displayed. Screens contain fields which either present a number of options from which to choose, or a data entry field so that the administrator can enter a number or text.

The title of each screen or menu appears on the first line of the screen. For menus, this is followed by a list of numbered items. For screens, the title is followed by fields for viewing or entering information. The bottom four lines of the screen are reserved for system prompts, responses, error messages, and softkey identification. Two types of fields appear in administration screens: free-form data fields, where you can overwrite existing entries and enter new data; and selection fields, where the system presents a set of options to which the field can be set. Some fields that you can change are filled in automatically by the system. For example, when you add a new user, some of the information fields take on, by default, the values of the last user you added to the system; having some of these fields filled in makes it easier and faster for you to add new users with similar profiles.

**Figure 1-8xxx**  
**General screen layout**



\* In this guide, items surrounded by square brackets indicate a selected option. On DMS VoiceMail screens, selections are actually shaded.

### Softkeys

Softkeys appear on the bottom two lines of the display in reverse video (dark characters on a light background). They change depending on the menu or screen and may change with the function you are performing. They correspond to function keys F6 through F10 on the top row of the keyboard. They also correspond to the keys on the keypad shown in Figure 1-9.

## Keypad functions

Figure 1-9 also shows the other functions that are available on the keypad by pressing the single keys or the key combinations shown.

VT220 terminals and the following VT220-compatible terminals are supported: VT320, VT420, HP700/22, and HP700/32.

**Note:** The functions shown in Figure 1-9 are only available if the keypad is in application mode (application mode is the default whenever the system is rebooted). If you choose to work with a numeric keypad (where the numeric keys generate numbers when you press them), then only the F1, F2, F3 and F4 keys retain the functions indicated. The keypad is set to numeric mode through the terminal's set-up function. For details, consult the documentation for your terminal.

**Figure 1-9xxx**  
**Numeric keypad function keys**

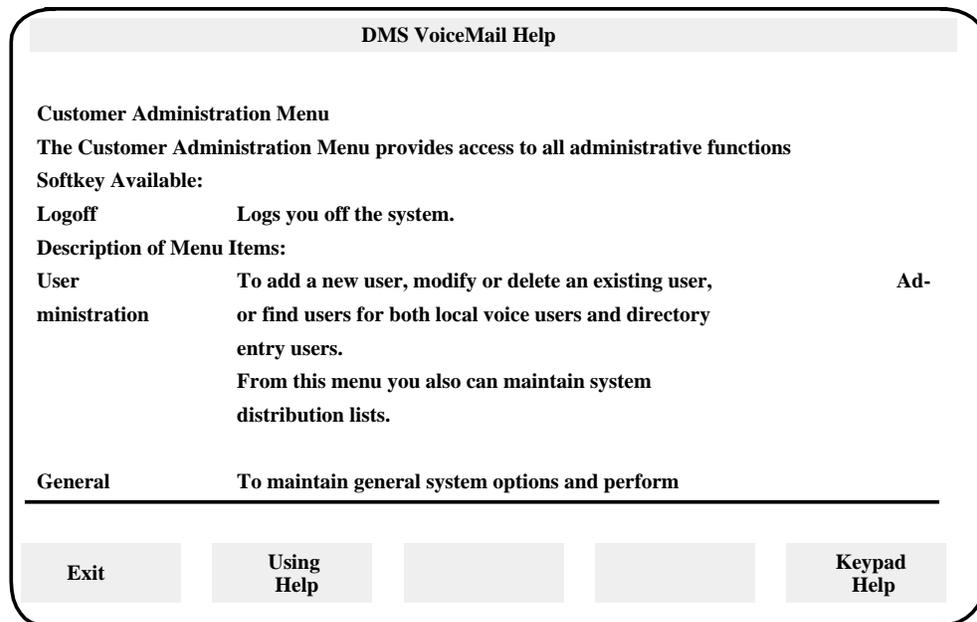
F1	F2	F3	F4	
7	8	9	-	
4	5	6	,	
1	2	3		
0	.	ENTER		

- 0+1 - Start of field
- 0+2 - End of field
- 0+6 - Restore default value of field
- F1 - Softkey 1
- F2 - Softkey 2
- F3 - Softkey 3
- F4 - Softkey 4
- 1 - Previous word in field
- 2 - Next word in field
- 4 - Previous field
- 5 - Next field
- 7 - Previous page
- 8 - Next page
- - Delete field contents
- . - HELP
- ENTER - Softkey 5

## The Help key

On-line Help is available for most of the menus and screens, including the Main Menu. The <Help> key on the keyboard can be used to display information on whatever screen in which you are working. If you require help with a screen, press the <Help> key. Alternatively, you can press the period (.) on your numeric keypad (see Figure 1-9). The system will display a screen showing explanations of all the fields on the menu or screen in which you are working. When you are done, use the [Exit] softkey on the Help screen to return to the menu or screen in which you were working. Figure 1-10 shows an example of the Help screen for the Main Menu.

**Figure 1-10xxx**  
**DMS VoiceMail Help example**



## Multi-page screens

Certain screens may contain more fields than can be displayed at once on the screen. Additional pages are viewed by:

**Scrolling** - If you see “More Below” at the bottom of a screen, or “More Above” at the top of a screen, use the down-arrow key or <Next Scrn> hardkey to view the next page. Use the up-arrow key or <Prev Scrn> hardkey to return to the previous screen. When the “More Below” prompt disappears, you are at the end of the screen; when the “More Above” prompt disappears, you are at the top of the screen.

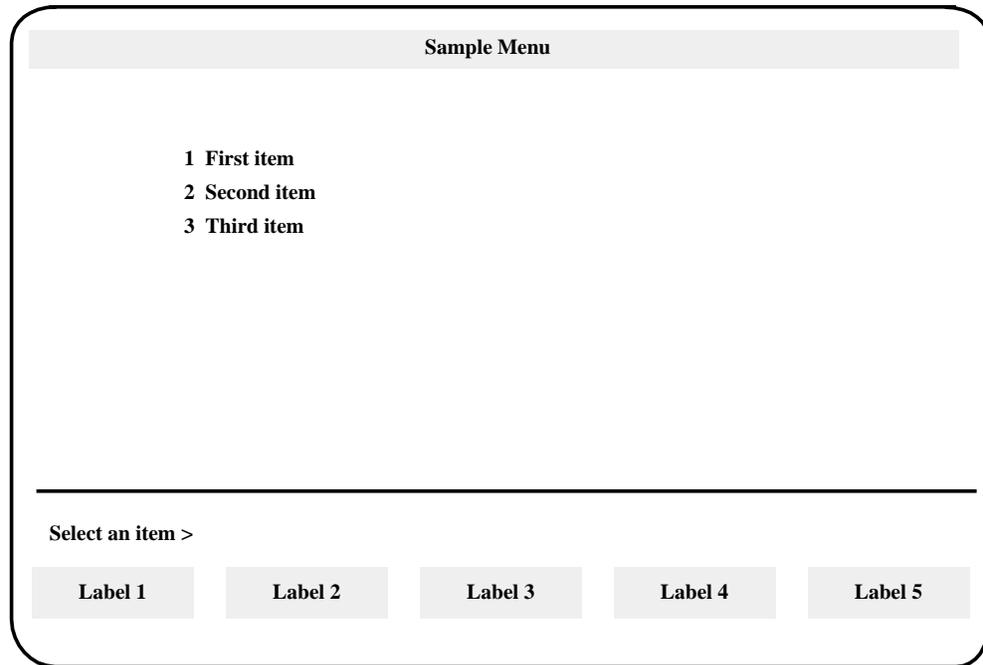
**Note:** The down arrow key will only display the last input field, even if there is guide text beyond it. To view any guide text that may appear at the very end of a screen, use the <Next Scrn> hardkey.

- **Paging** - Use the [Next Page] softkey if it is displayed.

## Selecting a numbered item in a menu

In a menu screen (Figure 1-11), each item has a number. The system displays a prompt requesting you to select an item. To select a menu item, type the corresponding number and press the <Return> key. The number you enter appears next to the “Select an item >” prompt. When you press the <Return> key, the system displays a sub-menu or screen corresponding to the selected item.

**Figure 1-11xxx**  
**Selecting a numbered item in a menu**



### Entering information in a screen

There are two types of modifiable fields in the DMS VoiceMail administration screens (Figure 1-12). *Free-form data fields* are fields in which you enter information, such as a user's name or mailbox number. *Selectable fields*, on the other hand, present a series of specific options from which to choose.

In order to modify a field, you must first move your cursor to it. Once the cursor is in the appropriate field, you can change its contents.

**Figure 1-12xxx**  
**Entering information in a screen**

Sample screen MORE ABOVE

Free-form data field: \_\_\_\_\_  
 Free-form data field: \_\_\_\_\_  
 Free-form data field: \_\_\_\_\_  
 Free-form data field: \_\_\_\_\_

Selectable field: [No] Yes  
 Selectable field: [No] Yes  
 Selectable field: No

---

MORE BE-  
LOW

Label 1      Label 2      Label 3      Label 4      Label 5

Some fields display unmodifiable information. You cannot change the content of these fields. The cursor may or may not position on these fields, depending on the type of screen displayed. When a selectable field is not modifiable, only the selected option will be displayed. For example, if a field is disabled, only “No” will be displayed. It will not be shaded.

Certain data fields must be filled in with a value whereas others are optional. Mandatory fields are pointed out in the field descriptions. If you neglect to fill in a mandatory field and then try to save your settings, the system will not save the screen and will prompt you to fill in the necessary field.

The following keys on the keyboard and on the application keypad (see Figure 1-9), move the cursor within or across fields:

- **<Tab>** moves the cursor to the next field.
- **<4>** on the application keypad moves the cursor to the previous field.
- **<Return>** moves the cursor to the next field.
- **<↑>**, the up arrow key, moves the cursor to the previous field or the field above.
- **<↓>**, the down arrow key, moves the cursor to the next field or the field below.

- <←> <→>, the left and right arrow keys, move the cursor in the corresponding direction within an input field, but not between fields. They also move the cursor from one selection to the next in a selectable field.

The following keys change the contents of fields:

- <**Remove**> clears the current field.
- < > deletes one character to the left of the cursor each time the key is pressed.
- <**Back Space**> deletes the character on which the cursor is positioned.

#### **Procedure 1-1xxx**

##### **Changing the contents of a free-form data field**

- 1 If the field you want to change is below the current cursor position, use one of the following keys to move the cursor to the appropriate field: <Tab>, <Return>, or down arrow key.  
or  
If the field you want to change is above the current cursor position, use one of the following keys to move the cursor to the appropriate field: up arrow key or <4>.
- 2 If the field is not blank, delete the current entry using either <Remove> to clear the field, <Back Space> to delete the character on which the cursor is positioned, or < > to delete the character to the left of the cursor (until the entry is deleted).
- 3 Enter the new information.

#### **Procedure 1-2xxx**

##### **Changing the contents of a selectable field**

- 1 If the field you want to change is below the current cursor position, use one of the following keys to move the cursor to the appropriate field: <Tab>, <Return>, or down arrow key.  
or  
If the field you want to change is above the current cursor position, use one of the following keys to move the cursor to the appropriate field: up arrow key or <4>.
- 2 Use the right and left arrow keys to position the cursor on the appropriate selection.
- 3 When the cursor is positioned correctly, press <Return> to select.

### Selecting an entire line

In some screens you are required to select an entire line. For example, in the View/Modify Directory Entry User screen, you must select a name from a list of users to indicate which user profile you want to modify. To select a line in a screen, place the cursor at the beginning of the line and press the <Space Bar>. Screens requiring this mode of selection will indicate this in a prompt (“Move the cursor to the item and press the spacebar to select it”).

### Error messages

The system displays error messages, both general and screen-specific, on the line above the softkey display. These messages are simply feedback to the administrator’s actions. (Do not confuse them with SEERS, System Event and Error Reports. SEERs are described in detail in the “System Status and Maintenance” chapter.) The messages remain on the screen until the next user input or until another error message appears. Typical error messages are:

- “The key entered is not valid at this time.”
- “Enter a number in the range of 1 to 6.”

**Note:** If SEER printing is disabled, reports will print out on the administration screen. To redraw the screen and clean up any interfering information, press <Control> + <r>. This key combination can be used at any time to redraw the screen.

### Nightly DR audits

The DR, or *organization directory*, contains certain information about users, voice services and customer groups. A DR audit is performed if the DR has changed during the day, or if the previous audit did not finish. The purpose of the audit is to rebalance the system. The DR changes whenever you do any of the following:

- User Administration - this includes adding, modifying, deleting users (at the customer administration level)
- Voice Services Administration - this includes modifying or deleting DN’s in the VSDN table, as well as modifying or deleting voice and fax service definitions (announcements, thru-dial services, time-of-day controllers, and voice menus)
- Adding customer groups (at the customer administration level)

- Class of Service Administration

**CAUTION**

If an audit is in progress, do not perform any of the above actions. These operations will fail if attempted during the audit. A number of SEERs, including 3135, will also be generated.

If performed, the audit begins at 3:30 a.m. (by default) and can take anywhere from a few minutes to 3 hours. (Three hours is the maximum. If the audit is not completed during this time, it will be completed during the next audit.) The length of the audit depends on how many changes have been made (the more changes, the longer it takes). You will know when the audit starts and ends because SEER 3135 is generated.

**System and user data storage**

Each SPM node in the DMS VoiceMail system has a hard disk drive for data storage. The hard disk drives are partitioned into volumes. Volumes are storage areas for system-related or user-related information. The volumes are already set up when the system is installed.

The section “Volume numbers and distribution” in Chapter 6 describes the conventions used for naming volumes and the type of information stored on each volume for the different DMS VoiceMail configurations. At the end of the section, Table 6-1 specifies the storage capacities for each volume.



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# System security

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## Overview

In today's telecommunications environment every computerized system is potentially open to unauthorized access. As system administrator, it is your responsibility to take all necessary precautions to prevent security breaches. For example, unless your system has been properly secured, someone who is connected to DMS VoiceMail (such as a user who is logged on to a mailbox or an external caller who has connected to DMS VoiceMail through a call answering session or a voice menu) can place unauthorized calls that will be billed to your system.

This chapter summarizes the security features that are available to a DMS VoiceMail administrator to help minimize this risk.

- 1 Controlling dialing through restriction/permission codes
- 2 Controlling external caller dialing
  - a. call answering thru-dial (extension dialing)
  - b. voice menu thru-dial services
- 3 Controlling user use of mailbox features
  - a. mailbox thru-dial (extension dialing)
  - b. outcalling
  - c. operator revert
  - d. call sender
  - e. AMIS networking
- 4 Controlling access to mailboxes
- 5 Secured messaging option
- 6 Controlling unauthorized access to the administration terminal
- 7 Protecting sensitive information

## Using restriction/permission codes

Restriction/permission codes can be grouped together into sets of 10 restriction codes and 10 permission codes. A restriction/permission code is essentially a dialing code between 1 and 5 digits in length. A restriction/permission set defines the dialing codes that are not allowed and those codes that are allowed. Each restriction/permission set can include up to 10 restriction codes and up to 10 permission codes. Any dialing code can be entered as a restriction or permission code (as long as it is no more than 5 digits in length). A dialing code can be an extension number (on the switch) or any telephone number prefix that is used by subscribers to place local, long distance or international calls (such as “9” for local calls, “91” for long distance calls, “6” for ESN calls).

Restriction codes are generally used for defining the “rules” of outdialing and permission codes are used for indicating the exceptions to the rule. For example, you might want to create a restriction/permission set that allows local dialing, but not long-distance dialing (except to two specific area codes which are allowed). In this example, all long-distance dialing codes begin with “91” and local calls are made by entering “9”. Below is an example of this type of restriction/permission set.

Restriction Codes: 1\_\_\_ 2\_\_\_ 3\_\_\_ 4\_\_\_ 5\_\_\_ 6\_\_\_ 7\_\_\_ 8\_\_\_ 91\_\_\_

Permission Codes: 91514 91504

In this example, local calls are allowed because “9” by itself is not restricted, only “91”. This is because dialing codes that are a subset of a restriction code but that are shorter than the restriction code are not restricted. However, to allow outdialing to the long-distance area codes “514” and “504~ you must enter “91514” and “91504” as permission codes since they are exceptions to the rule that numbers beginning with “91” are restricted.

You can define up to four different restriction/permission sets. This is done in the Voice Security Options screen at the system administration level. The default sets are named: On Switch, Local, Long Distance 1, and Long Distance 2. (These names can be changed.) As an example, you could use the OnSwitch set to allow centrex customers to dial other internal subscribers only and restrict all local and long distance calls. You could use Local to allow on-switch and local calls but restrict all long distance calls. You could use Long Distance 1 to restrict all long distance calls. You could use Long Distance 2 to restrict all international calls, but allow long-distance dialing as long as it is to the same country code.

Restriction/permission codes are described in more detail in the section “Voice security options” in the “Voice administration” chapter.

Once you have defined the restriction/permission sets in the Voice Security Options screen, you can apply a particular restriction/permission set to each of the following features in order to control caller dialing and user use of mailbox features.

### **Controlling caller dialing**

Callers who gain access to the DMS VoiceMail system can potentially use thru-dial capabilities to make unauthorized calls if the system does not protect against this. This can either happen because callers can place calls from DMS VoiceMail either during a call answering session or when connected to a thru-dial service.

#### **Call answering thru-dial (extension dialing)**

During a call answering session, a caller could potentially use thru-dial capabilities to place unauthorized calls which would be billed to the system. To thru-dial from a call answering session, a caller must press “0” followed by a dialable DN. (If the caller waits more than two seconds after entering “0”, he or she will be connected to an attendant instead.)

To prevent callers from abusing thru-dial capabilities, make sure an appropriate restriction/permission set is applied to call answering/express messaging in the Voice Security Options screen. You must choose one of the four restriction/permission sets that are defined in the Voice Security Options screen.

Note that the selection you make also affects express messaging thru-dial.

#### **Thru-dial services**

All thru-dial services you create using the voice menus feature must be adequately protected with an adequate restriction/permission set. For thru-dial services, the restriction/permission set is selected in the Add or View/Modify a Thru-Dial Definition screen. You can choose from one of the four sets defined in Voice Security Options screen or you can customize the restriction/permission set for each thru-dial service you create. Therefore, if you are creating a thru-dial service that will primarily be used by external callers, you can make it more secure than those used by DMS VoiceMail users by applying more rigorous standards when applying restriction codes.

## **Controlling subscriber use of mailbox features**

Restriction/permission sets can be applied to the following features in order to restrict subscribers in their use of certain mailbox features.

A restriction/permission set is applied to the first feature, express messaging thru-dial, in the Voice Security Options screen. Restriction/permission sets are applied to the remaining features in the Add or View/Modify Class of Service screen. Your selection, therefore, affects all subscribers that are assigned to a particular class of service. For more information about setting up classes of service, see the chapter "Class of service administration".

For all features, you must choose one of the four restriction/permission sets that are defined in the Voice Security Options screen.

### **Express messaging thru-dial**

Thru-dial capabilities are available to users during express messaging. This means that while a user is engaged in an express messaging session, he or she can press "0" followed by a DN to place a call. Note that the selection you make also affects call answering thru-dial.

### **Mailbox thru-dial (extension dialing)**

When a subscriber logs into his or her mailbox, the subscriber has thru-dial capabilities and can place calls that are originated by the DMS VoiceMail system by pressing "0" followed by a DN.

### **Outcalling**

There are two outcalling services: Remote Notification and Delivery to Non-User. Both of these features make outbound calls from the system and, therefore, require that you consider which numbers are to be restricted.

#### **Remote notification**

Remote notification allows a user to be notified at a remote phone or pager when a new message arrives in his or her mailbox. Users belonging to MMUI customer groups can define their own remote notification schedules and target DNs from their telephone sets. If subscribers will be given this capability, it will become especially important to choose an appropriate restriction/permission set.

#### **Delivery to non-user**

Delivery to non-user (DNU) allows a DMS VoiceMail user to compose and send a voice message to someone who is not a DMS VoiceMail user. If this feature is not restricted properly, users will be able to send messages long distance and internationally which may be against your policy.

For more information about outcalling, see the *Outcalling Application Guide for Multi-Customer Systems* (NTP 297-7001-308).

**Operator revert**

This feature allows a caller who is connected to a user's mailbox to press "0" and connect to an operator or a secretary. Since users can customize this number from their own telephone sets, it is important to restrict the extensions/phone numbers they try to use as their revert DN.

**Call sender**

This feature allows a DMS VoiceMail user to immediately call back the sender of a message he or she has just listened to by pressing "9". (This only applies to messages that have been left during call answering sessions, not voice messages that have been composed and sent.) If the caller is located in another area code or country code, the appropriate restriction/permission set will have to be applied to prevent call sender from dialing unauthorized numbers.

**AMIS networking**

When a user composes a voice message and tries to send it to an AMIS site, DMS VoiceMail checks the restriction/permission set that is assigned to AMIS networking to see if it is restricted. You may want to restrict subscribers from sending AMIS messages to certain locations.

**Settings for new systems**

For new systems, (that is, systems that have not been converted from a previous release of DMS VoiceMail), all four of the restriction/permission sets are defined as follows:

Restriction codes: 0 1 2 3 4 5 6 7 8 9

Permission codes: none

The Local set is assigned to all applicable features by default.

*This means that all outdialing is restricted on a new system! You must modify the default restriction/permission sets. Otherwise, features that outdial (as listed on the preceding page) will not work.*

**Settings for converted systems**

If you have converted to SPM 02 from a previous release, the restriction and permission codes remain as they were defined in the previous release. Existing restriction/permission codes are not overwritten with the settings that are described above. However, you will have to ensure that the appropriate restriction/permission set is applied to any new features. This is also true if you begin to implement a feature that you did not use in the previous release.

After a conversion, it is recommended that an audit of security parameters be carried out to ensure prudent security practices are being followed.

### Defining and applying restriction/permission sets

To define and apply restriction/permission sets log on as system administrator first to carry out the first two steps:

- 1 Define restriction/permission sets in the Voice Security Options screen. The Voice Security Options screen is accessed from the Voice Administration menu.

See the section “Voice Security Options” in the “Voice Administration” chapter for more information.

- 2 Configure classes of service so that the appropriate restriction/permission set is assigned to the following features:

- extension dialing
- custom revert
- external call sender
- AMIS networking
- outcalling features (remote notification and delivery to non-use)

See the chapter “Class of Service Administration” for more information about configuring classes of service.

The remainder of the steps are carried out at the customer administration level.

- 3 Assign a restriction/permission set to call answering/express messaging thru-dial in the Voice Security Options screen.

- 4 Assign classes of service to customer groups in the General Options screen. If you do not carry out this step, the classes of service you have created will not be available in User Administration.

You can assign up to 15 of the 127 system classes of service to a customer group.

See the section “General Options” in the “General Administration” chapter in the *Customer Administration Guide* for details.

- 5 Assign users to classes of service. To restrict outdialing to certain numbers for a particular user, you must assign that user to the appropriate class of service (the class of service in which the appropriate restriction/permission set is assigned to a feature).

For example, you want User A to be able to use call sender only if the calling number is local. However, you want to allow User B to use call sender even if the number is long-distance. In Class of Service 10, the Local restriction/permission set is assigned to call sender, restricting all long-distance dialing. In Class of Service 15, the Long Distance 1 restriction/permission set is assigned to call sender (allowing long-distance, but not international dialing). In this case, you would assign User A to Class of Service 10 and User B to Class of Service 15.

For more information about adding users and assigning users to classes of service, see the section “Adding local voice users” in the “User Administration” chapter in the *Customer Administration Guide*.

- 6 Apply an appropriate restriction/permission set to any thru-dial services that you create. You can choose one of the four sets already defined in Voice Security Options, or you can create a customized set for each thru-dial service you create.

See the *Voice Menu Applications Guide* (NTP 297-7001-307) for details.

## Controlling access to mailboxes

DMS VoiceMail provides several ways of protecting user mailboxes against unauthorized access. This is mainly accomplished through the use of mailbox passwords.

The following parameters must be customized for each customer group. They can all be found in the Voice Security Options screen that is accessed at the customer administration level. See the “Voice Administration” chapter in the *Customer Administration Guide*.

### Invalid logon attempts

To guard against unauthorized access, you can have mailboxes automatically lock users out when a certain number of invalid mailbox logons have been attempted. There are actually two parameters which can be configured in the Voice Security Options screen: Maximum Invalid Logon Attempts Permitted per Session (the default is 3) and Maximum Invalid Logon Attempts Permitted per Mailbox (the default is 9). When this maximum limit is reached, the user’s mailbox is disabled and must be re-enabled by the administrator.

### Password change

This feature is applicable to the MMUI interface only. In the case of MMUI, the mailbox password is changeable by both the administrator and the mailbox user. It can be altered as often as desired. To compel mailbox users to change their passwords frequently, you can specify how often users are required to change their passwords. For example, you can require users to change their passwords every 30 days. The default is “0”, meaning that users are not required to change their passwords at all.

This parameter is configured in the Voice Security Options screen and is called *Maximum Days Permitted Between Password Changes*.

Furthermore, you can control how many passwords a subscriber must use before going back to the same password by configuring the *Minimum Number of Password Changes before Repeats*.

### **Password length**

This feature is applicable to the MMUI interface only. MMUI mailbox passwords can be between 4 and 16 digits in length. The greater the number of digits used in a password, the greater the security. You can specify the minimum password length (for each customer group) in the Voice Security Options screen (the default is 4).

### **Secured messaging option (external logon)**

This feature is applicable to the MMUI interface only. External logon is enabled by default, thus allowing users to log on to their mailboxes from phones that are external to the switch. If security is of the highest priority, DMS VoiceMail provides a facility allowing the system to restrict access to a mailbox from an off site location. This option can be ordered from a Northern Telecom sales representative and is implemented by authorized field technicians.

*Note:* Once external logon is disabled on a system, it cannot be re-enabled.

### **Controlling unauthorized access to the administration terminal**

There are two facilities provided for protecting against unauthorized access to the DMS VoiceMail administration terminal: the admin password and hardware-based remote access restriction.

#### **Admin password**

The administration terminal is password protected. When DMS VoiceMail is first installed, there is a default password. The first time you log on to the DMS VoiceMail administration terminal, you are forced to change this default password. You are recommended to change this password on a regular basis to maximize system security. Passwords can be between 1 and 16 characters in length. However, it is recommended that the password be no less than 7 characters in length. The longer the password, the less likely it is that someone will guess it.

Every time the administrator changes the logon password, a SEER (system event and error report) is generated, indicating this change. A SEER is also generated every time there is a failed logon attempt. This allows you to be aware of any attempts to breach the system's security.

See the chapter "Administrator logon" for more information.

Always log off before you leave the administration terminal, even if only for a short period.

You should investigate system security and overall system status whenever any of the following occurs:

- The administration password no longer provides system access (because it has been changed or locked out due to too many invalid logon attempts);
- A SEER indicates that the administrator password was changed (without the administrator's knowledge); or
- A SEER indicates a failed administrative logon attempt.

### **Remote access restriction**

DMS VoiceMail is configured with an internal modem which can be turned on at the local site in order to enable remote access to the system.

*Note:* To ensure the security of your system, do not enable remote access unless absolutely necessary.

If the modem is currently disabled, press **Ctrl-w m** to enable it. This allows access to the system from a remote terminal. While remote access is enabled, you cannot access the system from the local terminal.

To disable the modem (and remote access), press **Ctrl-w m**. This re-enables local access. In this state, the system cannot be accessed from a remote terminal.

See the section "Using a remote terminal" in the chapter "Administrator logon" for more information.

### **Protecting sensitive information**

If your organization uses information-providing services such as voice menus and announcements to disseminate information, you may have certain services which contain sensitive information and which you want to make accessible only to authorized personnel. Added security can be provided for these types of services through the use of access passwords.

An access password can be defined for voice menus, announcements, and thru-dial services. If this password is defined by the administrator, a caller will not be able to access any of these services unless he or she knows the password.

In the case of thru-dial services or voice menus that include thru-dial services, this might be desirable if the thru-dial service allows long distance or international calling. A password, given out only to authorized personnel, will block unauthorized persons from using the thru-dial service.

In the case of information services, such as announcements, voice menus, and voice forms, you can protect sensitive information with an access password so that only authorized people (those who know the password), can gain access to the information.

Access passwords are defined in the following screens:

- Add, View/Modify an Announcement Definition
- Add, View/Modify a Voice Menu Definition
- Add, View/Modify a Thru-Dial Definition

For more information about announcements, voice menus and thru-dial services, see the *Voice Menus Application Guide* (NTP 297-7001-307).

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## Setting up the system

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Once the DMS has been provisioned, you are ready to set up the DMS VoiceMail system. Before beginning, review the site-specific and user-specific information you have prepared using the forms in the *Planning and Engineering Guide* (NTP 297-7001-100).

This chapter outlines general procedures and provides page references to sections that provide detailed information about the various aspects of configuration. Read the appropriate sections before configuring the system.

This chapter only describes those tasks that are carried out at the system administration level. However, the initial configuration of your DMS VoiceMail system will involve both system administration tasks and customer administration tasks. You should therefore have both this document and the *Customer Administration Guide* (NTP 297-7001-301) on hand. Chapter 2, “Setting up customer groups”, describes the necessary procedures for adding customer groups to the system, adding users to customer groups, and customizing the operating characteristics of the customer groups.

To start your configuration of DMS VoiceMail, begin with the basic setup procedure described in Procedure 3-1 to:

- check that DMS VoiceMail is operational;
- change the system administration password;
- define system Classes of Service;
- configure general operating characteristics of the system and
- back up the system with the new configuration information.

After you have completed the basic setup, refer to the other procedures in this chapter when you are ready to configure specific features, some of which are optional and may not be installed on your system. The other procedures in this chapter include:

- Configuring address expansion
- Configuring outcalling features
- Configuring the AMIS Networking Service

- Maintaining and servicing your DMS VoiceMail system

Voice menus and voice forms are configured at the customer administration level. The voice menus feature is documented in the *Voice Menus Application Guide* (NTP 297-7001-307) and the voice forms feature is documented in the *Voice Forms Application Guide* (297-7001-306).

### Guidelines for setting up a multi-customer system

Initial configuration of a DMS VoiceMail system requires that you perform both system administration and customer administration. It is recommended that you perform all of the necessary system tasks at one time and then perform the customer tasks. In this manner, you will avoid going back and forth between the two levels of administration. When doing customer administration, perform all of the tasks necessary for one customer group, then move to the next customer group and perform the necessary administrative tasks for that group. Continue in this manner until you have completed administration of all customer groups.

When you have to perform both system and customer administration tasks, log on with the system administrator password as this will allow you to perform both system and customer administration tasks. If you log on with the customer administrator password, you can only perform administration for customer groups. Passwords and logon are discussed in the next chapter.

### Basic setup procedures

These procedures assume that the system has been planned and engineered and that the DMS translations database has been properly configured to support DMS VoiceMail. For more information, see the *Planning and Engineering Guide* (NTP 297-7001-100) and the *Translations Guide* (NTP 297-7001-310).

The following steps are common to all DMS VoiceMail installations, and are necessary for your system's operation.

#### Procedure 3-1xxx Setting up the system

<b>Step 1. Check the system status.</b>	
From the logon screen, press the [System Status] softkey to ensure that the DMS VoiceMail system is operational.	See page 4-9.
<b>Step 2. Log on and change the system administrator password.</b>	
Log on to the administration terminal with the default password (adminpwd). You are prompted to change the password the first time you try to log on.	See page 4-12.

<b>Step 3. Check the hardware configuration.</b>	
<p>Check the node configuration and data port configuration.</p> <p>From the Main Menu, select Hardware Administration, Node Configuration.</p> <p>If the configuration is incorrect, log on to the TOOLS menu, access HW_Modify and correct the configuration.</p> <p>Check the data port configuration to verify the correct assignment of data devices, especially parameters such as the baud rate and parity for the administration console.</p> <p>From the Main Menu, select Hardware Administration, Data Port Configuration.</p> <p>If the configuration is incorrect, log on to the TOOLS menu, access HW_Modify and correct the configuration.</p>	<p>See page 8-3.</p> <p>See "Hardware Modification" in the <i>System Administration Tools Guide</i>.</p> <p>See page 8-16.</p> <p>See "Hardware Modification" in the <i>System Administration Tools Guide</i>.</p>
<b>Step 4. Configure General Options.</b>	
<p>From the Main Menu select General Administration, General Options. Do the following:</p> <p>Enter the System Name (this is the name that will appear on reports).</p> <p>Define the System DN Length (to enable address expansion). See page 3-4 for detailed instructions for configuring address expansion).</p> <p>Enable SEER printing (if you have a printer attached to the administration terminal). If this is not enabled, SEERs will overwrite the display on your administration terminal.</p>	<p>See page 6-4.</p>
<b>Step 5. Check the Channel Allocation Table.</b>	
<p>The Channel Allocation Table should be properly configured after software installation. However, you may want to check it to ensure that the appropriate Primary DN and Channel DN have been assigned to the T1 channels in your system.</p> <p>From the Main Menu select System Status and Maintenance, Channel Allocation Table.</p>	<p>See page 9-16.</p>
<b>Step 6. Customize voice security options.</b>	
<p>From the Main Menu, select Voice Administration, Voice Security Options.</p> <p>Define restriction and permission codes.</p> <p><b>THIS IS A VERY IMPORTANT STEP! These codes are applied to features like mailbox thru-dial, express messaging thru-dial, custom revert DN, extension dialing, call sender, thru-dialers, and outgoing AMIS messages. All of these features are initially restricted. This means that none of these features will work until you modify the restriction/permission codes to allow certain external phone numbers or internal extension numbers to be dialed.</b></p>	<p>See page 7-3.</p>

<b>Step 7. Define system Classes of Service.</b>	
Classes of Service (COSs) are templates that determine which features users have access to. They must be defined before users are added to the system. Up to 127 COSs can be defined. Classes of Service should reflect the needs of certain types of users, such as managers, secretaries, and sales people (in a centrex environment) or standard, family, and deluxe residential users. Each customer group can have up to 15 classes of service associated with it. Classes of Service are assigned to customer groups in the General Options screen at the customer administration level. From the Main Menu, select Class of Service Administration.	See page 13-3.
<b>Step 8. Configure the operational measurement options.</b>	
This step does not need to be done right away. You may choose to use the default settings at first. Once the system has been in use for a while you can decide if the level of detail is adequate. From the Main Menu, select Operational Measurements, Operational Measurements Options.	See page 10-6.
<b>Step 9. Back up the system.</b>	
Once the system configuration has been customized, back up the new data onto tape to ensure its safety.	See page 6-7.

The remainder of the basic setup tasks are done at the customer administration level. They include:

- creating customer groups;
- adding DNs to the Voice Service DN Table;
- assigning an Attendant DN to each customer group;
- assigning classes of service to each customer group
- adding users to customer groups; and
- creating distribution lists.

To continue with the basic setup, see the chapter “Setting up customer groups” in the *Customer Administration Guide*. However, while you are still logged on as system administrator, you may want to configure system-wide parameters for some of the features described in the remainder of this chapter.

### Address expansion

Because local DN lengths are likely to be shorter than full system DN lengths, you can use address expansion to make it more convenient for subscribers during mailbox login and message addressing. This feature is used to mimic addressing by telephone number since mailbox numbers actually correspond to the full network DN. In North America, the standard network DN length is 10 digits (in the form NPA-NNX-XXXX).

Address expansion applies to MMUI subscribers as well as VMUIF subscribers who are assigned to a class of service in which Compose Capability is set to “Yes”.

For example, if the system DN length is 10, and a subscriber is addressing a message to another user in the same customer group (with local DN 2339), the subscriber only needs to enter the local DN (2339), not the full system DN. If address expansion is not set up, subscribers will have to enter full DNs during mailbox login, express messaging and message composition.

For residential customer groups, subscribers can be allowed to enter the 7-digit numbers they are used to. In private customer groups, subscribers can enter their local 4-digit extensions. In each case, the shorter address is expanded out to the full 10-digit network DN, which is also the mailbox number.

The following fields are used to configure address expansion:

- **System DN Length** - This field is located in the General Options screen (accessed from the General Administration menu) at the system administration level.

The system DN length is the length of the DNs that are configured on the DMS switch. In North America, the standard network DN length is 10 digits (in the form NPA-NNX-XXXX).

- **Local Addressing Lengths** - This field is located in the Voice Messaging Options screen, accessed from the Voice Administration menu at the customer administration level. The local addressing length is the local DN length for the customer group. Up to two addressing lengths can be defined for each customer group.

Address expansion occurs only when the address entered by the subscriber is of a local DN length.

For residential customer groups, the local addressing length is usually 7 digits. For private customer groups, it is usually 4 digits.

The actual expansion digits are defined in the following fields. These fields are located in the Add DN Information screen. This screen can only be accessed by the customer administrator by selecting Voice Administration, Voice Services-DN Table, from the Customer Administration menu. Once the DNs have been defined, they can be modified from the system administration level in the View/Modify DN Information screen.

- **Voice Messaging Expansion Digits** - During message composition, if a subscriber enters an address that is less than the system DN length and equals one of the defined local addressing lengths for the customer group, the entered address is prefixed with the digits entered in this field in order to expand it out to the full network DN.

- **Express Messaging Expansion Digits** - During express messaging, if a subscriber enters an address that is less than the system DN length and equals one of the defined local addressing lengths for the customer group, the entered address is prefixed with the digits entered in this field in order to expand it out to the full network DN.

A third field, Enforce Dial, is associated with the expansion digits fields in the Add DN information screens:

- **Enforce Dial** - Enforce dial applies only to logging in (in the case of voice messaging) and when entering mailbox numbers for express messaging. The subscriber is not allowed to enter a full-length system DN that conflicts with the expansion digits. The following example illustrates how enforce dial is used. The address expansion digits are set to the NPA (area code). A subscriber calls into the system from an outside phone to log in and pick up messages. If the caller enters a full system DN (10 digits long) to log in from outside the NPA, the entered address is considered invalid.

**Examples:**

The System DN Length is 10 (e.g., 416-555-2337).

The local addressing length for Customer 50 (a private customer group), is four. The expansion digits for voice messaging and express messaging are 416555.

The local address length for Customer 100 (a residential customer group), is seven. The expansion digits for voice messaging and express messaging are 416.

A subscriber in Customer 50 enters a 10-digit address during message composition. The address is not expanded since it matches the system DN length.

A subscriber in Customer 100 enters a 7-digit address during message composition. The address is expanded to 10-digits using the expansion digits defined in the *Voice Messaging Expansion Digits* field.

A subscriber in Customer 50 enters a 5-digit address during message composition. The address is not expanded to the full 10-digit network DN since it is not of a local DN length.

Enforce dial is enabled for voice messaging in Customer 100. A subscriber enters 514-575-2115 to log on to voice messaging. Because this is in conflict with the expansion digits (416) defined for voice messaging, the subscriber is not permitted to log on. (If enforce dial had not been enabled, the subscriber would be able to log on in this example.)

**Procedure 3-2xxx**  
**Enabling address expansion**

<b>Step 1. Define the System DN Length.</b>	
Log on as system administrator and select General Administration. From the General Administration menu, select General Options. Enter the system DN length in the <i>System DN Length</i> field.	See page 6-2.
<b>Step 2. Define local addressing lengths for each customer group.</b>	
Log on as customer administrator and select a customer group. Select Voice Administration from the Customer Administration menu. From the Voice Administration menu, select Voice Messaging Options. Enter up to two local DN lengths in the <i>Local Addressing Lengths</i> field. Repeat this procedure for each customer group.	See the section "Voice Messaging Options" in the <i>Customer Administration Guide</i> (NTP 297-7001-301).
<b>Step 3. Define the expansion digits for the Voice Messaging and Express Messaging VSDNs for each customer group.</b>	
Log on as customer administrator and select a customer group. Select Voice Administration from the Customer Administration menu. From the Voice Administration menu, select Voice Services Administration, Voice Services-DN Table. Use the [Add] softkey to add the Voice Messaging DN to the VSDN table. In the Add DN Information screen, enter the expansion digits for VM (and optionally enable Enforce Dial). Repeat this procedure for the Express Messaging VSDN.	See the section "The Voice Services-DN Table" in the <i>Customer Administration Guide</i> (NTP 297-7001-301).

## Setting up the Outcalling feature

The Outcalling feature refers to two functions. The first allows DMS VoiceMail users to be notified of new messages at remote phone or pager numbers and is known as Remote Notification (RN). The other feature, Delivery to Non-Users (DNU) allows users to compose and deliver messages to non-users of DMS VoiceMail. You may not have to change any of the parameters if you find that the default values are adequate. However, you should look over the default configuration to ensure that your specific requirements are met. Remember that the following configuration will affect all customer groups on the system.

See the *Outcalling Application Guide* (NTP 297-7001-308) for details.

## Setting up optional features

DMS VoiceMail provides a number of optional features including Voice Menus, Voice Forms, and AMIS Networking.

### Voice Menus

The voice menus feature is optional and may not have been installed on your system. If it is installed, the voice menus feature allows you to create announcements, thru-dialers, time-of-day controllers and voice menus. These applications can only be created at the customer administration level. Once created, they can be maintained (or deleted) by both the customer administrator and the system administrator.

See the *Voice Menus Application Guide* (NTP 297-7001-307) for details.

### Voice Form Applications

Voice forms are an optional feature and may not be installed on your system.

Voice forms can only be created and maintained at the customer administration level. The *Voice Forms Application Guide* (NTP 297-7001-306) provides detailed procedures for configuring voice forms. Please refer to this document.

### AMIS Networking

AMIS networking is an optional feature and may not have been installed on your system.

As explained in detail in the chapter “AMIS Networking”, you do not have to configure a DN specifically for AMIS networking because both voice menus and thru-dialers can accept incoming calls and pass them on to the appropriate AMIS agent. The only requirement is that the voice menu or thru-dialer have DID access. If the voice menus feature is not enabled, or if none of your voice menus/thru-dialers have DID access, you will have to configure a DN specifically for the AMIS service in the VSDN table.

**Procedure 3-3xxx**  
**Configuring the AMIS Networking service**

<b>Step 1. Enable AMIS networking in some of the system Classes of Service.</b>	
<p>To allow users to receive and/or compose and send AMIS messages, you must enable AMIS networking functions in some of your Classes of Service and then assign those users that require AMIS functions to the appropriate Class of Service (COS).</p> <p>From the Main Menu, select Class of Service Administration, [Add].</p> <p>Set the fields <i>Receive AMIS messages</i> and <i>Compose/Send AMIS messages</i> to "Yes".</p> <p>Choose the restriction/permission codes that are to apply to AMIS calls.</p>	See page 13-22.
<b>Step 2. Configure AMIS networking information.</b>	
<p>From the Main Menu, select Network Administration, View/Modify AMIS Networking to access the View/Modify AMIS Networking Information screen.</p> <p>Configure the AMIS Compose prefix.</p> <p>Configure the Country Code and Area/City Code for the System Access Number.</p> <p>Configure the permitted time periods for outgoing messages.</p> <p>Configure prefixes for public dialing, long distance dialing, and international dialing.</p> <p>The following parameters are configured with default values which may not have to be changed. Check the defaults. If they are not suitable, change them.</p> <p>Configure the wakeup interval, batch threshold, and networking call maximum.</p> <p>Configure initiation time for economy class messages.</p> <p>Configure the holding times for standard class and urgent class messages.</p> <p>Configure the stale times for economy, standard and urgent messages.</p> <p>Specify whether or not co-resident office codes are required.</p>	See page 11-14.

To complete the setup of AMIS networking, you must log on as customer administrator to perform the following tasks:

- configure the AMIS compose prefix
- configure the Local Number (part of the System Access Number)
- make the AMIS service available by either:
  - having a voice menu or thru-dialer with DID access accept incoming AMIS calls (this requires that you set the Act on AMIS Initiation Tone to "Yes" in the Voice Services Profile)

- create a DN specifically for the AMIS service in the VSDN table (this requires an available line DN, or a UCD queue if you want to dedicate agents to the AMIS service) on the DMS.

See the chapter “Setting up customer groups” in the *Customer Administration Guide* for details.

## Routine maintenance and service procedures

The following steps are carried out regularly to ensure efficient operation of your system and to anticipate future needs concerning system capacity and types of services offered to users.

### Procedure 3-4xxx

#### Maintaining and servicing your DMS VoiceMail system

<b>Step 1. Monitor DMS VoiceMail operation.</b>	
Check the performance of your DMS VoiceMail system periodically to ensure that efficient use is made of the voice services provided on your system.	See the “Operational Measurements” chapter.
<b>Step 2. Monitor DMS VoiceMail hardware.</b>	
Check the operation of DMS VoiceMail hardware periodically, or when a problem is reported by the system.	See the “System Status and Maintenance” and “Hardware Administration” chapters.
<b>Step 3. Modify user information.</b>	
User information can change periodically, due to relocation, change in classification, or the addition of new equipment and services. Such changes need to be reflected in the user information.  Note: This is done at the customer administration level.	See the sections about administering users and modifying distribution lists in the “User Administration” chapter in the <i>Customer Administration Guide</i> .
<b>Step 4. Back up the system.</b>	
When changes are made to your system, back up the new data to ensure its safety.	See “Volume Administration (tape backups)” in the “General Administration” chapter.

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## Administrator logon

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Once the DMS VoiceMail system has been installed and the software is loaded, you are ready to log on to the system to gain access to the system and customer administration menus, the starting point for initial setup of the system, customers and general administrative functions.

Administrative functions can be carried out from the main administrative console attached to your DMS VoiceMail system or from a remote terminal connected to the system through a modem. Up to three Multiple Administration Terminals (MATs) are supported. However, only a limited number of administrative tasks can be performed on a MAT as opposed to the main administration terminal. These tasks include user administration (adding, modifying and deleting mailboxes), class of service (COS) administration (note that all COS screens are read-only) and voice services administration (which includes administration of the Voice Services-DN (VSDN) Table and creating, modifying and deleting voice services such as announcements, voice menus, thru-dialers, time-of-day controllers, and voice forms). See *System Administration Tools* (NTP 297-7001-305) for more information about configuring MATs.

**Note:** In the previous release of DMS VoiceMail, MATs were referred to as UATs (user administration terminals).

A remote administration configuration is shown in Figure 4-9. If your installation uses this feature for the purpose of support from service personnel, you must coordinate remote administration sessions. See “Using a remote terminal” later in this chapter.

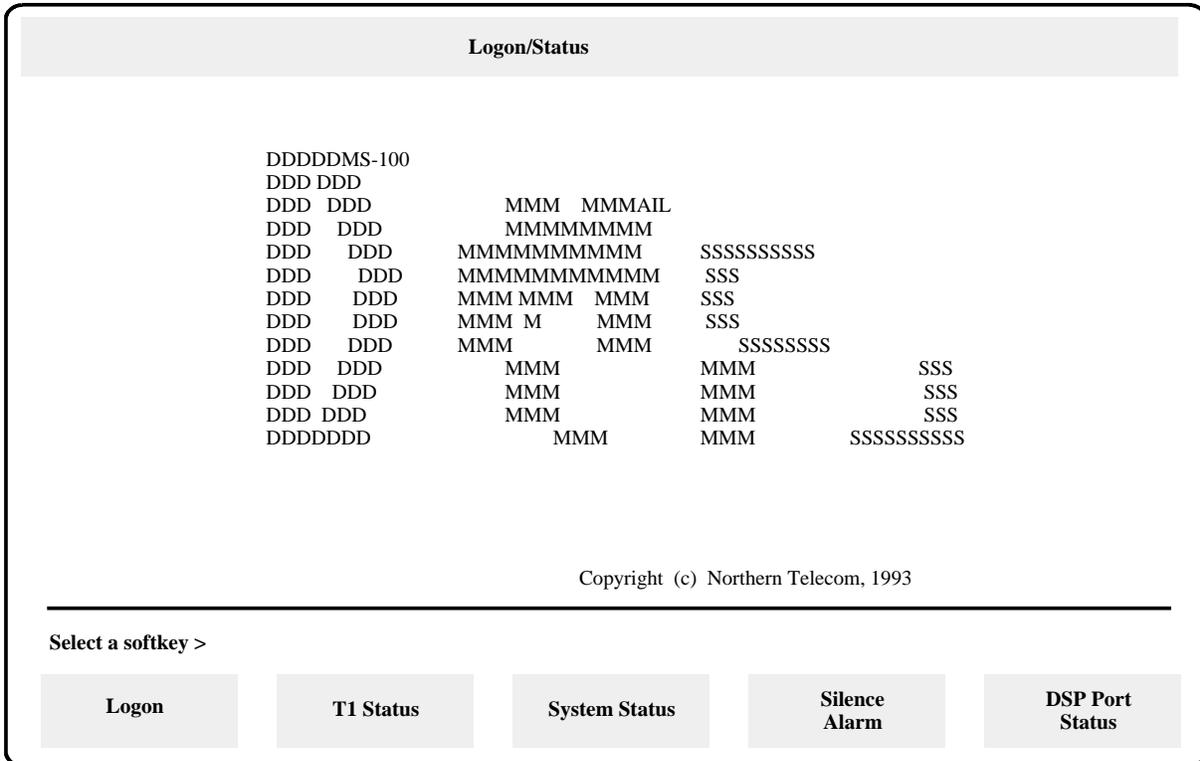
### The Logon/Status screen

The Logon/Status screen (Figure 4-1) appears when the administrative terminal is idle. From the Logon/Status screen you can log on at one of two levels. You may log on as the system administrator to perform administration on a system-wide basis or you may log on as the customer administrator to enter or update customer-specific data only.

## 4-2 Administrator logon

From the Logon/Status screen (Figure 4-1), you can log on to the administration console to set up and maintain your customer groups, configure various voice services, or use the softkeys on the Logon/Status screen to view the system status, T1 status, DSP port status screens, or silence any alarms.

**Figure 4-1xxx**  
**The DMS VoiceMail Logon/Status screen**

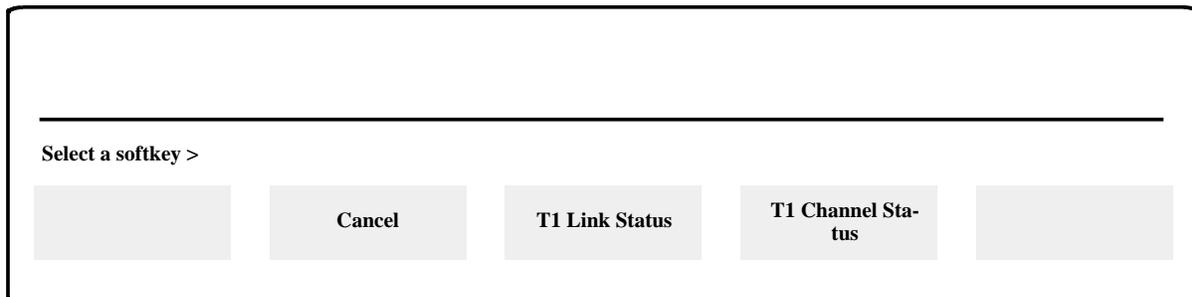


**Note:** Sometimes when you power down your terminal and then power it back up, the screen is drawn incorrectly. Instead of the line that appears near the bottom of the screen (above the softkeys), a row of “q”s appears instead. Should this ever happen, do the following in order to redraw the screen: Press Ctrl-w (a small window opens up). Type **if**. (You do not have to press <Return>. The “i” means initialize and the “f” means full screen.)

## T1 Status

When the T1 Status softkey is pressed, a new row of softkeys is displayed. These are shown in Figure 4-2.

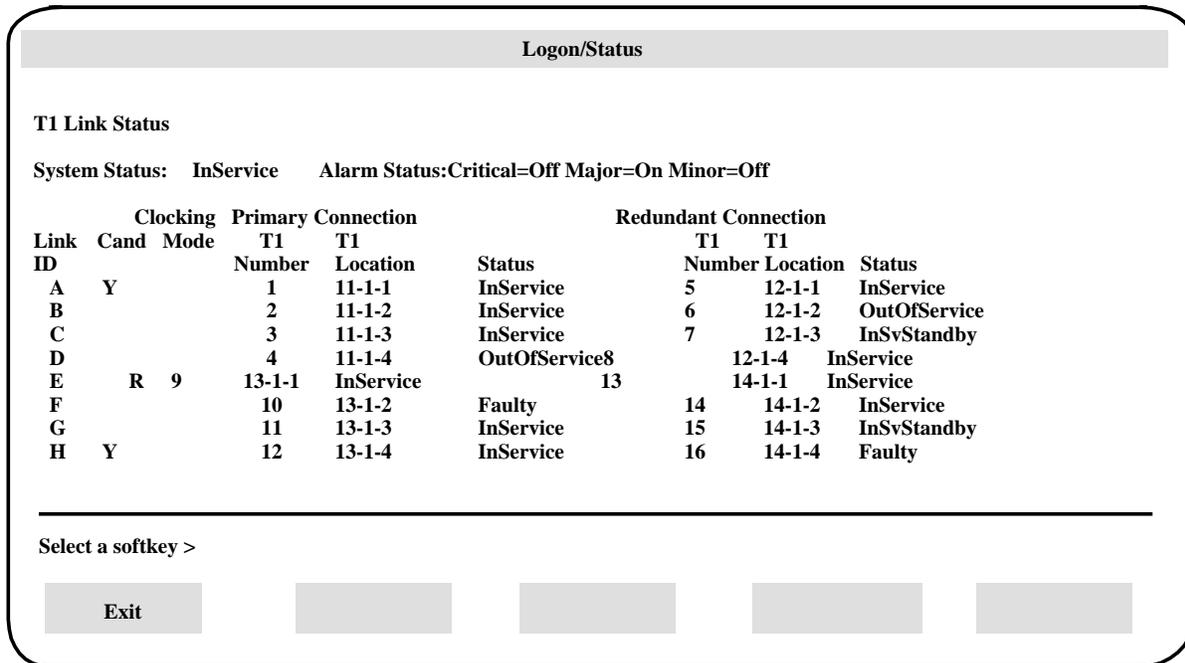
**Figure 4-2xxx**  
**The T1 Status softkeys**



### T1 link status

Use the [T1 Link Status] softkey to view the operational status of the T1 links on the system. The data displayed in this T1 Link Status screen is identical to the T1 Link Status screen in System Status and Maintenance (Figure 4-3). It is, however, read-only when accessed from the logon screen. Only the [Exit] softkey is displayed and you, therefore, cannot disable or enable any links from this screen. This can only be done when the screen is accessed from System Status and Maintenance.

**Figure 4-3**  
The T1 Link Status screen



The following fields are displayed:

- System Status** - This field displays the current system status. Y our system can be in one of the following states:

  - **InService** indicates that all critical programs on all nodes are operational and the system is accepting calls.
  - **CourtesyPending** indicates that the system is in the process of shutting down. This occurs after using the [Courtesy Down System] softkey in System Status and Maintenance. Incoming calls are directed to an attendant. Calls in progress are not interrupted. Each port is disabled as it becomes idle. The software remains loaded.
  - **CourtesyDown** indicates that the system has shut down and is no longer operational nor accepting calls.
  - **Loading** indicates that the system is loading software while booting up.
- Alarm Status** - This field indicates the state of each of the following alarm categories:

**Critical** alarms indicate a service-affecting problem that requires immediate attention.

**Major** alarms indicate a service-threatening problem that may be allowed to persist (for up to 24 hours). If not attended to, the alarm will become critical.

**Minor** alarms indicate a problem that has no impact on the system or users.

The status for each type of alarm will be one of the following:

- **Off** indicates that there are no new alarms. This does not necessarily mean that there are no error conditions as alarms may have been silenced from the Logon/Status screen, but the error conditions causing the alarm may still exist.
- **On** indicates that one or more alarm situations was detected.
- **Unk** indicates that the status is unknown.
- **Link ID** - An alphabetic designation used to identify the T1 link in your system. This corresponds to the Link ID in the T1 Link Configuration screen in Hardware Administration. For more information about the T1 Link Configuration screen, refer to the “Hardware Administration” chapter in the *System Administration Guide*.
- **Cand** - A “Y” in this field indicates that the link has been nominated as a candidate for clock referencing. A candidate is nominated from the T1 Link Setup screen in Hardware Administration. See the section “Modifying the T1 link setup” in the “Hardware Administration” chapter of the *System Administration Guide* for more information about clock referencing.
- **Clocking Mode** - The currently activated clock reference is indicated with an “R” in this field. A link is activated by using the [Change T1 Clocking Mode] softkey as described in Procedure 9-8 in the “System Status and Maintenance” chapter. If none of the links are activated as the clock reference, the system is in free-run mode, meaning that the system is using the internal SPM clock.
- **Primary Connection T1 Number** - The number of the primary T1 connection within the specified T1 link.
- **Primary Connection T1 Location** - The location of the primary T1 connection in the system. This number represents the location in terms of the node-card-span.
- **Primary Connection Status** - The current state of the primary T1 connection.
  - **UnEquipped** indicates that the link is not defined in the hardware database. For more information about modifying the hardware database, see the *System Administration and Maintenance Tools Guide* (297-7001-305).
  - **Faulty** indicates that a hardware problem has been detected on the connection.

- ***InSvY elAlarm*** indicates that the T1 link is in service but has lost signaling with the far end.
- ***InSvRedAlarm*** indicates that the T1 link has lost the signaling with the near end.
- ***InService*** indicates that the T1 connection is fully operational and is currently accepting calls.
- ***InSvStandby*** indicates that the connection is not currently taking calls but is ready to accept calls for the paired T1 connection on the same T1 link.
- ***OutOfService*** indicates that the connection is not operational due to a forced disable.
- ***Pending*** indicates that the connection is in the process of shutting down or restarting.
- ***Redundant Connection T1 Number*** - The number of the secondary T1 connection within the specified T1 link.
- ***Redundant Connection T1 Location*** - The location of the secondary T1 connection in the system. This number represents the location in terms of the node-card-span.
- ***Redundant Connection Status*** - The current state of the secondary connection. See the descriptions for the *Primary Connection Status* field.

**Procedure 4-1xxx**

**Viewing the T1 link status**

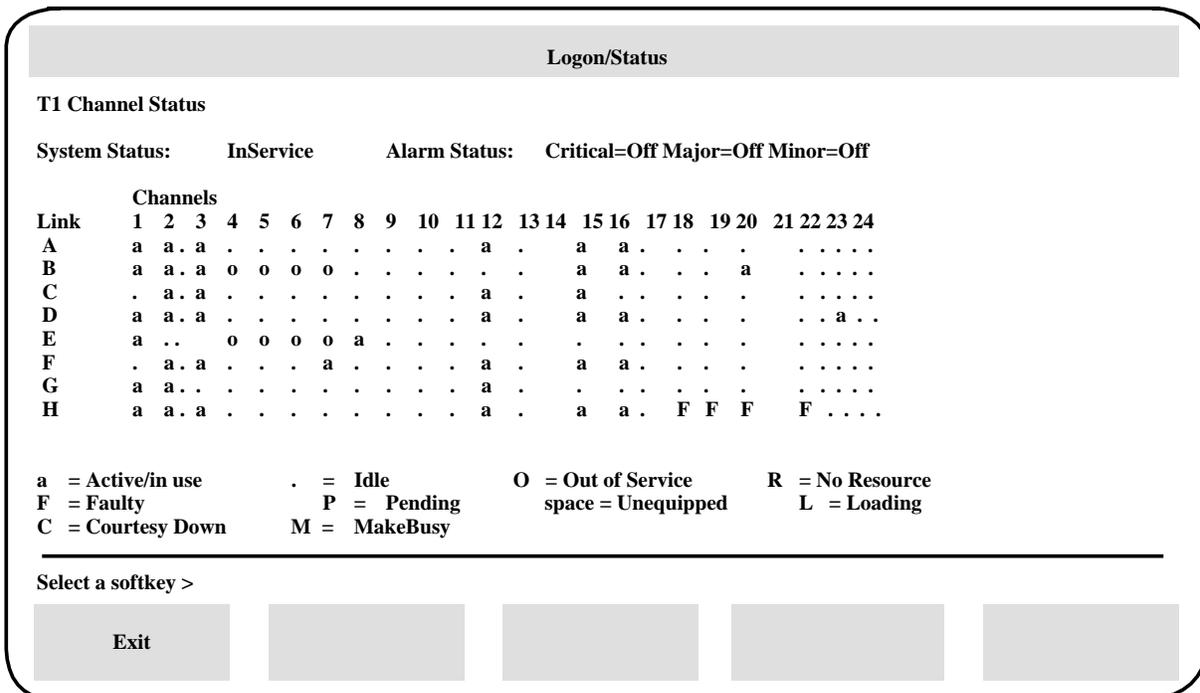
**Starting point:** The Logon/Status screen.

- 1 Press the [T1 Status] softkey.  
*A new row of softkeys is displayed.*
- 2 Press the [T1 Link Status] softkey.  
*The T1 Link Status screen is displayed.*
- 3 Select [Exit].  
*A new row of softkeys is displayed.*
- 4 Select [Cancel] to return to the Logon/Status screen.

### T1 channel status

Use the [T1 Channel Status] softkey to view the operational status of the T1 channels in the system. This screen is identical to the T1 Channel Status screen in System Status and Maintenance, except that it is read-only when accessed from the logon screen (you cannot enable or disable channels). For more information about System Status and Maintenance, refer to the “System Status and Maintenance” chapter.

**Figure 4-4**  
The T1 Channel Status screen



The following fields are displayed on the T1 Channel Status screen:

- **System Status** - See the description in the section “T1 link status”.
- **Alarm Status** - See the description in the section “T1 link status”.
- **Link** - The ID of the T1 link. This is an alphabetic character.
- **Channel Status** - The current state of each channel, indicated by a single-character code (a legend for the codes is at the bottom of the screen).
  - **Active/in use** indicates that the T1 channel is operational and in use.
  - **Idle** indicates that the channel is operational but not currently in use.
  - **OutOfService** indicates that the channel is no longer operational.
  - **No Resources** indicates that the T1 channel is available, but there is no software associated with it.

- **Faulty** indicates that the system has detected an error in the channel.
- **Pending** indicates that the channel is in the process of shutting down or restarting.
- **Unequipped** indicates that the channel is not defined in the hardware database. For more information about modifying the hardware database, see *System Administration Tools* (297-7001-305).
- **Loading** indicates that the channel is currently starting up after a request to enable and that the necessary software is loading.
- **Courtesy Down** indicates that the channel is in a courtesy down state as a result of performing a Courtesy Down System. The channel does not accept calls in this state.
- **MakeBusy** indicates that the channel is in a maintenance-busy state (being used for maintenance procedures). The channel does not accept calls in this state.

**Procedure 4-2xxx**

**Viewing the T1 channel status**

**Starting point:** The Logon/Status screen.

- 1 Press the [T1 Status] softkey.  
*A new row of softkeys is displayed.*
- 2 Press the [T1 Channel Status] softkey.  
*The T1 Channel Status screen is displayed.*
- 3 Select [Exit].  
*A new row of softkeys is displayed.*
- 4 Select [Cancel] to return to the Logon/Status screen.

## System Status

The System Status screen (Figure 4-5) is displayed when you press the [System Status] softkey on the Logon/Status screen. The System Status screen is a read-only screen that dynamically updates when the status of the system, system nodes or DSP ports changes. If you have to courtesy down the system, you must access the System Status screen from the System Status and Maintenance menu. See “System Status” in the chapter “System Status and Maintenance”.

**Figure 4-5xxx**  
**System Status screen**

Logon/Status										
System Status: InService					Alarm Status: Critical=Off Major=Off Minor=Off					
Last Event: 60-00 PRM: All System Programs Started								5/31 14:03		
Node	Node	DSP Port/Channel Status				Storage			Used	Text
		Status	Active	Idle	OutSv	Faulty	Pending	Others		
1	MSP	InService								
2	MSP	InService								
3	SPN	Faulty	0	0	0	12	0	0	0	32%40%
4	SPN	OutOfService	0	0	12	0	0	0	0	41% 6%
Select a softkey >										
Exit									Next Set of Nodes	

For a description of the fields displayed in the System Status screen, refer to the section “System Status” in the “System Status and Maintenance” chapter.

**Procedure 4-3xxx**  
**Viewing the system status**

**Starting point:** The Logon/Status screen.

- 1 Press the [System Status] softkey to view the status of your system.
- 2 To view the status for the nodes that are not currently displayed, use [Next Set of Nodes].

*The [Next Set of Nodes] softkey is replaced by the [Previous Set of Nodes] softkey when the last set of nodes has been displayed.*

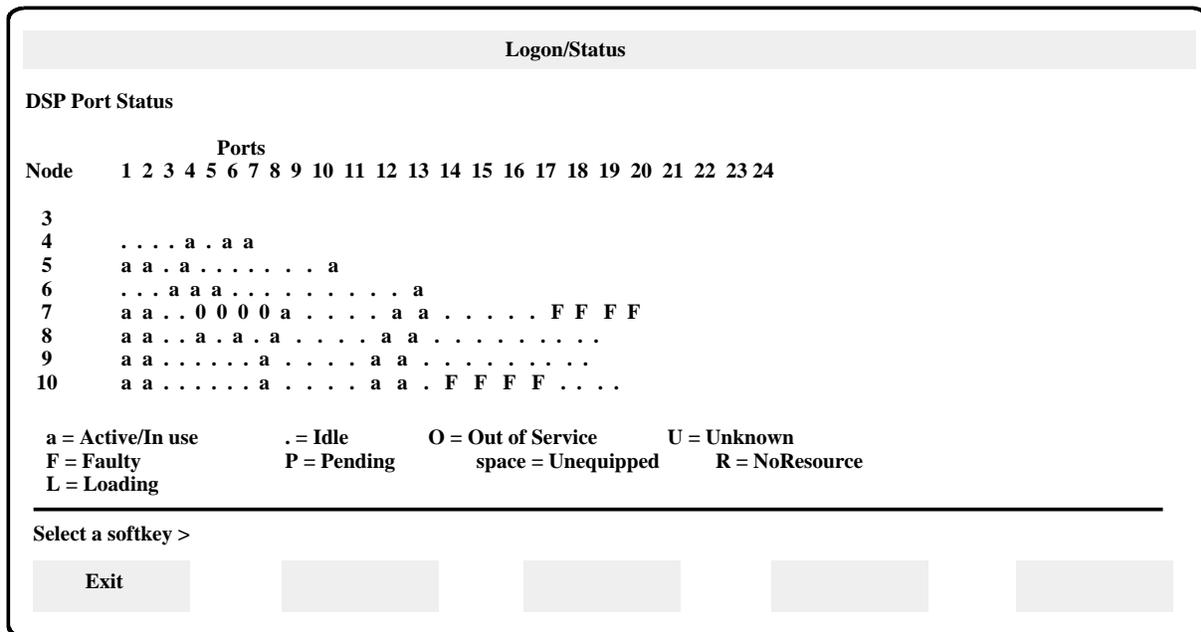
- 3 Use [Exit] to return to the Logon/Status screen.

**DSP Port Status**

The DSP Port Status screen (Figure 4-6) is displayed when you press the [DSP Port Status] softkey on the Logon/Status screen. This screen is read-only. It is dynamically updated as the status of your DSP ports change. If you suspect that one of your ports is not functioning properly, check this screen. For more information about this screen, see the chapter “System Status and Maintenance”.

The example shown in Figure 4-6 illustrates the status for each DSP port with varying numbers of ports per node. Each node can have up to 24 DSP ports.

**Figure 4-6xxx**  
**The DSP Port Status screen**



**Procedure 4-4xxx**  
**Viewing the DSP Port Status screen**

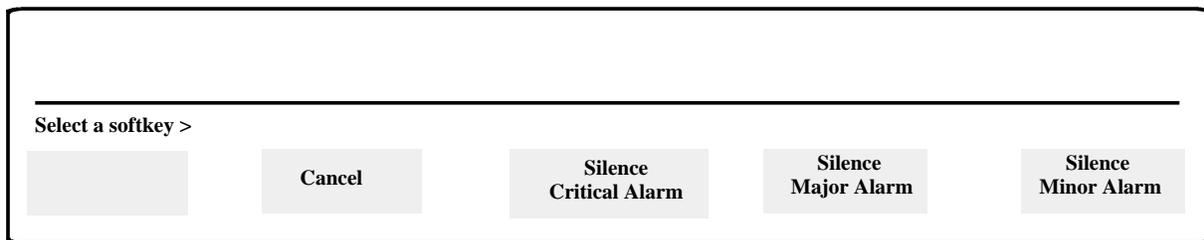
**Starting point:** The Logon/Status screen.

- 1 Press the [DSP Port Status] softkey to view the status of system DSP ports.
- 2 Use [Exit] to return to the Logon/Status screen.

## Silencing Alarms

When the system sounds an alarm, you may silence it using the [Silence Alarm] softkey on the Logon/Status screen. When this softkey is pressed, the softkeys displayed in the following figure are displayed.

**Figure 4-7xxx**  
**The Silence Alarm softkeys screen**



An alarm will sound if the corresponding severity level SEER is issued indicating that a problem exists. By using the appropriate softkey you can silence either critical, major, or minor alarms. The [Cancel] softkey causes the original set of softkeys to be displayed without silencing any alarms. Try to clear the problem as well or the alarm could be turned on again if you simply silence it. Alarms persist until you silence them. (There is no timeout period after which they are turned off by the system.)

For more information on alarms, refer to the *Trouble locating and alarm clearing procedures* (NTP 297-7001-503) and the *Maintenance Messages* manual (NTP 297-7001-510).

## Passwords

There are two passwords which give you access to DMS VoiceMail administration: the system administrator password and the customer administrator password. (Note that there is only one customer administration password. It is used to log on to all customer groups.) When you log on as the system administrator, you will have the opportunity to select customer administration. If you choose to do customer administration, you will have access to customer-specific parameters only. Customer Administration is described in the *Customer Administration Guide* (NTP 297-7001-301).

**Note:** To ensure system integrity, the system administration password should only be known to those who are responsible for the entire system.

## Logging on

When you press the [Logon] softkey you are prompted for a password. At this point you can choose to log on as system administrator or customer administrator. If you log on with the system administrator password, you will have access to both system-wide parameters as well as customer-specific parameters. However, if you log on with the customer administrator password, you will only have access to those parameters that affect customer groups. If you need to perform both system and customer administration in a single administration session, it is recommended that you log on with the system administrator password. If you log on with the customer administrator password and then decide to perform system administration tasks, you will have to log off and then log back on with the system administrator password.

When logging on for the first time, enter the default system administrator password **adminpwd**. (To log on as customer administrator at the main administration terminal or at a MAT, use the default password **custpwd**.) You will be prompted for a new password immediately after you log on for the first time. The system does not allow you to log on unless you have changed the default password. (See the chapter “Administrator logon” in the *Customer Administration Guide* (NTP 297-7001-301) for more information about logging on with the customer administrator password.)

The customer administrator password is used to access all customer groups. It is not possible to create a separate password for each customer group. This is also the password that is used to log on to a Multiple Administration Terminal (MAT). If this password is changed at one terminal, it automatically changes for all terminals.

Passwords can be up to 16 characters in length. It is recommended that the password be no less than 7 digits in length for added system security. The longer the password, the less probable it is that someone will manage to guess it correctly.

You should continue to change the logon password on a regular basis to ensure the security of your system. In the future, you will change the password from the General Administration menu.

### **Procedure 4-5xxx**

#### **Logging on with the system administrator password**

**Starting point:** The Logon/Status screen.

- 1 Press [Logon]. Enter the system administrator password and press <Return>. (The default is adminpwd.) If the system has been down due to a power outage or some other problem, the system prompts you to enter the date and time. Enter the date and time in the format indicated, with leading zeroes, slashes, and colon (e.g., 31/01/89 09:35).

If an invalid password is entered, an error message appears. Try logging on again.

**Note:** If you are logging on for the first time, you will be prompted to change the default password. To do so, enter a new password and press <Return>. You are prompted to re-enter the password for verification. Enter the password again and press <Return>. If you entered the password incorrectly the second time, you will have to enter the new password again.

The Main Menu is displayed (Figure 4-8). From the Main Menu you will specify the specific administrative task you want to perform, such as configuring voice services, backing up your system, checking your hardware configuration, reading traffic reports, and performing system maintenance. The various administrative tasks are described throughout the rest of this guide.

- 2 Use [Logoff] to return to the Logon/Status screen.

**Note:** An unsuccessful logon attempt is automatically recorded in the system log file. As a security precaution, after a third unsuccessful attempt to log on, the system forces a ten minute delay before a further logon attempt will be accepted. Only your Northern Telecom representative has the requisite privileges to gain access to the system during the lockout period.



#### **CAUTION**

##### **If you forget your password**

If you have forgotten your password, you will have to reboot the system from the install tape. When the system boots from the tape, an item is presented which allows you to reset the password to the original default. Once this has been done, the install tape can be removed from the tape drive and the system will reboot from the disk. Once the system is up, use the default password to log on. You will be prompted to change it immediately. Use a memorable yet non-obvious password.

## Logging on at a Multiple Administration Terminal (MAT)

If the Multiple Administration Terminal feature is configured, your DMS VoiceMail system can support up to four administration terminals (one main administration terminal and up to three secondary terminals). When you log on to a secondary terminal, you can perform User Administration and Voice Services Administration. Class of Service Administration is available as a series of read-only screens.

Use the customer administrator password to log on to a secondary terminal (the default is **custpwd**). If you enter the system administrator password at a secondary terminal, it will be rejected. You can only change this password at the main administration terminal. A password change is automatically carried over to all configured MATs.

See the *Customer Administration Guide* for more information about logging on to a multiple administration terminal.

## The Main Menu

The Main Menu (Figure 4-8) is displayed after a successful logon. This menu is a routing menu from which you can select the type of administrative function you require.

**Note:** For security and memory usage reasons, do not leave the administrative console unattended while you are logged on. Also, remember to log out at night. If you do not log out, critical audit and backup routines may not be able to run due to insufficient memory.

**Figure 4-8xxx**  
**The Main Menu**

**Main Menu**

- 1 **General Administration**
- 2 **Voice Administration**
- 3 **Hardware Administration**
- 4 **System Status and Maintenance**
- 5 **Operational Measurements**
- \* 6 **Network Administration**
- 7 **Customer Administration**
- 8 **Class of Service Administration**

---

Select an item >

Exit

\* This option is displayed only if AMIS Networking is installed.

**Procedure 4-6**  
**Using the Main Menu**

**Starting point:** The Main Menu.

- 1 Choose an item by entering its number and pressing <Return>.
 

*The appropriate menu appears. See the following chapters for details:*

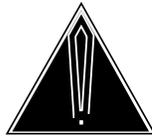
  - “General Administration”;*
  - “Voice Administration”;*
  - “Hardware Administration”;*
  - “System Status and Maintenance”;*
  - “Operational Measurements”*
  - “Network Administration” (if AMIS networking is installed)*
  - “Customer Administration” (described in the Customer Administration Guide)*
  - “Class of Service Administration”*
- 2 Carry out the required administrative functions, then return to the Main Menu; repeat step 1 to carry out additional administrative tasks, or proceed to step 3.
- 3 Use [Exit].
 

*The Logon/Status screen is redisplayed.*

## Resetting the system time

It is possible that the system time may be undefined, as may happen when a time signal is not provided by the switch to which DMS VoiceMail is connected or when a time signal is provided but the link to the switch is temporarily down. In both cases, the system automatically prompts you for the correct time. You cannot proceed with administrative functions unless the system date and time are defined.

You may be required to enter the time at the Logon/Status screen, under unusual circumstances such as power outages. At other times, you can perform optional system time changes as desired. See “Changing the system time” in the chapter “General Administration” in the *System Administration Guide*.



### CAUTION

#### Setting the time ahead

If you set the time ahead by a number of days (if for example, the current time is incorrect or you are testing time of day controllers), all read messages that meet the *Read Message Retention Value* (set in the Add or View/Modify Class of Service screen) will be deleted. For example, today is December 9th and the read message retention limit is 7 days. You set the time ahead by 48 hours (2 days). Any messages that are currently 5 or 6 days old will be deleted during the next nightly audit.

### Procedure 4-7 Resetting the system time

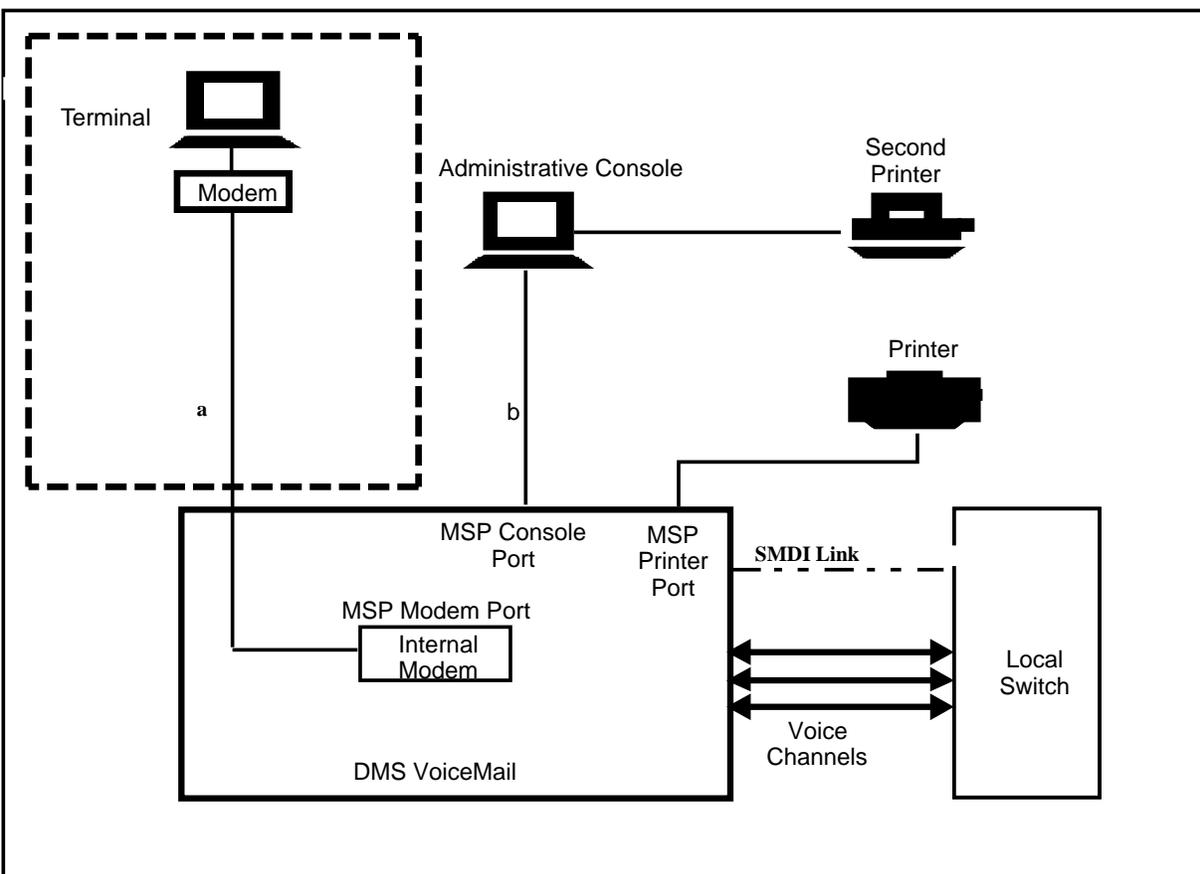
**Starting point:** Logon/Status screen, system time incorrect or undefined after logon.

- 1 You are prompted for the correct time. Enter the date and time in the format indicated, with leading zeroes, slashes, and colon (e.g., 31/01/89 09:35).  
*The Main Menu is displayed.*
- 2 Use [Cancel] if you choose not to set the system time.  
*The password prompt is redisplayed.*  
*You may wish to investigate the source of the time discrepancy; see DMS VoiceMail Trouble-locating and alarm-clearing procedures (NTP 297-7001-503).*

## Using a remote terminal

If your installation has a remote terminal installed for service personnel, as shown in Figure 4-9 (Connection Option a), the remote access user can log on to the system to perform administrative functions once remote access has been enabled at the local terminal. While a remote logon is in effect, no administrative functions can be carried out from the local console. (When remote access is disabled, a remote user cannot log in to the system.) You should therefore schedule remote logins with the remote user for a time when you will not require access to the system.

**Figure 4-9xxx**  
A typical remote administration configuration



“Appendix C: Remote Access” in the *System Application Software Installation and Modification Guide* (NTP 297-7001-504) provides information needed to set up a remote terminal and modem.

**Procedure 4-8xxx**  
**Enabling/disabling remote access**

**Starting point:** The Logon/Status screen, at the local system administration console.

- 1 To bring up the COBRAVT selection window, enter **Ctrl-w** (while holding down the <Ctrl> key, press <w>).

**Note:** For help using COBRAVT, type a question mark (?). A help screen is displayed.

- 2 Type **m** (case does not matter).
- 3 Notify the user at the remote terminal.

*The Logon/Status screen appears at the remote console.*

*The remote user hits the <Break> key to gain control of the console.*

*The remote user enters the administration password to gain access to the system.*

*The administrative functions described in this manual are identical when viewed from the local or remote administrative terminal.*

- 4 To disable remote access, repeat steps 1 and 2 at the local administration terminal.

*Control is returned to the local console, and the Logon/Status screen is redisplayed.*

*You can terminate a remote logon by entering **Ctrl-w m** at the local console at any time during the remote log on.*

**Note:** *This may cause data loss if the remote administrator is in the process of changing system data and a save was not performed.*

## On-line Help

As described earlier in the chapter “Understanding DMS VoiceMail administration”, on-line help is available for most of the menus and administration screens, including the Main Menu. The <Help> key on the keyboard can be used to display information in whichever screen you are working. If you require help with a screen, press the <Help> key. The system will display explanations of all the fields on the menu or screen in which you are working. When you are done, use the [Exit] softkey on the Help screen to return to the screen in which you were working.

---

# Making recordings

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## The call answering greeting and personal verifications

These greetings are used for identification purposes. One identifies a customer to external callers and the other identifies users during message composition.

### The call answering greeting

*Note:* This greeting is used only by MMUI customer groups.

The call answering greeting is recorded for each customer group on the system. This greeting is played when an external caller reaches a user's mailbox through call answering. It is played before the user's personal greeting (if recorded). It is also played by the remote notification service during notification delivery. If you do not record a custom greeting, there is no default call answering greeting and external callers simply hear the user's personal greeting when they reach a mailbox. For centrex customer groups, this recording can be used to identify the organization to external callers. For residential customer groups, this recording can be customized by the service provider to "brand" or introduce the call answering service to callers.

Because this greeting is used in a variety of situations, you will have to consider how to best word this greeting (or decide if you want to record a greeting at all). For example, during remote notification calls, the following prompt is played to MMUI users if no call answering greeting is recorded: *"Hello. DMS VoiceMail has received a message for ..."*. For users belonging to VMUIF customer groups, the prompt is *"Hello. Call Answering has received a message for ..."*.

When a custom call answering greeting exists, the following prompt is played: *"Hello. <Call Answering Greeting> has received a message for ..."*. If the call answering greeting is something like *"Hello. Thank you for calling the Medici Institute"*, the prompt will not sound right when used during remote notification. Consider the following when deciding whether or not to record a call answering greeting.

- If you do not record a call answering greeting, the organization's name will not be announced at the beginning of a call answering session. When an external caller is connected to a user's mailbox, the caller will only hear the user's external greeting (or internal greeting, if an internal but not external greeting is recorded). If you feel that the user's personal greeting is sufficient, you may regard this greeting as unnecessary.
- If you record just the organization's name ("*The Medici Institute*"), the greeting that is played during call answering may sound too abrupt. However, the prompt that is played during remote notification will sound quite natural.
- A friendlier greeting ("*Thank you for calling the Medici Institute*"), is ideal for call answering scenarios, yet results in an awkward sounding prompt for remote notification.

### **The personal verification**

The personal verification is a recording of a user's first and last names (and extension, if desired). For example: "*Cathy Bush, extension 8593*". It is used to identify the owner of a mailbox.

Note that the personal verification is different from the user's personal greeting (VMUIF subscribers have one personal greeting whereas MMUI subscribers can record two: one for internal callers and one for external callers).

The personal greeting is played during a call answering session. For example, a caller phones Cathy Bush. She doesn't answer the phone and the call is, therefore, forwarded to DMS VoiceMail. It is at this point that the personal greeting is played, not the personal verification.

The personal verification is played in the following situations:

- During message composition, the personal verification is played after the mailbox number is entered to verify that the correct person is being addressed.
- Messages delivered to non-users (using the Delivery to Non-Users feature) include the personal verification. The recipient of the message will be more likely to listen to the message if they recognize who the message is from.
- When a user is called using the name dialing feature, the personal verification is played instead of spelling out the name to the caller.
- During remote notification the system will play the verification to identify for whom the message is intended.

**Note:** You can also record verifications for users as you add them to the system. This is done using the [Voice] softkey on the User Administration menus. See “Recording Personal Verifications using the [Voice] softkey” in the “User Administration” chapter in the *Customer Administration Guide*.

If no personal verification is recorded, the system plays a recording of the user’s mailbox number. Since it is easier to determine if you have reached the correct person by hearing their name than hearing their extension number, it is highly recommended that a personal verification is recorded for all users with mailboxes.

The personal verification can be recorded by you (the administrator) as you add each user to the system or by the users themselves. If you want users to record their own verifications, you will have to enable this feature in the Add or View/Modify Class of Service screen (see page 13-6). The field is called *Personal Verification Changeable by User* and it is disabled by default for all new classes of service.

The procedure for recording personal verifications at the administration terminal is described in the “User Administration” chapter in the *Customer Administration Guide*. However, it is ideal to have users record their own personal verifications because the user’s own voice is likely to be more recognizable to callers. The user’s procedure for recording a name for personal verification is covered in the DMS VoiceMail *Quick Reference Guide*. If you prefer that users record their own personal verifications, ensure that they are informed of this feature and that they are instructed in the procedure.

#### **Procedure 5-1** **Recording greetings and verifications from a phone**

**Note:** Carry out the following procedure for each customer group. When you log on to the administrative mailbox in step 1, ensure that the mailbox belongs to the correct customer group.

- 1 Log on to a mailbox with administrator capabilities.
- 2 Follow 2a to record a call answering greeting or 2b to record Personal Verification recordings.
  - a. To record a call answering greeting, press **829** on the telephone keypad.
  - b. To record a Personal Verification for a user, press **89**, enter the user’s mailbox number and then press **#**.
- 3 Choose step 3a to replace an existing call answering greeting or Personal Verification, or 3b to add a new greeting or verification.
  - a. Press **76** to delete the old greeting. Proceed to 3b.

- b. Press **5** to start recording.

*If a previous recording exists, the added recording will be appended to the existing message.*

- 4 Wait for the tone and say the custom call answering greeting or Personal Verification (name of user).
- 5 Press **#** to stop recording. (Do not hang up the phone during recording as this may produce a click sound.)
- 6 To check the recording, press **2** (play).
- 7 When recording is finished, press **83** to end the voice messaging session, then hang up.

### Broadcast Messages

**Note:** It is recommended that you refrain from sending broadcast messages during busy hours.

There may be times you need to send a message to all users within a particular customer group. This type of message, known as a *broadcast message*, is issued by addressing a message to the broadcast mailbox number which is defined in the Voice Messaging Options screen (as described in the the chapter “Voice Administration” in the *Customer Administration Guide*).

**Note:** You cannot send a broadcast message to all users in the system (only to all users in a particular customer group.) Although the broadcast mailbox number can be the same for all customer groups in the system (the default is “999”), the mailbox to which you log on determines to which customer group the message will be sent. For example, when you log on to a mailbox that belongs to Customer Group 101, only the users in this customer group will receive the message.

It is a good idea to record a personal verification for the broadcast mailbox (before you record any broadcast messages as described in Procedure 5-2). This verification is played to users when they receive the message. You can either identify who the message is from (i.e., the administrator) or that the message is a broadcast message so that each recipient knows that all users have received the message. This verification is recorded from the Voice Messaging Options screen at the customer administration level using the [Voice] softkey. See the section “Voice Messaging Options” in the “Voice Administration” chapter in the *Customer Administration Guide* for details.

#### **Procedure 5-2xxx** **Sending broadcast messages**

**Note:** *If you have not recorded a personal verification for the broadcast mailbox, do so from the Voice Messaging Options screen before beginning.*

- 1 Log on to a mailbox with broadcast capability. Make sure the mailbox belongs to the customer group to which you want to send the broadcast message.
- 2 Press **75**, enter the broadcast mailbox number, and press **#**.

- 3 Press # again to end the list.
- 4 Press 5 to start recording.
- 5 Wait for the tone and say the message to be broadcast.
- 6 Press # to stop recording.
- 7 To check the recording, press 2 (play).
- 8 To send the broadcast message, press 79.
- 9 When the message is sent, press 83 to end the session, then hang up.

## Guidelines for making voice recordings

Prompts used solely for administrative purposes can be recorded without much preparation other than deciding on the exact wording of the prompt. For voice menus or announcements played to the public or members of your organization, more formal preparation may be necessary. The following is a list of guidelines you may wish to use when recording prompts:

- Use a voice that is similar to the DMS VoiceMail prompts and consider using only one voice to avoid distracting callers by changes in pitch, tone, intonation, or accent. Choose a voice that suits your organization's image. Select the person who will read the text and print complete, definitive copies of the script. Audition a few candidates by recording their voices, then playing the recordings over the telephone line. Low-pitched voices are reproduced over telephone lines better than high-pitched ones.
- Record in quiet surroundings.
- Start recording immediately after the tone and stop the recording immediately after the last word. This prevents unnecessary pauses when system prompts and Personal Verification recordings are joined together.
- Do not hang up the phone while recording as this may produce clicks in the recording. Instead press # to stop recording.
- For applications that provide current information, it is perhaps best to have the person who knows the information monitor the prompts to ensure that the information is always up-to-date.
- When recording a Personal Verification for two or more people in your organization who have the same name (or very similar names), provide more information (their extension number or title, for example) to distinguish them.
- Record a few names for Personal Verification and listen to them before recording the remaining names. This ensures that the procedure is done correctly and the intonation is good. Test each of the following areas where Personal Verification applies:
  - call answering greeting (MMUI customer groups only);
  - message envelope playback;

- address playback in the compose command;
- name dialing and name addressing (MMUI customer groups only).

## Voice Prompt maintenance

If you delegate the task of maintaining recordings used in voice services (voice menus, thru-dialers, and announcements), ensure that your delegates are trained in using the Voice Prompt Maintenance service. You can also use this service when you must re-record prompts frequently. The service allows you to review and modify voice prompts through a DTMF telephone rather than the administrative console.

Though prompts cannot be deleted through the Voice Prompt Maintenance Service, recording a new prompt automatically overwrites any previous prompt. You cannot update a voice recording through the Voice Prompt Maintenance Service while the voice service is being updated through the Voice Services Administration screens. Callers hear the old version of the menu, thru-dialer or announcement while it is being updated.

Most voice services (voice menus, announcements, thru-dialers, and voice forms) contain recorded data or prompts of one kind or another. An announcement contains just one recorded prompt which is played back to callers. A voice menu contains an introductory greeting as well as a prompt which specifies the actions which a user can take by pressing keys on the telephone keypad. Thru-dialers also contain an introductory greeting. Prompts can be recorded by the administrator from the administration terminal, or by using the Voice Prompt Maintenance Service.

The voice prompt maintenance service can be used to update recordings in voice menus, announcements and thru-dialers. Although voice forms contain numerous recordings (for the form name, field names and field questions), these prompts cannot be updated using the voice prompt maintenance service. Voice form prompts can only be recorded from the administration terminal.

To use the voice prompt maintenance service, you must define an Update Password for the application (see “Voice Services Administration” in the “Voice Administration” chapter). If no Update Password is assigned, the menu or announcement will not be accessible through the Voice Prompt Maintenance Service and can only be updated through Voice Services Administration.

**Note:** You must assign a DN to the voice prompt maintenance service in the VSDN table (described in the section “The voice services administration menu” in the chapter “Voice Administration”). This DN is dialed directly to access the service.

## Updating announcements, voice menu and thru-dialer prompts

Voice menus consist of a recorded greeting, and a prompt which specifies the actions which a user can take by pressing keys on the telephone keypad. The Add a Voice Menu Definition screen is used to create a voice menu and define its general characteristics. Voice recordings in the new menu can be recorded by the administrator, or by a delegate using the voice prompt maintenance service. For more information about voice menus, announcements, thru-dialers, and time-of-day controllers, refer to the *Voice Menus Application Guide* (NTP 297-7001-307).

### Procedure 5-3xxx

#### Updating voice menu prompts

- 1 Dial the Voice Prompt Maintenance Service DN.  
*The system prompts you for an ID.*
- 2 Enter the required Voice Menu ID and press #.  
*The system prompts you for the Update Password.*
- 3 Enter the Update Password and press #.
- 4 The system plays a menu with four choices:
  - a. Update Greeting prompt
  - b. Update Menu Choices prompt
  - c. Update No Response prompt
  - d. Update Other Menu prompts
- 5 Select the required function.  
*If you select a, b, or c you are prompted to play the prompt if it exists.*  
*If you select d, you are prompted for the number of the prompt. This number is the number of the key a caller using the menu must press to hear the prompt. Enter the appropriate number.*
- 6 Play or record the prompt.  
*If you selected d after playing, recording, or updating the prompt, enter a number sign (#) to go back to where you can enter the (key) number of another prompt.*
- 7 To return to the ID prompt, enter a number sign.  
*You can now work on another menu by going to step 2.*

An Announcement is simply a voice recording that can be played back as part of a voice menu (when a particular menu item is selected) or as a stand-alone service, having a unique DN that users dial in order to hear the information recorded in the announcement.

Thru-dialers perform basic call handling within a voice menu or as a stand-alone service. When used within a voice menu, the system recording prompts callers to enter an extension or name (if enabled) and places the call. Custom prompts are not required. However, when a thru-dialer is used as a stand-alone service, a custom greeting should be recorded. For example a thru-dialer may be used as an autoattendant in which case the greeting should contain the company name and should inform callers to stay on the line if they don't have a touch tone phone.

### **Procedure 5-4xxx**

#### **Updating announcements and thru-dialer greetings**

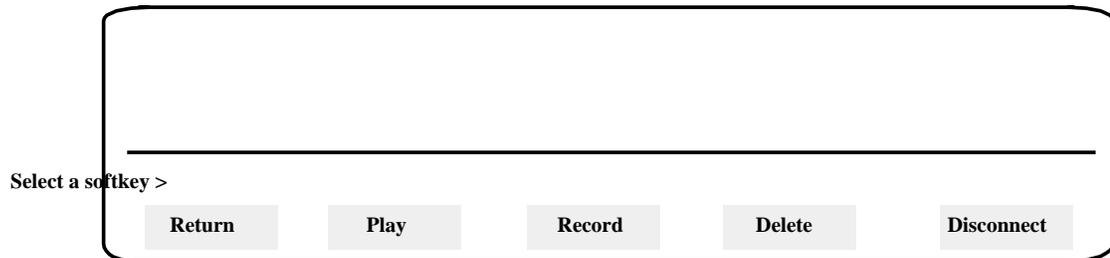
- 1 Dial the Voice Prompt Maintenance Service DN.  
*The system prompts you for an ID.*
- 2 Enter the required Announcement ID or Thru-dialer ID and press #.  
*The system prompts you for the Update Password.*
- 3 Enter the Update Password and press #.  
*You are prompted to use Play or Record. (Use Play to hear the entire prompt from start to finish.)*
- 4 Play the announcement or greeting, or update it and save the new announcement.  
*Record overwrites the old recording.*
- 5 To return to the ID prompt, enter a number sign.  
*You can update another announcement or thru-dialer greeting by going to step 2.*

## **Making recordings using the [Voice] softkey**

The [Voice] softkey is displayed on some administration screens. Depending on the screen in which it is located, this softkey is used to record personal verifications and prompts for voice menus, announcements, thru-dialers, and voice forms. If the environment around your terminal is noisy, you may prefer to use a phone that is in a quieter location to dial into the Voice Prompt Maintenance Service to record voice menu prompts and announcements. When the [Voice] softkey is pressed, a new set of softkeys is displayed. See Figure 5-1.

**Note:** A telephone set is required to make recordings. Ensure that a phone set is available near the administration terminal where you are working.

**Figure 5-1**  
**Recording softkeys**



**Procedure 5-5**  
**Using the recording softkeys**

- 1 Press the [Voice] softkey.  
*You are prompted for an extension number.*
- 2 Enter the extension number of the phone set you are going to use to make the recording.  
*The phone will ring when you finish entering the extension.*
- 3 Pick up the telephone handset.
- 4 To record, go to step 4a. To listen to the existing recording, go to step 4b. To delete the existing recording, go to step 4c. To return to the original set of softkeys, go to step 4d.
  - a. Press the [Record] softkey. At the sound of the beep begin speaking into the handset.  
*When you pressed the [Record] softkey, a new [Stop] softkey appeared in its place. Press the [Stop] softkey to stop recording.*
  - b. Press the [Play] softkey.  
*If a recording has already been made, it is played over the phone.*
  - c. Press the [Delete] softkey.  
*If a recording has been recorded, it is deleted. A prompt is displayed advising you that the recording was deleted.*
  - d. If you are satisfied with the recording, press either [Disconnect] or [Return] to display the original softkeys.  
*When you use [Return], the line is not disconnected (unless you hang up the receiver). This means that if you decide to re-record or listen to the recording, you do not have to re-enter the telephone extension after pressing the [Voice] softkey.*  
*When you use [Disconnect], the line is disconnected and if you press [Voice] to access the recording softkeys again, you will have to re-enter the telephone extension.*

### **Playing a recording**

The voice recording can be played using the [Play] softkey.

#### **Procedure 5-6xxx**

##### **Playing a voice recording**

**Starting point:** The current screen, Voice softkeys displayed.

- 1 Use [Play].  
*If there is no current recording, a message is displayed on the console.  
If a recording is available, it is played, and the [Stop] softkey is displayed;*
- 2 Use [Stop] at any time to stop the playback.  
*The Voice Recording softkeys are redisplayed.*

### **Recording a new message**

The voice recording can be recorded using the [Record] softkey. This overwrites any existing recording.

#### **Procedure 5-7xxx**

##### **Recording a voice recording**

**Starting point:** The current screen, Voice softkeys displayed.

- 1 Use [Record].  
*A message is displayed on the console requesting you to make the recording, and a beep can be heard in the telephone receiver.  
The [Stop] softkey is displayed.*
- 2 Say the text of the recording and use [Stop] when you are done.  
*The Voice Recording softkeys are redisplayed.  
The recording will be stopped automatically if you exceed the Maximum Prompt Size or the Record Timeout set in the Voice Service Profile screen.  
If a recording existed before, it is overwritten.*

### **Deleting a recording**

The recording can be deleted using the [Delete] softkey.

#### **Procedure 5-8xxx**

##### **Deleting a voice recording**

**Starting point:** The current screen, Voice softkeys displayed.

- 1 Use [Delete].  
*A message is displayed on the console requesting you to confirm the deletion; the softkeys [OK to Delete] and [Cancel] are displayed.*

- 2 Choose 2a to delete the recording, or 2b to cancel.
  - a. Use [OK to Delete].

*The recording is deleted.*

*The Voice Recording softkeys are redisplayed.*
  - b. Use [Cancel].

*The Voice Recording softkeys are redisplayed; the recording is not deleted.*



---

# General Administration

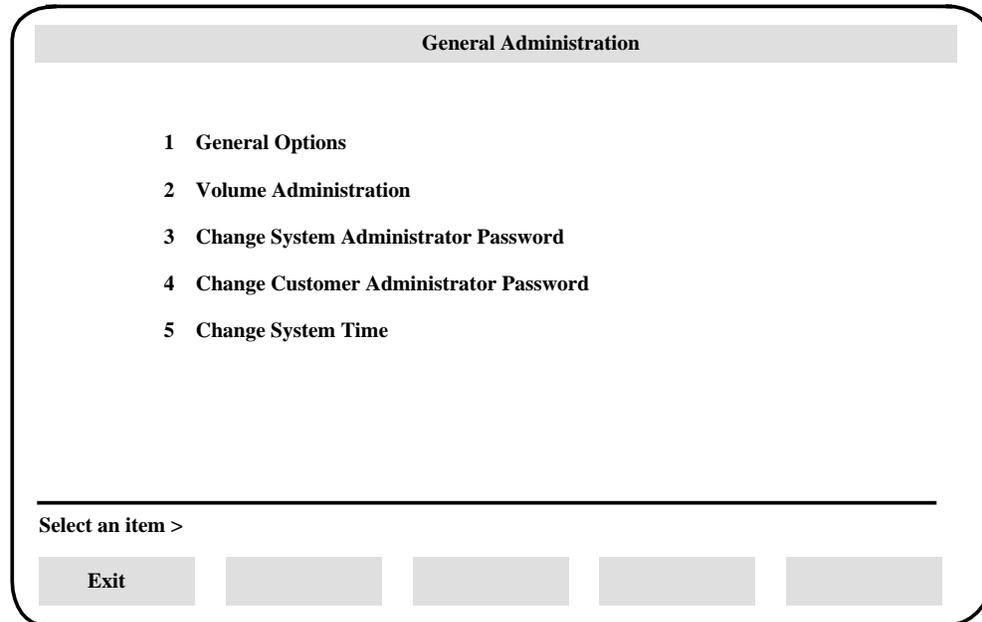
---

The functions in the General Administration menu allow you to perform routine administrative tasks, such as backups, system time changes, and system and customer administrator password changes. (The customer administrator password can also be changed from the General Administration menu at the customer administration level.) From this menu you can also access the General Options screen from which you can define broad system characteristics such as printer port names and the date format.

## The General Administration Menu

The General Administration menu displays the options shown in Figure 6-1.

**Figure 6-1**  
**The General Administration menu**



**Procedure 6-1xxx**

**Using the General Administration menu**

**Starting point:** The Main Menu.

- 1 Select General Administration.

*The General Administration menu appears (Figure 6-1).*

- 2 Choose an item by entering its number and pressing <Return>.

*The menu corresponding to your selection appears.*

*See the following sections for details:*

- <1> "General Options";
- <2> "Volume Administration (tape backups)";
- <3> "Changing the system administration password";
- <4> "Changing the customer administration password";
- <5> "Changing the system time"

- 3 Use [Exit] to return to the Main Menu.

## General Options

The General Options screen contains parameters for configuring broad characteristics of your system.

### The General Options screen

The General Options screen exists at both the system administration level and the customer administration level. The parameters which are configurable from the system level screen affect all customer groups. They include: system name, system number, date format, SEER printing, SEER printer port name, and reports printer port name. This means that SEER printing can only be disabled or enabled for the entire system, not selectively for each customer. Furthermore, you can only specify one printer port name (for SEERs and reports) so that all customer groups print to the same printer. The following parameters are modifiable for each customer group when you log on as customer administrator: customer name, customer number, available classes of service, available features, and the attendant DN.

The following feature is always installed, however, if it is not configured during system installation, it will not be available.

- Multiple-administration terminals (MATs)

If any of the following features are installed on your system, they are considered system features and are available to all customer groups:

- SMDI (multiple SMDI links)
- Voice Messaging
- Dual Language Prompting (MMUI customer groups only)

The following are also system features. However, their availability to users is dependent on whether or not they are enabled in the class of service to which a particular user belongs.

- AMIS
- Outcalling (remote notification and delivery to non-user)
- Voice Messaging
- Dual Language Prompting

If any of the following features are installed on your system, they must be specifically enabled for each customer group (if required by the customer). This is done in the General Options screen at the customer administration level.

- Voice Menus and Announcements
- Voice Forms

To enable a feature, log on as customer administrator and access the General Options screen.

**Figure 6-2xxx**  
**The General Options screen**

**General Administration**

General Options

System Name:           DMS VoiceMail Customer          

System Number:           0          

System DN Length:           0          

Available Features:       Multi-Customer  
                                   Multiple Administration Terminals  
                                   SMDI  
                                   Voice Messaging  
                                   AMIS  
                                   Dual Language Prompting  
                                   Outcalling  
                                   Voice Menus & Announcements  
                                   Voice Forms

Date Format for Administration  
 and Maintenance Reports:   [mm/dd/yy] yy/mm/dd dd/mm/yy

SEER Printing               Disabled   [Enabled]

Valid Printer port names can be viewed from Dataport  
 configuration in the Hardware Administration Menu.

SEER Printer Port Name:                                        (blank implies console port)

Reports Printer Port Name:                                      (blank implies console port)

---

Save

Cancel

The following fields are displayed:

- ***System Name*** - This is the name by which DMS VoiceMail is identified to the switch. You may enter a name up to 30 alphanumeric characters in length. This field defaults to the name supplied during installation.
- ***System Number*** - Not applicable.

- **System DN Length** - This is the length of the DNs that are configured on the DMS. This field accepts values in the range 0-18. The default is “0”.

Set this field to the length of system DNs (those configured on the DMS).

- **Available Features** - This list displays all of the features that are installed on the system. Figure 6-2 displays a list of all possible features for illustration purposes.

The following features are system features and are available to all customer groups. Some of these features are optional and may not be installed on your system.

- Multi-Customer

During software installation, CO (Central Office) must be specified. When CO is selected, the multi-customer feature is automatically installed on the system.

**Note:** Do not try changing a multi-customer system to a single customer system after you have added users.

- Multiple Administration Terminals
- SMDI (this is the Multi-SMDI feature which provides additional connectivity capability)
- Voice Messaging

The following are optional features. They are system features, and if installed, are available to all customer groups. These features can either be enabled or disabled in the class of service definitions. For example, if AMIS is installed on the system, but disabled in the COS to which a user belongs, that user will not be able to receive or compose AMIS messages.

- AMIS
- Dual Language Prompting (MMUI customer groups only)

**Note:** To see the languages installed on your system, see the Voice Messaging Options screen (described in the “Voice Administration” chapter in the *Customer Administration Guide*).

- Outcalling

If any of the following features are installed on your system, they must be enabled on a per customer basis. You will therefore have to log on as customer administrator and modify each customer separately to enable the necessary features. See the *Customer Administration Guide* (NTP 297-7001-301).

- Voice Menus & Announcements
- Voice Forms

- ***Date Format for Administration and Maintenance Reports*** - The format selected is used on reports generated by the MMI, including lists of users, operational measurement reports, and SEERs. It also specifies the format used for inputting dates. The default is mm/dd/yy. Other possibilities are yy/mm/dd and dd/mm/yy.
- ***SEER Printing*** - When this field is “Enabled”, System Error and Event Reports (SEERs) are printed as events or errors occur. If you do not have a printer, disable this feature. When this field is “Disabled” SEERs can only be viewed on screen. More detail is given when SEERs are printed than when they are displayed on screen. The default is “Enabled”.

Even when the system is working well and few error reports are generated, many event reports are produced. This means that the SEER buffer will fill up relatively quickly. Once full, contents are automatically deleted. It is therefore recommended that you print your SEERs on a regular basis. This will also help you troubleshoot problems as you will be able to look back through system events to monitor the beginning and history of a problem. If you are going to view SEERs on screen only, do so on a daily basis as critical information can be lost within a few days.

**Note:** You can also generate customized SEER reports by filling in the System Event and Error Reports screen in System Status and Maintenance. From this screen, you can view or print SEERs according to SEER class, SEER type (error, admin and system) or severity level (critical, major and minor). (If SEER printing is disabled in this field SEERs are still collected on disk and can be viewed.) See the section “System Event and Error Reports” in the “System Status and Maintenance” chapter for more information.

- ***SEER Printer Port Name*** - The printer port to which the dedicated SEER printer is connected (if installed). This requires a data port on the MSP node which must be defined as a printer port in the hardware database. This field holds up to 12 alphanumeric characters. This field can be left blank in order to print to the console printer port.
- ***Reports Printer Port Name*** - This field indicates the printer port to which the dedicated printer for Operational Measurement reports, and general printing from the System Administration menus, is connected (if installed). This requires a data port on the SPM which must be defined as a printer port in the hardware database. This field can be left blank in order to print to the console printer port.

**Procedure 6-2xxx**  
**Modifying General Option**

**Starting point:** General Administration screen, <1> entered.

*The General Options screen appears (see Figure 6-2), with the cursor positioned in Customer Name.*

- 1 Use the cursor keys to move the cursor to the field you wish to modify; make the required changes.
- 2 Choose step 2a to save the changes, or 2b to cancel.
  - a. Use [Save].

*Changes are saved and the General Administration screen is displayed.*

**Note:** *If you modify the system number, reboot the system for the change to take effect.*

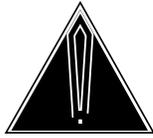
- b. Use [Cancel].

*You are returned to the General Administration screen.*

## **Volume Administration (tape backups)**

Volumes are subdivisions of the overall storage capacity of a hard disk. DMS VoiceMail Volume Administration provides the capability to make backup copies of some or all of the data stored on a hard disk. If a disk fails, data can be restored from the backup so that the system can be brought back into service quickly with minimum loss of information.

A Field Support representative can restore a system to the state it was in at the time of the last backup. To ensure that this recovery process is complete, you should make certain that you have on hand a complete set of backup tapes. *If no backups have been kept, a complete re-entry of all user and site-specific information will be required.* How often you back up your data is influenced by how often changes are made to user and system information. If you make important changes to the system daily, then daily backups may be in order.



## CAUTIONS

### Backing up

Perform backups regularly. Recovery from a system where no backups have been kept implies a complete re-entry of all user and site-specific information.

Avoid backing up the system between the hours of 2:30 a.m. and 5:00 a.m. since important system audits take place during these hours.

Do not perform backups when the system is peaking above 50% of the rated capacity for call answering, voice messaging and port usage. Try to choose the slowest traffic time outside of the audit hours.

Store tapes in a secure area free of electromagnetic fields; store important backup tapes off-site for added security.

Do not use Northern Telecom software distribution tapes for backing up your system; these tapes are important in recovering from disk failures.

Do not re-use the same tapes for consecutive backups. It is recommended that you maintain at least two sets of backup tapes and that you use these sets in rotation.

Store tapes in their cases, label them clearly and set the write protection tab (turn the rotating knob until the arrow points to safe).

## Full and partial backups

You can perform either a full backup of the system or a partial backup.

- **Partial Backup** - When you perform a partial backup you save the administrative configuration of the system, including the user database, call answering greetings and spoken names, but not including the users' voice data (voice messages and greetings). Restoring from a partial backup avoids the need to re-enter all users. However, the voice messages and user greetings will be lost. For a partial backup the following volumes are backed up: VS1T, VS1V, VS1B and VS901T. See the next section for a description of the various volumes.

- **Full Backup** - All the information is copied, the system text and voice data and the user text and voice data (messages and greetings). Normally, full backups are not done because user messages and greetings are transitory and do not warrant the extra time required to back them up. However, if the loss of messages carries financial or legal implications, weekly or even daily backups of voice data may be warranted. For a full backup the following volumes are backed up: VS1T, VS1V, VS1B, and all the VSxT, VSxV, and VSxB volumes, where x is 203 through 210 depending on the number of nodes and type of disk packs.

**Note:** VS1B is a temporary volume that is created during backup and is copied to tape. It is automatically deleted from disk once the backup is complete.

### Volume numbers and distribution

DMS VoiceMail systems can have from two to sixteen nodes. These are divided into: nodes 1 and 2, the MSPs (Multi-Server Processors), nodes 3 through 10, the SPNs (Signal Processing Nodes), nodes 11 and 12 (reserved for future use), and nodes 13 -16, the TIFNs (Telephony Interface Nodes). See Table 6-1. Nodes 1 through 10 contain the hard disk drives for data storage with the disk drives being partitioned into volumes. Volumes are storage areas for system and user related information. The volumes are already set up when your system is installed. Table 6-2 specifies the maximum amount of storage available on each volume for the various DMS VoiceMail configurations.

When initially setting up DMS VoiceMail, you must distribute DMS VoiceMail users over the volumes by assigning a volume number to each user - see “Distributing users over volumes” and “Adding local voice users” in the “User Administration” chapter of the *Customer Administration Guide*.

By convention, the system volume on the first node is named VS1, and the user volumes on the SPN nodes are named VS2xx, where xx is the number of the node on which the volume is located. Volumes are given numbers of the type “VStnnX”. The first digit in the volume number, t, indicates the type of information stored on the volume where:

- 1 system information
- 2 user information
- 9 partial backup user profiles

The last two digits in the volume number nn indicate the node number.

Each volume contains two “regions”. X will either be T (for text data) or V (for voice data).

For example, VS205T refers to the text region of a user volume on node 5.

The system volume, VS1, contains the following user information:

- each user's personal verification
- organization profile
- customer profiles
- corporate directory
- operation measurement traffic and billing data
- program software
- voice menus and announcements (if installed)
- voice form definitions (if installed)
- network message queues
- voice prompts

The user volumes (VS203, VS204, ...VS210) may contain the following information:

- messages
- greetings
- voice menus and announcements and voice form definitions if these require more space than is available on VS1
- user information
- voice form responses

VS2 only contains voice prompt sets 1 and 2. VS1 contains voice prompts sets 3 and 4.

Voice menus, voice forms and announcements are located on VS1 or VS203. Check the Voice Services Profile screen to determine which volume contains these voice services. (See "Voice Services Profile" in the "Voice Administration" chapter of the *Customer Administration Guide*.) If these voice services are stored on VS203, you should do a Voice & Data backup of this volume on a regular basis. If you backup Data only, any greetings that you have recorded will not be backed up.

Information on disk usage can be obtained through the Disk Usage report (see "How to Interpret OM Reports" in the "Operational Measurements" chapter). Listings of the volumes is obtained by displaying the Volume Administration screen, described later in this chapter.

**Table 6-1xxx**  
**Volume distribution on the DMS VoiceMail nodes**

Node 1	Node 3	Node 5	Node 7	Node 9
VS1T VS1V VS2T VS2V VS901T	VS203T VS203V	VS205T VS205V	VS207T VS207V	VS209T VS209V
Node 2	Node 4	Node 6	Node 8	Node 10
	VS204T VS204V	VS206T VS206V	VS208T VS208V	VS210T VS210V

TIFN Nodes are nodes 13, 14, 15 and 16 and do not have any volumes  
 VS1 contains voice prompt sets 3 and 4, and VS2 contains voice prompt sets 1 and 2.  
 T indicates text data.  
 V indicates voice data.

**Table 6-2xxx**  
**User disk capacities for DMS VoiceMail systems**

SPN nodes		Maximum Hours available for Voice Storage (per disk volume)							
Size	Hours	VS203	VS204	VS205	VS206	VS207	VS208	VS209	VS210
2-node	150	150	-						
	300	150	150						
4-node	300	150	-	150	-				
	600	150	150	150	150				
6-node	450	150	-	150	-	150	-		
	900	150	150	150	150	150	150		
8-node	600	150	-	150	-	150	-	150	-
	1200	150	150	150	150	150	150	150	150

### Volumes recommended for regular backup

Back up the following volumes on a regular basis (usually weekly).

- VS1 [Voice & Data]
- VS203 ... VS210 [Data]

*Note:* If voice services (voice menus and announcements, or voice forms) are stored on VS203, then do a [Voice & Data] backup of VS203.

To do a full backup of the entire system, backup the following volumes:

- VS1 [Voice & Data]
- VS203 ... VS210 [Voice & Data]

### Backup tapes

All DMS VoiceMail systems have a tape drive capable of reading and writing industry standard 1/4-inch data cartridges. Both partial and full backups can be made to tape on all DMS VoiceMail systems.

DMS VoiceMail systems use Viper 2150S cartridge drives. The type of backup tape used is the DC6250 which can store 250 MB of data. It takes approximately 45 minutes per DC6250 tape.



#### CAUTION

#### Do not use 6150 tapes

Use of 6150 tapes may cause tape load failures. 6150 tapes are not supported.

*Note:* It is recommended that you back up one volume at a time.

The approximate number of tapes required for one full and one partial backup are listed in Table 6-3.

**Table 6-3xxx**  
**Backup tape requirements for DC6250 tape drives\***

Configuration	1 Full Backup	1 Partial Backup
2 SPN nodes	12 tapes	6 tapes
4 SPN nodes	24	6
6 SPN nodes	36	6
8 SPN nodes	48	6

\*Represent approximate requirements.

### Using the tape drive

DMS VoiceMail uses streaming tape drives which record data on multiple tracks on the tape. Each track runs from one end of the tape to the other. At the end of the tape, the tape head is positioned to the next track and the tape direction is reversed. After each block of data is written, it is read back and checked. If it cannot be correctly read, the data will be rewritten in the next block. After 16 unsuccessful attempts to write the data, a parity error is signaled and the backup fails. Such failures can be caused either by flaws in the tape or dirty tape heads. For information on cleaning the tape drive, see *Routine Maintenance Procedures* (NTP 297-7001-501).

Tape cartridges can be write-protected by turning the rotating knob until the arrow points to the Safe indicator. Any attempt to write on a write-protected cartridge will generate an error.

### Performing backups: the Volume Administration screen

Data storage on the hard disk is distributed between volumes. Volumes are subdivisions of the hard disk. The Volume Administration screen (Figure 6-3) is used to back up the volumes. It displays all the volumes on your system, their designated use, their capacity in kilobytes and equivalent hours and minutes, and the percentage of voice and data storage currently used. To back up a volume, you select it and use the applicable softkey as described below.

**Figure 6-3xxx**  
**Volume Administration screen**

General Administration									
Volume Administration									
Volume Name	Use	Volume Size			Usage (% Full)				
		Data (KBytes)	Voice (KBytes)	(hh:mm)	Data	Voice			
VS1	System		129992	14976	1:51	22		3	
VS203	Users	30	200		2:00	13		23	
VS204	Users	20	150		1:59	17		40	
VS205	Users	30	200		2:00	14		17	
...	...	...	...	...	...	...	...	...	...
VS210	Users	30	200		2:00	14		17	

Move the cursor to the desired volumes and press the space bar to select.

Exit	Backup to Tape		Backup Status	View/Delete Schedule
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**Procedure 6-3xxx**  
**Performing a backup**

**Starting point:** General Administration screen, <2> entered.

- 1 The Volume Administration screen appears (see Figure 6-3).
- 2 Use the cursor keys to move the cursor to the volume name you wish to back up; use <Space Bar> to select the volume. Repeat this for each required volume.
- 3 Choose step 3a to start a backup, 3b to monitor the progress of a backup, 3c to display the backup schedule, or 3d to return.
  - a. Use [Backup to Tape].  
*See the section "Disk to Tape Backup".*
  - b. Use [Backup Status].  
*See the section "Backup Status" later in this chapter for details.*
  - c. Use [View/Delete Schedule].  
*See the section "View/Delete Backup Schedule" for details.*  
*You can only change the backup schedule while in the Disk to Tape Backup function.*

- d. Use [Exit] to return to the General Administration menu.

*You need not wait for a backup to complete before returning to other menus. The backup will proceed while you perform other tasks, and notify you if the backup process requires your attention.*

### **Disk to Tape Backup**

When a volume is selected and the [Backup to Tape] softkey on the volume administration screen is pressed, the Disk to Tape Backup screen (Figure 6-4) is displayed. The screen displays the volumes selected in the Volume Administration screen, and provides a set of backup options for each volume. For a partial backup, use the “Data” option on all of the user volumes. For a full back up, use the “Voice and Data” option on all of the user volumes. The system volume only has “Voice and Data” as a backup option.

**Note:** It is recommended that you back up only one volume at a time.

Although there is a [Schedule Backup] softkey in the Disk to Tape Backup screen, it is not recommended that you use it since a partial backup of even the smallest system takes 6 tapes. Scheduled backups are only useful if the data fits onto one tape.

If a tape error occurs during backup, you do not have to restart the backup process from tape 1. Follow the instructions as they appear on the screen. In some instances you are required to keep the tape, as the data that was recorded is not corrupt; in other instances you will be required to discard the tape. At this stage you should clean the tape heads (as described in the *Routine Maintenance Procedures* (NTP 297-7001-501) before inserting another tape cartridge.

**Figure 6-4xxx**  
**Disk to Tape Backup screen**

General Administration		
Disk to Tape Backup		
Volume Name	Use	Backup Options
VS1	System	Voice_ &_Data
VS203	Users	[Data] Voice_ &_Data
VS204	Users	[Data] Voice_ &_Data
VS205	Users	[Data] Voice_ &_Data
...	...	...
VS210	Users	[Data] Voice_ &_Data

---

Select a softkey >

Exit		Schedule Backup	Immediate Backup	
------	--	-----------------	------------------	--

**Procedure 6-4xxx**  
**Performing a disk to tape backup**

**Starting point:** Volume Administration screen, a volume selected and the [Backup to Tape] softkey pressed.

- 1 The Disk to Tape Backup screen appears (Figure 6-4).
- 2 Ensure that the tape you are using is either blank or can be overwritten and that it is installed properly in the tape drive.
- 3 Use the cursor keys to move to the backup options of each volume and select the required options (Data or Voice & Data).
- 4 Choose step 4a to carry out a backup or 4b to schedule a backup for a later time.
  - a. Use [Immediate Backup].

*The softkey display changes to [OK to Start Backup] and [Cancel].*

*You are prompted to insert a tape in the tape drive. You are told approximately how much data (in megabytes) will be backed up.*

*Use [OK to Start Backup] to initiate the backup or [Cancel] to return to the Disk to Tape Backup screen. Once a backup is started, the Backup Status screen appears; see "Backup Status" later in this chapter for details.*

*Before the backup proceeds, the tape is automatically retensioned.*

*If the tape is filled before the system is completely backed up, you are prompted to load another tape.*

**Note:** A tape may still be rewinding even if the message on the screen indicates that the tape is completed. Do not remove the tape from the tape drive until it has finished rewinding.

When a tape is filled, the following message appears:

**Tape x (x is the tape number) completed. Insert new tape and press Continue Backup softkey**

**Note:** If there is a tape error during backup, one of the following messages appears:

**Keep tape and insert tape number n**

where “n” is the number of the tape, or

**Discard tape and insert tape number n**

To continue the backup, remove the tape from the drive and insert a new tape. Press the [Continue Backup] softkey. Keep the tape that contains the error.

**Note:** If you are working in another screen while a tape backup is in progress, the following message appears:

**In progress backup requires new tape.**

Go to the Backup status screen and use the softkeys as indicated below.

The following softkeys appear: [Continue Backup] and [Abort Backup]. To continue the backup, press [Continue Backup]; to cancel the backup, use [Abort Backup]; you are returned to the Volume Administration screen.

**Note:** When a backup is completed, remove the tape and label it clearly; include the current date and time, tape number, and the volumes which were backed up.

Use [Abort Backup] to stop a backup from proceeding; you are returned to the Volume Administration screen.

- b. Use [Schedule Backup].

See the section “Schedule Backup” for details.

- 5 Use [Exit] at any time to return to the Volume Administration screen.

## Schedule Backup

The [Schedule Backup] softkey in the Disk-to-Tape backup screen displays the Schedule Backup screen (Figure 6-5).

**Note:** It is not recommended that you schedule backups since a partial backup will take more than one tape.





## View/Delete Backup Schedule

The View/Delete Backup Schedule screen (Figure 6-7) displays the current schedule for backups, if one exists. The screen is read-only and displays the current settings of the backup schedule, including the type of backup, how frequently backups are performed, the start time, the volumes to be backed up, and the backup options for each volume.

**Figure 6-7xxx**  
View/Delete Backup Schedule

General Administration	
<b>View/Delete Backup Schedule</b>	
Backup Frequency:	Weekly
Weekly:	Sun
Day of Month:	20
Backup Start Time:	00:00
Volumes Selected for Backup:	VS1      Back up Voice & Data VS203 Back up Voice & Data
<hr/>	
Exit	Cancel Schedule

### Procedure 6-7xxx

#### Viewing/Deleting Backup Schedules

**Starting point:** Volume Administration screen, [View/Delete Schedule] entered.

- 1 Choose step 1a to return to the Volume Administration screen or 1b to delete a schedule.
  - a. Use [Exit].
 

*See the section "Disk to Tape Backup".*

*The Volume Administration screen is redisplayed.*
  - b. Use [Cancel Schedule].
 

*The present schedule is deleted. No backups will occur at the scheduled time indicated. The Volume Administration screen is redisplayed.*

---

## Changing the system administrator password

When the system is first installed you are given a default system administrator password (**adminpwd**). When you log on for the first time, you are prompted for a new password. For security purposes, you should continue to change it on a regular basis. Passwords are not case-sensitive. Any capitalization used in defining the password need not be used when entering the password. The minimum password length is 1 and the maximum length is 16 digits. It is recommended that your administration password be at least 7 digits for added security.

### Procedure 6-8xxx

#### Changing the administrator password

**Starting point:** General Administration Menu, <3> entered.

**Note:** The passwords are not displayed on the screen as you enter them.

- 1 You are prompted to enter the existing administrator password.
- 2 Enter the existing password.
- 3 You are prompted to enter the new password.
- 4 Enter the new password.

*The system administrator password is alphanumeric (it can contain both letters and numbers) and must be between 1 and 16 characters in length.*

- 5 You are prompted to enter the new password again, for verification purposes.  
*The new password is recorded and you are returned to the General Administration screen.*

## Changing the customer administrator password

When the system is first installed you are given a default customer administrator password (**custpwd**). When you log on for the first time you are prompted for a new password. For security purposes, you should continue to change it regularly. Passwords are not case-sensitive; any capitalization used in defining the password need not be used when entering the password. The minimum password length is 1 and the maximum length is 16 characters. It is recommended that your administration password be at least 7 characters long for added security.

### Procedure 6-9xxx

#### Changing the customer password

**Starting point:** General Administration Menu, <4> entered.

**Note:** The passwords are not displayed on the screen as you enter them.

- 1 You are prompted to enter the existing administrator password.
- 2 Enter the existing password.
- 3 You are prompted to enter the new password.

- 4 Enter the new password.

*The customer administrator password is alphanumeric (it can contain both letters and numbers) and must be between 1 and 16 characters in length.*

- 5 You are prompted to enter the new password again, for verification purposes.

*The new password is recorded and you are returned to the General Administration screen.*

## Changing the system time

The setting of the system clock in your DMS VoiceMail system should be accurate to keep correct records of events in your system (such as message creation and reception times or system event and error times).

### **Procedure 6-10xxx**

#### **Changing the system time**

**Starting point:** General Administration Menu, <5> entered.

- 1 You are prompted to enter the new date and time.
- 2 Enter the date and time, followed by <Return>.

*The clock is synchronized to the clocking signals from the network, the time is recorded, and you are then returned to the General Administration screen.*

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# Voice Administration

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Voice administration comprises all facilities related to processing voice information. These facilities offer a range of functions from the simple playback of a recorded announcement to the more sophisticated automated attendant service. Voice Administration can be divided into the following categories:

- ***Voice Security Options*** - This is where restriction/permission codes are defined. These codes are applied to various features and are intended to protect your system by preventing users and callers from placing calls (such as long distance calls) while connected to DMS VoiceMail.
- ***Voice Services Administration*** - allows you to maintain existing DN information and voice service definitions. Voice services are custom applications that offer a range of functions from the simple playback of a recorded announcement to the more sophisticated voice menus which allow callers to make choices by pressing keys on their telephone keypads and automated attendants which take calls during off-hours or holidays. They include announcements, thru-dialers, time-of-day controllers, and voice menus.

**Note:** Voice services can only be created at the customer administration level since they are customer-specific. However, once created, they can be accessed and modified from the system administration level.

- ***Outcalling Administration*** - allows you to specify outcalling parameters which affect the remote notification and delivery to non-user features. You can also view the outcalling audit trail report to monitor the progress of remote notification and delivery to non-user calls.

**Note:** Outcalling is documented in the *Outcalling Application Guide* (NTP 297-7001-308).

## The Voice Administration menu

The Voice Administration menu (Figure 7-1) is displayed by selecting option 2 from the Main Menu.

	<p><b>CAUTION</b> <b>Overnight system audits</b> You should not leave the administrative console in any Voice Administration menu overnight or important system audits may fail due to a lack of available memory.</p>
---	--

**Figure 7-1xxx**  
**The Voice Administration Menu**

**Voice Administration**

- 1 Voice Security Options
- 2 Voice Services Administration
- \* 3 Outcalling Administration

---

Select an item >

Exit					
------	--	--	--	--	--

\* This item is displayed only if Outcalling is installed. For more information about outcalling, refer to the Outcalling Application Guide.

**Procedure 7-1xxx****Selecting items from the Voice Administration Menu**

**Starting point:** The Main Menu.

- 1 Select Voice Administration.  
*The Voice Administration menu appears (Figure 7-1).*
- 2 Select an item by entering its number and pressing <Return>.  
*The menu corresponding to your selection appears. See the following sections for details:*
  - <1> "Voice Security Options"
  - <2> "The voice services administration menu"
  - <3> *The Outcalling Application Guide*
- 3 Use [Exit] to return to the Main Menu.

The primary reason for using enforce dial is to prevent people from circumventing toll switches. For example, there are two DMS VoiceMail systems, one in Toronto and the other in Montreal. A DMS VoiceMail customer can be prevented from using the local DMS VoiceMail system to send a voice message to the far-end system, thereby allowing the operating company to bill for the toll charges to the far-end switch. Otherwise, the operating company would have to absorb the toll charges.

## Voice Security Options

The Voice Security Options screen (Figure 7-2) allows you to configure restriction and permission codes that can be applied to features such as call answering, call sender, express messaging, mailbox thru-dial (also known as extension dialing), AMIS networking, remote notification and delivery to non-users.

### Restriction/permission codes

Restriction/permission codes are defined in the Voice Security Options screen at the system administration level. Up to four sets of codes can be created for the entire system. Each set can be thought of as a restriction/permission table that defines which dialing codes are allowed and which are restricted. A dialing code can be up to 5 digits in length and can be one of the following: an access code (for dialing out of the switch, such as "9" for local calls and "91" for long distance calls), an area code, or a country code (area codes and country codes must be preceded by the appropriate access code, such as "91416" since "91" is needed to dial out of the switch). An internal extension can also be entered as a dialing code if you wish to restrict certain DNs. Each table can contain up to 10 restriction codes and 10 permission codes.

Once the restriction/permission classes are defined, they can be applied to features as described in the following sections.

For more information about using restriction/permission codes to ensure the security of your system, refer to the chapter “System security”.

**Important:** To ensure the security of your system, apply the appropriate restriction codes to the features listed for MMUI and VMUIF. This prohibits external callers or internal users from placing certain types of calls (such as local or long-distance calls). *If local or long distance codes are not restricted and a caller or user places a call using one of the features described below, you will be charged for the call since the call will have originated from your switch.*

### **Thru-dialers**

When a thru-dial service is activated directly or indirectly through a voice menu, the caller/subscriber is asked for an extension number or phone number. Since the resulting call will be originated from the DMS VoiceMail system, it is important that you determine the types of calls that you want callers/subscribers to be able to place.

For example, you might create a thru-dial service for one of your private customers as part of an automated attendant service which allows callers to dial through to an extension during the customer’s off hours. However, if you do not place the appropriate restrictions on the thru-dialer, callers will not only be able to place calls to extensions belonging to that customer, but also local, long distance and international calls.

For each thru-dial service that you create, you can either select one of the four restriction/permission sets that is defined in the Voice Security Options screen or you can create a custom restriction/permission table for the thru-dial service in the Add or View/Modify a Thru-Dialer Definition screen. For more detailed information about administering thru-dialers, refer to the *Voice Menus Application Guide* (NTP 297-7001-307).

### **For MMUI customer groups**

#### **The Class of Service screen**

Apply a restriction/permission table to the following features in the Add or View/Modify Class of Service screen.

- custom revert - to restrict the extension to which callers can be reverted when they press “0” while connected to DMS VoiceMail.
- extension dialing - to restrict the extensions that users can dial while logged into their mailboxes
- external call sender - to restrict users from using call sender to dial certain external numbers
- AMIS networking - to restrict outgoing AMIS messages

- remote notification - to restrict the target DNs to which remote notifications can be sent (such as long distance)
- delivery to non-users - to restrict the numbers to which messages to non-users can be sent (such as long-distance)

### **The Voice Security Options screen (specific to each customer group)**

For each customer group, apply a restriction/permission set to the following features in the Voice Security Options screen:

- call answering/express messaging thru dial - to restrict the numbers that can be dialed by callers during call answering or express messaging sessions if they try to thru-dial to another number while connected to DMS VoiceMail.

*Note:* While someone is involved in a call answering or express messaging session, they can place a call by pressing “0” followed by an internal extension or external number. This is referred to as thru dial and should not be confused with thru-dialers which are a type of voice service.

### **For VMUIF customer groups**

#### **The Class of Service screen**

Apply a restriction/permission table to the following features in the Add or View/Modify Class of Service screen.

- external call sender - to restrict users from using call sender to dial certain numbers
- delivery to non-users - to restrict the numbers to which messages to non-users can be sent (such as long-distance)
- remote notification (outcalling fields) - to restrict the target DNs to which remote notifications can be sent (such as long distance)
- custom revert - to restrict the extension to which callers can be reverted when they press “0” while connected to DMS VoiceMail.
- AMIS networking - to restrict outgoing AMIS messages

#### **Creating restriction/permission sets**

You can create four separate restriction/permission sets in the Voice Security Options screen. However, for any feature (except thru-dialers) you can only apply one of the four sets that you define here. There are therefore different ways to approach restriction/permission codes. For example, you can create one table that only contains extension DNs that reside on the switch; a second table that restricts local calls; a third that restricts long distance calls and perhaps a fourth that restricts all local and long distance calls for instances where security is very important. It is, however, up to you to decide on the types of restriction/permission sets that you require.

Restriction/permission codes are entered in the Voice Security Options screen (see Figure 7-2).



**CAUTION**

**All features are initially restricted**

When DMS VoiceMail is installed, all 10 restriction fields are filled in. The first restriction code is defined as 0, the second is 1 and so on to the tenth code which is defined as 9. This means that all possible extensions and phone numbers are restricted and, therefore, all of the features to which you can apply restriction/permission codes will not work.

If you do not change the restriction/permission sets to permit certain numbers, the following features will not work:

- when callers press “0” they will not be reverted to the custom revert DN because “0” is restricted;
- users will not be able to dial any extensions;
- call sender will not work;
- users will not be able to send AMIS messages (although they will be able to receive them);
- users will not be remotely notified of their messages;
- users will not be able to send messages to non-users;
- callers will not be able to thrudial during call answering or express messaging sessions;
- thru-dialers will not work.

**Defining restriction and permission codes**

**Example:** You want to create a restriction/permission table that restricts all long-distance calls except calls to the area code 416 and calls to 911. The access code for making long distance calls is “91”. Fill out the restriction/permission table as shown below.

List Name:            LongDistance  
Restriction Codes: 91 \_\_\_\_\_  
Permission Codes:    91416 911 \_\_\_\_\_

Permission codes are exceptions to the more general rules dictated by the restriction codes. In this example, all calls beginning with “91” are disallowed, *except* for those beginning with “91416” and “911”.

Permission codes that are shorter than a restriction code but which match a subset of such a code are not restricted. For example, if “1614” is a restricted code, the DN 161 is not restricted. In this example, calls beginning with “91” (long-distance calls) are restricted. However, calls beginning with “9” (followed by a digit other than “1”) are permitted. Therefore, local calls would be permitted in this example. (To create a restriction/permission table that restricts local calls, but not long distance calls, you would enter “9” as a restriction code and “91” as a permission code.)

When a number is dialed, the system checks the restriction and permission codes to see if the number is allowed. The following actions are performed in the order described below:

- 1 The DN is compared to the restriction codes. If the dialed DN is preceded by or equal to a restriction code, the DN is compared to the permission codes to see if it is an exception.  
If the DN is not restricted, or if it is an exception, the DN is called.
- 2 The restricted DN is compared to the permission codes. If it is preceded by or equal to a permission code, the DN is dialed. If it is not preceded by or equal to a permission code, the DN is not dialed.

When a call is not permitted, the user hears a system message indicating that the number can't be reached from the service.

## The Voice Security Options screen

At the system administration level, restriction and permission codes are defined in the Voice Security Options screen. These codes are then applied to features (in the Add Class of Service screen or Voice Security Options screen at the customer administration level).

**Figure 7-2xxx**  
**Voice Security Options screen**

Voice Administration

**Voice Security Options**

List Name:            On switch

Restriction Codes: 90 60 \_\_\_\_\_

Permission Codes:  90123 60245 \_\_\_\_\_

List Name:            Local

Restriction Codes: 91 90 60 \_\_\_\_\_

Permission Codes:  \_\_\_\_\_

List Name:            Long Distance 1

Restriction Codes: 91 90 60 \_\_\_\_\_

Permission Codes:  90123 60245 91416 \_\_\_\_\_

List Name:            Long Distance 2

Restriction Codes: 90 60 91 \_\_\_\_\_

Permission Codes:  \_\_\_\_\_

---

Select a softkey >

Save

Cancel

The following fields are displayed:

- **List Name** - You can either leave the default names as they are (if they are appropriate to the types of restriction/permission classes you are going to create) or change them, but you cannot leave this field blank. The default names are “On Switch”, “Local”, “Long distance 1”, and “Long distance 2”.

The default names suggest the types of access codes you may want to group together. The “On Switch” set may be used to allow dialing to only those extensions belonging to the same customer. The “Local” class could be used to allow on-switch and local calls only. “Long distance 1” might restrict all long distance dialing and “Long distance 2” could be used to restrict long distance dialing in general, except to a number of specific area codes. These default names and examples are suggestions only. The actual restriction/permission classes you create and the names you assign will depend on your own policies.

- **Restriction Codes** - These are the dialing codes to which calls are not allowed to be made. You can enter up to 10 codes. Each code can be up to 5 digits in length.
- **Permission Codes** - To allow calls to certain numbers that would otherwise be restricted because of the restriction codes defined above, enter the number as a permission code.

For example, “91” is entered as a restriction code to disallow long distance dialing, yet you want to allow long distance calls to the 214 area code. You would, therefore, enter “91214” as a permission code.

You can enter up to 10 codes. Each code can be up to 5 digits in length.

**Note :** If you change the restriction codes so that a user’s target remote notification DNs are rendered invalid, remote notification is disabled for that user until the user’s target DN is changed.

#### **Procedure 7-2xxx** **Setting Voice Security Parameters**

**Starting point:** The Voice Administration menu.

- 1 Select Voice Security Options.  
*The Voice Security Options screen appears (Figure 7-2).*
- 2 Move the cursor to the field you wish to modify; make the required changes.
- 3 Choose step 3a to save the changes or 3b to cancel.

- a. Use [Save].

*The changes are saved and you are returned to the Voice Administration menu.*

- b. Use [Cancel].

*Changes are discarded. The Voice Administration menu reappears.*

## **Types of services**

The following are the different types of services that you can make available to your subscribers. Some of these features are optional and may not be installed on your system (voice menus, voice forms, AMIS networking).

### **Voice messaging services**

Voice messaging services allow you to compose and send voice messages, leave a (non-composed) message in another user’s mailbox without ringing that person’s phone first, be notified of new messages while away from your phone, or deliver a voice message to a non-user.

### **Voice messaging**

This service provides call handling and message storage capabilities, thus allowing a user's mailbox to function like an answering machine, taking calls when the user is away from or currently on the phone. If a caller rings a user's phone, the caller is connected to the user's mailbox. The caller hears a greeting (which may or may not be recorded in the user's voice) and is prompted to leave a message after the tone. This is the call answering aspect of the voice messaging service.

In addition, voice messaging also provides facilities that permit users to compose and send voice messages. For example, a user can compose a message and then send it to a number of people, or record a message and then request that it be sent at a later date.

MMUI classes of service provide all subscribers with compose and send capability.

VMUIF classes of service contain a field called *Compose Capability*. If this field is set to "No" (the default), subscribers belonging to the COS will only have call handling and message storing capabilities. They will not be able to compose and send messages.

Furthermore, for VMUIF classes of service, Simplified Call Answering can be enabled for subscribers who do not have touch-tone phones. This is done by setting the field *Dial Pulse Support* to "Yes". This simplified interface does not require any keypad commands unlike the standard VMUIF interface or the MMUI interface.

### **Express messaging**

*Note:* This service is available only with the MMUI interface.

Express messaging allows users to directly place a message in another user's mailbox without first ringing the destination phone. Users first dial the Express Messaging directory number to indicate they want to use this service. They are then prompted for the mailbox. A personal verification (if recorded) is played to confirm they have reached the correct user and they are prompted to leave a message. (If no personal verification is recorded, the user's mailbox number is provided instead for confirmation.)

### **Outcalling (remote notification and delivery to non-users)**

Remote Notification allows users to be informed of new messages at a remote phone or pager. Delivery to non-users allows users to compose and send messages to people outside of the DMS VoiceMail system. Outcalling features are described in the *Outcalling Application Guide* (NTP 297-7001-308).

## Voice services

Voice services are custom call answering applications created by the administrator. They allow callers to listen to recorded information (announcements), leave messages for specific users, or place calls (thru-dialers). They can route callers to particular services based on the time of day (business hours or off-hours) and can handle calls that are received during holidays by passing callers to the appropriate service (time-of-day controllers).

The Voice Menus feature package is documented in the *Voice Menus Application Guide* (NTP 297-7001-307).

### Announcements

This service allows you to record messages that can be played back within a voice menu, or as a stand-alone service that is directly dialable.

### Thru-dialers

This service accesses pre-defined DNs or user-prompted DNs that can be used within a voice menu service, or as a separate service with a directory number. Thru-dialers can be created to provide a variety of dialing options to users of DMS VoiceMail. Thru-dialers can be set up to allow Name Dialing, and can have restrictions barring users from dialing unauthorized numbers (such as long-distance access codes).

### Time-of-day controllers

This service allows you to control the activation of voice services based on the date and time at which a call is received. This allows you to control the availability of voice services during off-hours and holidays.

### Voice menus

This service allows you to create single-layered or multi-layered menus which present callers with a series of choices about the actions they can perform. A caller selects an action by pressing the key (on the telephone keypad) that corresponds to the action.

### Voice prompt maintenance

This service allows you or your delegates to modify the various prompts and greetings available in your voice menus and announcements using a telephone; see Chapter 5, “Making recordings”.

### Remote activation

This service allows you to enable or disable voice services while you are off-site, through a standard DTMF telephone set.

**Note:** Voice services can only be created at the customer administration level. They can however, be modified or deleted by the system administrator.

For more information, see “The voice services administration menu” later in this chapter. To determine how many voice services can be created, see the technical specifications in the *DMS VoiceMail Product Guide* (NTP 297-7001-010).

### **Voice forms**

*Note:* Voice Forms is an optional feature. Voice forms can only be created (and maintained) at the customer administration level. See the *Voice Forms Application Guide* (NTP 297-7001-306) for information about planning and configuring voice form applications.

### **Voice forms administration**

Administration involves the creation of applications that collect voice information from callers. An application consists of a series of questions, played in sequential order, to which callers give voice responses. It is as if callers are filling in a form over the phone.

### **Voice forms transcription**

Transcription refers to the process of retrieving the information collected by a voice form application. Once retrieved, the data can be processed in a number of ways, depending on how the information will be used and the goal you intend to achieve by collecting the information. See the *Voice Forms Transcriber User Guide*.

### **AMIS networking**

This service allows users to send and receive messages to or from users of other remote voice messaging systems that also use the AMIS protocol (which may include non-DMS VoiceMail systems). Users can also reply to the originator of an AMIS message. Predefined passwords or site information are not required in order to send, receive or reply to messages.

## **Configuring services**

UCD (Uniform Call Distribution) allows a number of telephones connected to the DMS 100 (known as *agent positions*) to share equally in answering incoming calls made to one or more voice service DN. Incoming calls are placed in a UCD call queue and presented to the available agent positions on a “first-in, first-out” basis. Available agent positions are placed in another queue, and the one which has been longest in the queue (and therefore has been idle the longest) is the first to be presented with a UCD call.

DMS VoiceMail uses UCD to receive calls from users who have dialed the directory number (DN) of a voice service (such as voice messaging, express messaging or a voice menu). The UCD agent positions correspond to the voice channels through which DMS VoiceMail is connected to the DMS. To the DMS, voice channels represent a set of “telephones” to which it can distribute calls.

**Note:** When configuring services, you should refer to the *Planning and Engineering Guide* (NTP 297-7001-100), especially the customer data form which contains data specific to your installation.

## Configuring the DMS

Configuration of DMS VoiceMail voice services begins on the DMS. Here you define the primary Uniform Call Distribution (UCD) queue. The primary queue contains the agents that handle the calls. It is the only UCD queue that is required and all other DMS VoiceMail voice services can share the agents in this queue.

**Note:** The primary UCD queue must be set for the voice messaging feature in order for all call answering scenarios to be handled properly. In other words, do not associate the primary UCD queue with any other service (such as a voice menu or express messaging).

For each voice service that you want users to be able to dial directly, you will have to create either a line DN or a UCD queue. For services that will share the agents in the primary queue, create a line DN that forwards to the primary UCD queue. If a particular service requires dedicated agents, create a UCD queue instead of a line DN.

The primary UCD queue DN is added to the VSDN table of one of the customer groups as described in the following two methods. This primary voice messaging DN can be used as the voice messaging access DN for all users when the SMDI link is down or if the CRR button is used.

However, the main point is that each customer group must have a unique access DN for voice messaging. If all users in all customer groups dial the same DN (the DN of the primary UCD queue), a user may get the wrong greeting or service (Voice Messaging instead of Call Answering, for example).

For example, you have four customer groups on your system (Customer 1, Customer 2, Customer 3, and Customer 4), and the primary UCD DN has been added to the VSDN table of Customer 1. For customers 2, 3 and 4 you would create a line DN on the DMS that forwards to the primary queue. Then, in the VSDN table of each customer group, you must add the line DN and set it to the voice messaging service. In this manner, the users in each customer group dial a different DN to access the voice messaging service, thus ensuring that they get the appropriate service.

The primary UCD DN is then used only in the situation as explained above.

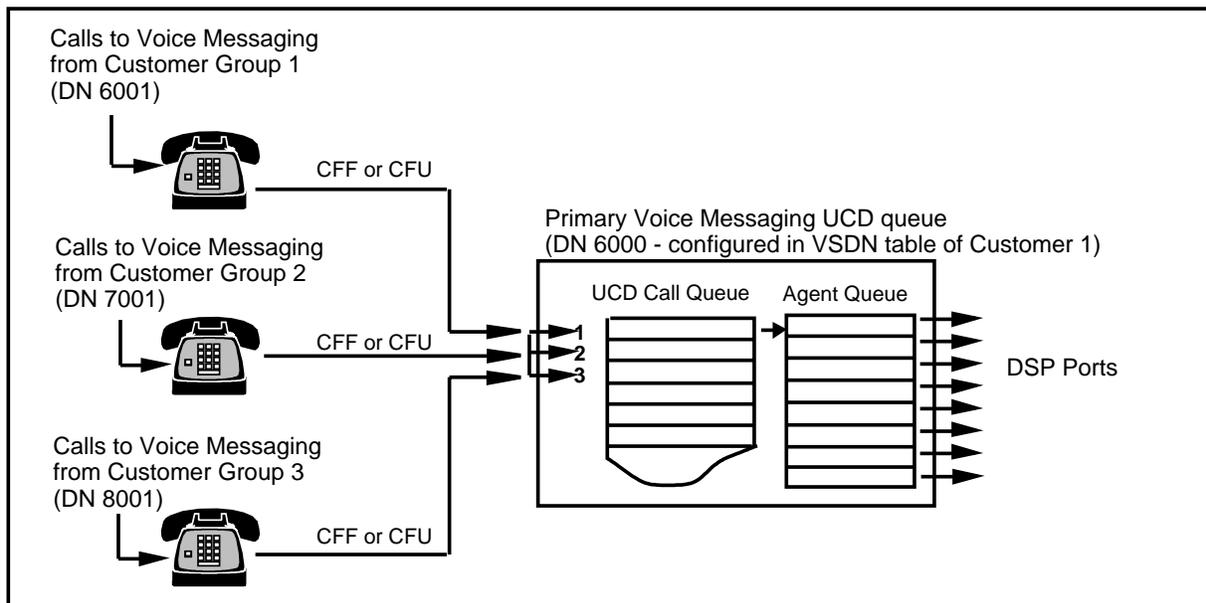
You have the following options when configuring voice messaging DNs for your customer groups.

**Method 1**

On the DMS, create a UCD queue containing all of the agents. This is the primary voice messaging UCD queue. Add the DN of the primary voice messaging UCD queue in the VSDN table of Customer 1 (this will make it easy to remember where the primary VSDN is configured). Assign users to the customer group but do not publish the primary DN to the users of this customer group. Instead, create a line DN on the DMS that forwards to the primary UCD queue and enter the DN of the line in the VSDN table. Publish this secondary DN to the users in the customer group as the voice messaging access DN.

For all other customer groups, create a line DN on the DMS that forwards to the primary UCD queue. In the VSDN table of each customer group, enter the DN of the line as the voice messaging access DN. See Figure 7-3.

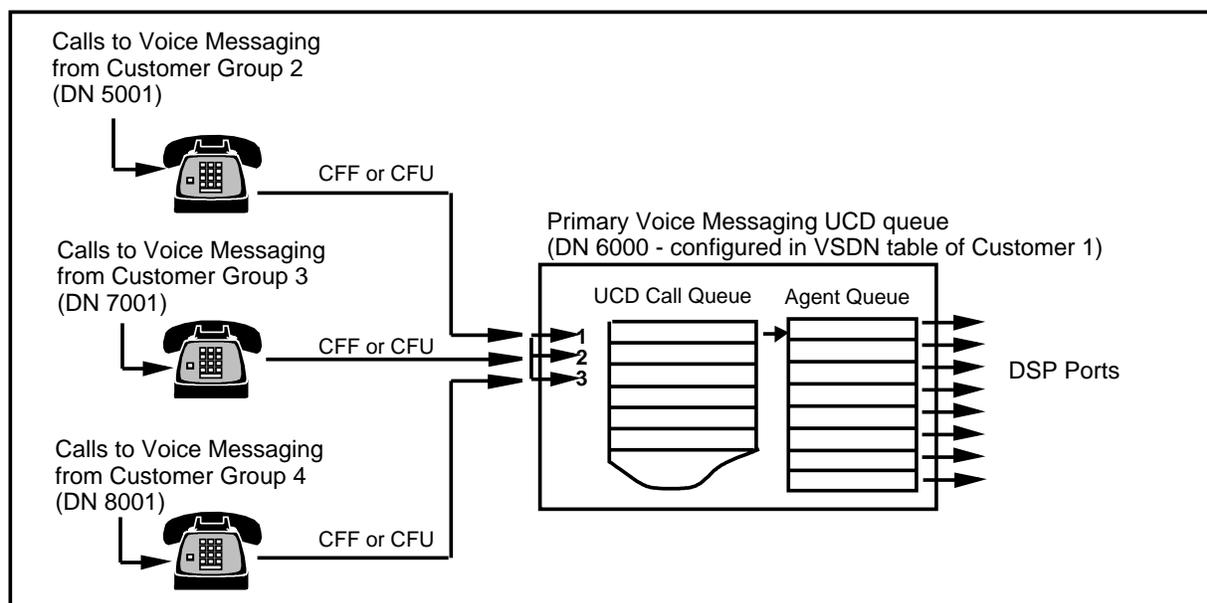
**Figure 7-3xxx**  
**Configuring voice messaging DNs - method 1**



## Method 2

- 1 On the DMS, create a UCD queue containing all of the agents. This will be the primary voice messaging UCD queue. Add the DN of the primary voice messaging UCD queue in the VSDN table of Customer 1. Do not assign any users to this customer group. Instead, Customer 1 will be used for administration purposes only. In this scenario, the DN of the primary UCD queue is never directly dialed and is not published to any of the users on the system.
- 2 For all other customer groups, create a line DN on the DMS that forwards to the primary UCD queue. In the VSDN table of each customer group, enter the DN of the line as the voice messaging access DN. See Figure 7-4.

**Figure 7-4xxx**  
**Configuring voice messaging DN's - method 2**



From an administrative point of view, the preferred method is method 1, followed by method 2.

For each additional service that is required by a customer group (such as express messaging and voice menus), you will follow the same method. Namely, you will create a line DN on the DMS switch that forwards (using either Call Forward Universal (CFU) or Call Forward Fixed (CFF)) to the primary voice messaging UCD queue. A corresponding service DN will then be entered in the VSDN table in DMS VoiceMail.

This is how voice services access the agents on your system. Once a call is forwarded to the primary UCD queue, it will compete for agents along with the other services that share this queue.

Under certain circumstances, you may need to create a dedicated UCD queue for a voice service other than voice messaging. This second method is used only if you need to dedicate agents (voice channels in DMS VoiceMail) to that service. This is described in greater detail in the following sections.

**Note:** For services that are not directly dialable, you do not need to create a DN or a UCD queue. For example, you may have a multi-layered voice menu in which a caller presses a key and is connected to another voice menu. Only the top-level voice menu requires a DN because this is the service that is actually called. Any other voice menus or announcements that are nested within this voice menu do not need their own DNs (unless they are going to be used as stand-alone services as well).

### Configuring DMS VoiceMail

On the DMS you have a number of agents. Each agent corresponds to a voice channel in DMS VoiceMail. When DMS VoiceMail is installed, you define the voice channel that corresponds to each agent. This information is reflected in the Channel Allocation Table (CAT) in DMS VoiceMail. (The CAT is accessed from the System Status and Maintenance menu). The CAT lists each agent that resides on the DMS. For each agent on the DMS, the following is specified: the corresponding voice channel in DMS VoiceMail, the UCD queue to which the agent belongs, the agent DN and the service to which the agent/voice channel is dedicated (this can be “ALL” for agents that are shared by all services, or a particular service can be specified). If you move agents from one queue to another in order to dedicate them to a particular service, you will have to modify the Channel Allocation Table to indicate the new queue to which the agent has been moved. For more information about the Channel Allocation Table, see the “System Status and Maintenance” chapter.

When you create a DN (or UCD queue) for a voice service on the DMS, you will have to define a corresponding voice service DN in DMS VoiceMail. This is the number that users dial to access the service. These DNs are defined in the VSDN table. If you created a DN for the service, you will enter the DN of the line in this table. If you created a UCD queue, you will enter the UCD DN. Therefore, the line DN or UCD DN that is configured on the DMS becomes the *Access DN* or *Service DN* of the voice service in DMS VoiceMail.

By configuring a DN for each voice service, users will dial a different access DN to use each different service. For example, users dial one number to use voice messaging, another to use express messaging, and another one to access a voice menu. By having different DNs for each service, the services are distinguished from each other. This is important because it ensures that the proper prompts are played for the service requested.

For example, when a user dials the voice messaging DN, a prompt is played asking the user to enter their mailbox number and password. However, when a user dials the express messaging DN, a prompt is played asking the user to enter the mailbox number they want to reach. When they enter the mailbox number, a personal verification is played followed by a prompt to leave a message.

### **Guidelines for configuring voice services**

Whenever you create a new voice service you will have to decide if that service is going to share the agents in the primary voice messaging queue, or if you are going to dedicate one or more agents to that service. Most of the voice services that you create will share the agents in the primary voice messaging UCD queue.

In general, when services share the agents in the voice messaging queue, the voice channels are used more efficiently. When voice channels are dedicated to a particular service, the overall efficiency of the system may be reduced for the following reasons:

- 1 A voice channel that is dedicated to a particular service cannot be used by Outcalling features (Remote Notification and Delivery to Non-Users) to place calls.
- 2 When a voice channel is dedicated to Outcalling, this service can only use the dedicated ports to make outbound calls (i.e., it cannot use a voice channel configured for “ALL” services.)

For example, your system has 8 voice channels. Six of them are shared by all services (and belong to the primary voice messaging queue). You dedicate two of your voice channels to the Outcalling feature. When the voice messaging service or the AMIS networking service places a call, any of the 8 voice channels can take the call. However, a remote notification call or a delivery to a non-user can only use one of the two voice channels dedicated to Outcalling (because of the second restriction).

When a voice channel is dedicated to a service, incoming calls from the DMS are still accepted on that voice channel. This is because the DMS, not DMS VoiceMail, is in control of incoming calls. You can, however, prohibit incoming calls on a dedicated voice channel. For example, you can prohibit other services, such as voice messaging and voice menus, from using the voice channels dedicated to Outcalling. This is described in the section “The Channel Allocation Table”, in the “System Status and Maintenance” chapter.

If the operating company sells voice ports to customers, you will have to dedicate channels to that customer. For example, you would create a primary UCD queue for voice messaging for that customer group. All other services required for that customer group could then be set up as line DNs that forward to the main queue.

Use the following guidelines to help you decide whether you need to dedicate voice channels to a service:

- It is crucial that the Outcalling service (which includes the remote notification and delivery to non-users features) always have access to channels. For example, in a hospital it might be very important that channels always be available for the remote notification service to guarantee that doctors will be paged if they have received urgent messages while away from their office. In this case you would not want the remote notification service to have to compete with all other services as it is urgent that doctors are notified immediately.
- Traffic studies have shown that a particular service is used a lot and that calls are being lost because the service has to compete with other services.

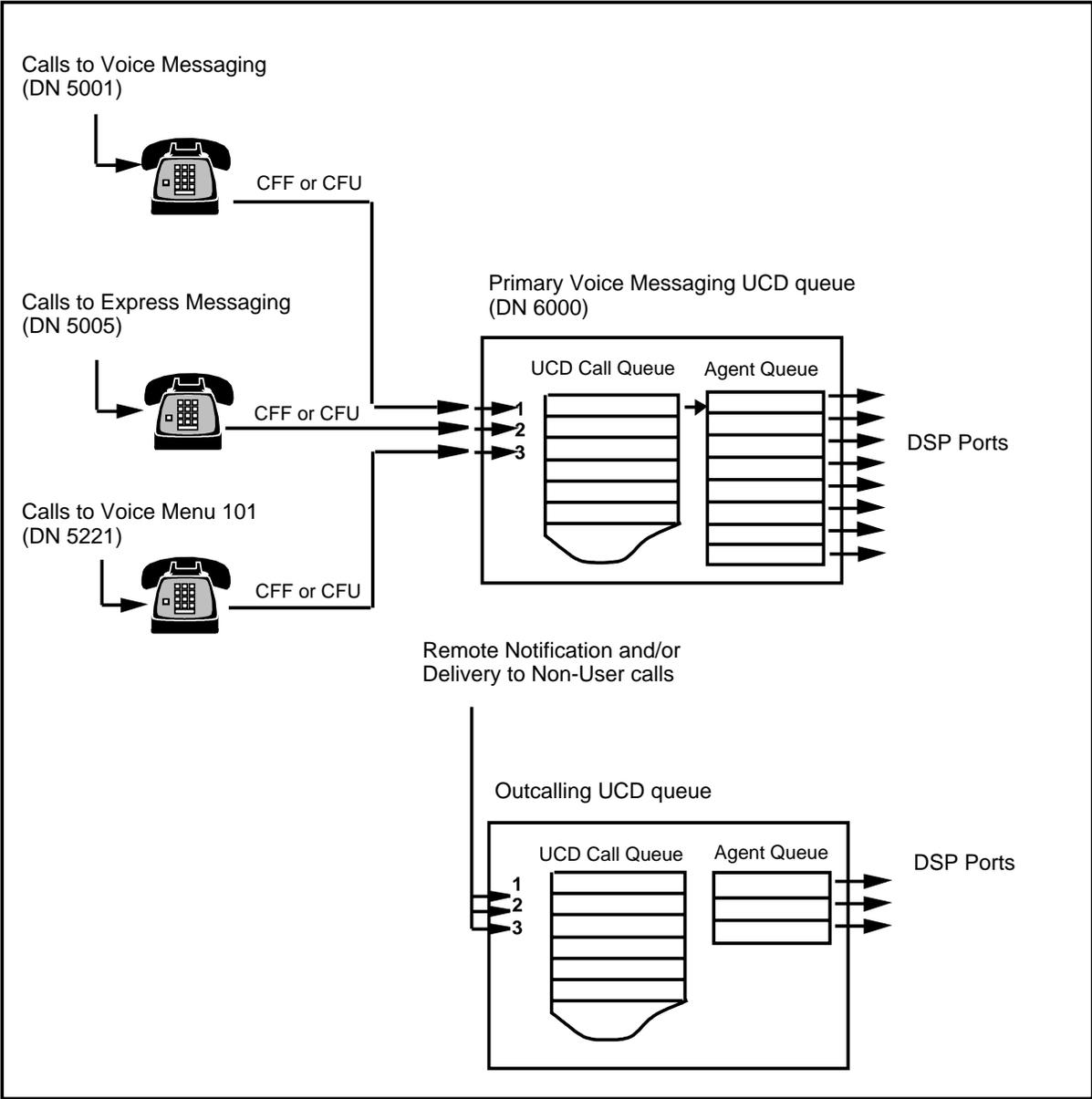
Other services will not be able to use these dedicated channels.

Therefore, do not dedicate channels unless it is absolutely necessary. The more channels that are dedicated to certain services, the greater the possibility that there will be a noticeable degradation in the performance of other services that must share a smaller number of channels.

- If you are only going to be using one voice service in addition to voice messaging, it is recommended that you dedicate voice channels to it.

Figure 7-5 shows a sample configuration for a customer group. Line DN's have been created on the DMS for voice messaging, express messaging, and a voice menu service. All three services forward to the primary UCD queue. A separate UCD queue with dedicated agents has been configured especially for the Outcalling service.

**Figure 7-5xxx**  
**Voice services configuration on the DMS**



### **Shared configuration**

For each new voice service that will share the agents in the voice messaging queue, you must configure a real or virtual telephone set on the DMS and then forward it to the primary voice messaging UCD queue. To do this:

- 1 Create a line DN on the DMS.
- 2 Call forward the DN (using CFF or CFU) to the primary Voice Messaging UCD queue.
- 3 The DN of the line is the DN of the new voice service. Enter this DN in the VSDN Table in DMS VoiceMail.

Step-by-step procedures are given in Procedure 7-3 in the section “Detailed configuration procedures”. If you are adding new agents to the voice messaging queue, also see Procedure 7-5.

In Figure 7-5, the express messaging service and the voice menu service are configured as DNs on the DMS that forward to the primary voice messaging queue. These three services share the agents in the primary voice messaging queue.

### **Dedicated configuration**

If a voice service requires dedicated voice channels you will have to create a UCD queue. This requires that you remove some agents from the primary voice messaging queue and place them in a new UCD queue. If you have purchased additional channels (UCD agents) and added them to the system, add them to the new service queue.

If a voice service requires dedicated channels:

- 1 Determine the number of agents required for the given voice service.
- 2 Create a UCD queue on the DMS.
- 3 Add agents to the new queue. These can either be moved from the voice messaging queue, or added to the new queue (if a channel expansion package has been purchased).
- 4 If you have moved agents from the voice messaging queue to the new service queue, go to the Channel Allocation Table in DMS VoiceMail. For each agent that now resides in the new UCD queue, enter the UCD DN of the new service queue as the Primary DN and specify the service to which the agent is dedicated.
- 5 The DN of UCD queue (the UCD DN) is the directory number of the new voice service. Enter this DN in the VSDN Table in DMS VoiceMail.

Step-by-step procedures are given in the section “Detailed configuration procedures”. Procedure 7-6 describes how to configure a UCD queue for the new service and move existing agents from the voice messaging queue. Procedure 7-7 describes how to add new UCD agents.

In Figure 7-5, the outcalling service is configured as a UCD queue on the DMS.

### Detailed configuration procedures

If the UCD queue for the voice messaging service has not been created on the DMS, you will have to do this before you carry on with any of the following procedures. The UCD queue is configured using the UCDGRP table. Use the DNROUTE (BCS 32 or up) or WRDN table (BCS 31 and earlier) to define the DN for this UCD queue. See the *Translations Guide* (NTP 297-7001-310) for details.

### Configuring a voice service that shares agents in the primary voice message queue

Follow Procedure 7-3 to configure a voice service to share the agents in the primary voice messaging queue.

If you will also be adding new agents to the voice messaging UCD queue (if you have purchased additional channels), see Procedure 7-5.

#### Procedure 7-3xxx

#### Configuring a new service to share agents

#### DMS Configuration (At the MAP terminal)

- 1 Enter **servord** followed by <Return>. Respond to the prompts as indicated in Table 7-1.

**Note:** Use either the CFF (Call Forward Fixed) option or the CFU option (Call Forward Universal) to forward the DN to the voice messaging queue. CFF is recommended since it is much easier to implement.

**Table 7-1xxx**

#### Defining a DN for a voice service

Prompt	Input	Comments
SO:	NEW	
SONUMBER:	_____	Current date and time
	\$	
DN: *	_____	Directory Number 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:	_____	Serving NPA of the DN
LEN:	_____	Line equipment number of the line

Prompt	Input	Comments
OPTION:	CFB	Call Forward Busy
CFBCNTL:	N	(Normal assignment for CFB)
CFBDN:	xxxxxxx	The Voice Messaging UCD DN
OPTION:	CFD	Call Forward Don't Answer
CFDCNTL:	N	(Normal assignment for CFB)
CFDDN:	xxxxxxx	The Voice Messaging UCD DN
OPTION:	CFF **	Call Forward Fixed
CFFDN:	xxxxxxx	The Voice Messaging UCD DN
OPTION:	CFU **	Call Forward Universal
OVRDVAR	N	
OPTION:	\$	

\* *The DN of the line becomes the directory number of the new service.*

\*\* *Choose one of CFF or CFU.*

**Note:** If you are using CFU, additional configuration is necessary. Go to Procedure 7-4 now. Once completed, return here and resume with the DMS VoiceMail configuration.

### DMS VoiceMail Configuration

- 1 Log on as system administrator at the DMS VoiceMail administration terminal.
- 2 Select Customer Administration.
- 3 Find the customer group you need to modify.
- 4 Select Voice Administration from the Customer Administration menu.
- 5 Select Voice Services Administration.
- 6 Select Voice Services-DN Table.
- 7 Press the [Add] softkey to access the Add DN Information screen.
- 8 Enter the DN of the line in *Access DN* field.
- 9 Specify the service in the *Service* field.
- 10 Save the DN information.

**Note:** See the "Voice Administration" chapter in the *Customer Administration Guide* for more detailed information about adding service DNs.

### Procedure 7-4xxx Configuring the CFU (Call Forward Universal) option

#### DMS Configuration (At the MAP Terminal)

**Note:** This procedure must be carried out for every line that forwards to the voice messaging UCD queue.

- 1 Use **Table CFX** to define the CFU DN. This is the UCD DN of the voice messaging queue to which the voice service DN will forward. Respond to the prompts as indicated in Table 7-2.

**Table 7-2xxx  
Defining the CFU DN**

Prompt	Input	Comments
TABLE:CFX	pos x x x x 0 (for example: pos 4 1 9 16 0)	Where xxxx is the Line Equipment Number (LEN) of the line for the service you defined in Table 7-1 (enter a 0 at the end of the LEN)
	cha	To indicate that you want to change the DN to which CFU forwards
CFUIFDN	xxxxxxx	Enter the UCD DN of the primary voice messaging service

#### At a telephone set

- 2 Connect a phone to the line.
- 3 Go off hook.
- 4 Call forward the line to the voice messaging UCD DN.
  - a. Dial the call forward activation code followed by the UCD DN.  
For example: \*80 2326050

*If you do not know what the code is, look it up in Table IBNXL A first. Check the entry for CFW. If there is no entry, configure a code. This table is described in the Installation Guide (NTP 555-70x1-210.)*

- b. Listen for the confirmation tone. This indicates that the line has been forwarded.

**Important:** If the DMS is rebooted, steps 2 to 4 will have to be repeated for each service that CFUs to the voice messaging UCD queue.

## Adding new UCD agents

Use Procedure 7-5 to add new UCD agents to the primary voice messaging UCD queue. To add new UCD agents you need to purchase the channel expansion package. Each additional channel corresponds to an additional UCD agent.

Channel expansion is described in the “Hardware Modification” chapter in the *System Installation and Modification Guide* (NTP 297-7001-504).

### Procedure 7-5xxx

#### Adding new UCD agents to the voice messaging UCD queue

##### DMS Configuration (At the MAP Terminal)

- 1 Check the UCDGRP table for the voice messaging queue. Specifically, check the MAXPOS (the maximum number of UCD agents that can be active in the queue). If the number of existing agents plus new agents is greater than the MAXPOS value, increase MAXPOS to support the new agents.
- 2 Enter **servord** followed by <Return>. For each new UCD agent, respond to the prompts as indicated in Table 7-3.

**Table 7-3xxx**

#### Adding new UCD agents

Prompt	Input	Comments
SO:	NEW	
SONUMBER:	_____	Current date and time
	\$	
DN:	_____	Directory Number of the UCD agent
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:	_____	Serving NPA of the DN
LEN:	_____	Line equipment number of the line
OPTION:	COD	Cut-off on Disconnect
OPTION:	UCD	Uniform Call Distribution
OPTION:	DGT	Digitone
OPTION:	CNF C06	6-party conferencing
OPTION:	SMDI	Simplified Message Desk Interface

Prompt	Input	Comments
LINE_NO:	_____	Line number position in the UCD SMDI group. This corresponds to the Agent ID (AI) in DMS VoiceMail. The AI and LINE_NO must match. The AI is configured in Hardware Modification at the Tools level.
UCDGRP:	_____	The name of voice messaging UCD queue (UCDNAME from the UCDGRP table)
AUTOLOG:	Y	Autologon capability required
OPTION:	\$	

### DMS VoiceMail Configuration

- 1 Program DMS VoiceMail to recognize the new channels (agents). See the "Hardware Modification" chapter in the *System Installation and Modification Guide* (NTP 297-7001-504) for details. During this procedure you will specify which voice channel corresponds to which agent, and whether the channel is shared or dedicated to a particular service. The Channel Allocation Table will be updated automatically to reflect these changes.

### Dedicating agents to a voice service

Use the following procedure to dedicate one or more agents to a new voice service. If you are also adding new agents, see Procedure 7-7.

#### Procedure 7-6xxx

#### Dedicating agents to a voice service

#### DMS-100 Configuration

- 1 At the MAP terminal, enter **Table UCDGRP** followed by <Return> to configure the UCD queue. Respond to the prompts as indicated in the *Translations Guide* (NTP 297-7001-310). For the MAXPOS prompt, be sure to enter a value equal to or greater than the number of agents that you will be transferring or adding to this queue.
- 2 Use **Table DNROUTE** (BCS 32 and up) or **WRDN** (BCS 31 and earlier) to define the directory number (DN) of the new UCD queue. Respond to the prompts as indicated in the *Translations Guide* (NTP 297-7001-310).
- 3 Enter **servord** followed by <Return> to move UCD agents from the voice messaging UCD queue to the new UCD queue. Respond to the prompts as indicated in Table 7-4.

#### Table 7-4xxx

#### Moving a UCD agent

Prompt	Input	Comments
SO:	CHF	
SONUMBER:	_____	Current date and time
	\$	

Prompt	Input	Comments
DN_OR_LEN:	_____	DN or Line equipment number of the UCD agent
OPTION:	SMDI	Simplified Message Desk Interface
LINE_NO:	_____	Line number position in the UCD SMDI group. This corresponds to the Agent ID (AI) in DMS VoiceMail. The AI and LINE_NO must match. The AI is configured in Hardware Modification at the Tools level.
UCDGRP:	_____	Name of the new service UCD queue to which the agent belongs (UCDNAME from table UCDGRP)
AUTOLOG:	Y	Autologon capability required
OPTION:	\$	

### DMS VoiceMail Configuration

- 1 Log on as system administrator at the DMS VoiceMail administration terminal.
- 2 Select Customer Administration.
- 3 Find the customer group you need to modify.
- 4 Select Voice Administration from the Customer Administration menu.
- 5 Select Voice Services Administration.
- 6 Select Voice Services-DN Table.
- 7 Press the [Add] softkey to access the Add DN Information screen.
- 8 Enter the UCD DN (that was configured in the WRDN table) in the *Access DN* field.
- 9 Specify the service in the *Service* field.
- 10 Save the DN information.

**Note:** See the "Voice Administration" chapter in the *Customer Administration Guide* for more detailed information about adding service DNs.

- 11 Return to the Customer Administration menu.
- 12 Select System Status and Maintenance from the Customer Administration menu.
- 13 Select T1 Channel Status.
- 14 Disable the T1 channels that you have just added (see page 9-25 for more information).
- 15 Return to the System Status and Maintenance menu.
- 16 Select Channel Allocation Table.

*For each agent that has been moved:*

- a. Modify the *Primary DN* field. Enter the UCD DN of the new UCD queue that you configured in the DNROUTE or WRDN table in step 2.

- b. In the *Channel DN* field, enter the 7-digit directory number of the corresponding UCD agent (see Table 7-3).
- c. In the *Service* field, specify the service to which the agent is dedicated.  
*See the description of the Channel Allocation Table in the “System Status and Maintenance” chapter for details.*

17 Reboot the DMS VoiceMail system for the changes made to the CAT to take effect.

## Adding new UCD agents

If you have purchased additional channels (UCD agents), follow Procedure 7-7 to add them to the DMS. You do not have to modify the Channel Allocation Table after adding new agents since the Hardware Modification procedure does this automatically.

### Procedure 7-7xxx

#### Adding new UCD agents

##### DMS Configuration (At the MAP Terminal)

- 1 Check the UCDGRP table for the queue(s) to which you will be adding new agents. Specifically, check the MAXPOS (the maximum number of UCD agents that can be active). If when you add the new agents to the existing agents, the number of agents exceeds the MAXPOS value, you will have to increase it to support the new agents.
- 2 Enter **servord** followed by <Return>. For each new UCD agent, respond to the prompts as indicated in Table 7-5. If you don't want to add all of the new agents to the new service queue, add the remainder to the voice messaging queue.

**Table 7-5xxx**

#### Adding new UCD agents

Prompt	Input	Comments
SO:	NEW	
SONUMBER:	_____ \$	Current date and time
DN:	_____	Directory Number of the UCD agent
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:	_____	Serving NPA of the DN
LEN:	_____	Line equipment number of the line
OPTION:	COD	Cut-off on Disconnect
OPTION:	UCD	Uniform Call Distribution
OPTION:	DGT	Digitone

Prompt	Input	Comments
OPTION:	CNF C06	6-party conferencing
OPTION:	SMDI	Simplified Message Desk Interface
LINE_NO:	_____	Line number position in the UCD SMDI group. This corresponds to the Agent ID (AI) in DMS VoiceMail. The AI and LINE_NO must match. The AI is configured in Hardware Modification at the Tools level.
UCDGRP:	_____	Name of UCD queue to which the agent belongs (UCDNAME from table UCDGRP)
AUTOLOG:	Y	Autologon capability required
OPTION:	\$	

### DMS VoiceMail Configuration

- 1 Program DMS VoiceMail to recognize the new channels (agents). See the "Hardware Modification" chapter in the *System Installation and Modification Guide* (NTP 297-7001-504) for details. During this procedure you will specify which channel corresponds to which agent, and whether the channel is shared or dedicated to a particular service. The Channel Allocation Table will be updated automatically to reflect these changes.

### The voice services administration menu

The Voice Services Administration menu (Figure 7-6) is displayed when you select item <2> from the Voice Administration Menu. Performing voice services administration involves the following activities:

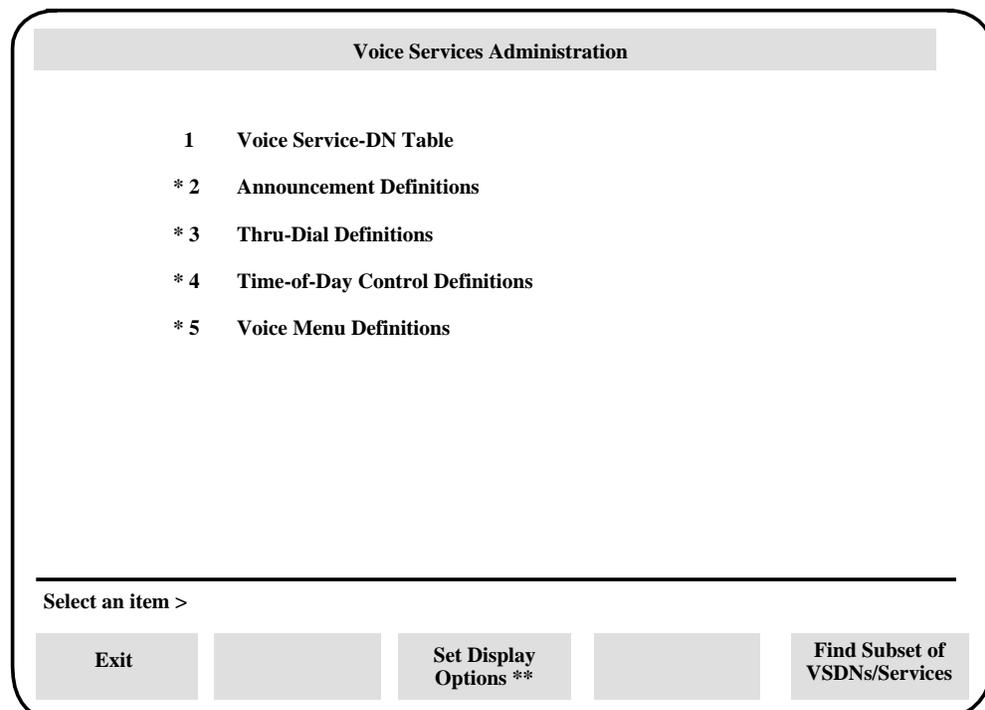
- Maintaining up-to-date DN information (in the VSDN table). The VSDN table lists all of the services that are available to a customer group and the corresponding DNs for each service. These DNs are the numbers that users dial to access particular services.
- Maintaining voice services. These include:
  - *Announcement Definitions* - in which you define recorded announcements for playback within a voice menu, or as a stand-alone voice service.
  - *Thru-Dial Definitions* - in which you define call handling services as a stand-alone service or to allow users to place calls to permitted numbers from a voice menu.
  - *Time-of-Day Control Definitions* - in which you define the activation of voice services according to time and date. Ways in which they are differentiated are business hours, off-hours, and holidays.

- *Voice Menu Definitions* - in which you define voice menus as sets of actions to be offered to the user. Each action corresponds to a key on the telephone keypad. Each voice menu can have a greeting that explains the purpose of the menu, and a second prompt played to users if a timeout condition is reached.

**Note:** Voice services can only be created at the customer administration level. Once created, they can be modified by the system administrator.

**Note:** The planning and configuration of these voice services is documented in the *Voice Menus Application Guide* (NTP 297-7001-307).

**Figure 7-6xxx**  
The Voice Services Administration menu



\* These options only appear if the Voice Menu feature is enabled.

\*\* This softkey is not displayed on MATs.

Each item in the Voice Services Administration menu is described in detail in the following sections.



**CAUTION**

**Do not perform voice services administration during nightly DR audit**

At 3:30 a.m. every day, an audit of the DR directory is performed. Do not perform any voice services administration (modifying or deleting DNs in the VSDN table or modifying or deleting voice service definitions) during this audit. Depending on how unbalanced the system is, this audit can take anywhere from 10 minutes (if the system has not been modified since the last audit) to 3 hours (if there have been many changes, such as a lot of users or services being added or modified).

**Setting the display options**

The Set Display Options screen (Figure 7-7) allows you to specify how information is sorted and displayed on the Voice Services Administration screens. For example, you can choose to display the Choice of Services list in the voice service definition screens alphabetically according to service acronym (“ms”, for example) or service description (“voice menu service”).

These display options affect all customer groups on the system. These options are not configurable by the customer administrator.

**Figure 7-7xxx**  
**The Set Display Options screen**

Voice Services Administration

**Set Display Options**

**Default sort order for:** \_\_\_\_\_ **by:** \_\_\_\_\_

VSDN Table data menus: \_\_\_\_\_ [DN] Comment

\* Service Definition data menus: \_\_\_\_\_ [ID] Title

**Sort Choice of Services/Menu Actions by:** Acronym [Description]

**Display Choice of Services/Menu Actions in:**

Channel Allocation Table: \_\_\_\_\_ No [Yes]

VSDN Table DN Information form: \_\_\_\_\_ No [Yes]

\* Voice Menu Definition form: \_\_\_\_\_ No [Yes]

Find form: \_\_\_\_\_ No [Yes]

---

Select a softkey >

Save

Cancel

\* These fields are displayed only if the Voice Menus feature is enabled.

The following fields are displayed:

- **Default sort order for VSDN Table data menus** - The selection you make affects how DN information is sorted and displayed in the VSDN table. Your options are:
  - **DN** - The list of services and corresponding DNs are sorted in ascending alphabetical order according to the DN associated with the service. Examples of numbers sorted in alphabetical order are as follows: 30 comes before 9 (3, the first digit, comes before 9), 6000 comes before 72, etc.
  - **Comment** - When this option is selected, the list of services is displayed in alphabetical order based on entries in the Comment column.
- **Default sort order for Service Definition Data Menus** - The selection you make determines how entries in the various service definition screens, such as the Announcement Definitions screen, are sorted and displayed. Your choices are:
  - **ID** - Entries are sorted in ascending alphabetical order according to the service ID within each customer group. Examples of numbers sorted in alphabetical order are as follows: 30 comes before 9 (3, the first digit, comes before 9), 6000 comes before 72, etc.

- **Title** - Entries are alphabetically sorted according to the service definition (announcement, thru-dialer, voice menu, time-of-day controller) title.
- **Sort Choice of Services/Menu Actions by** - The selection made in this field affects the display of the Choice of Services List that appears in Find Subset of VSDNs/Services screen, the Channel Allocation Table, and the View/Modify and Delete DN Information screens. This field also affects the display of the Choice of Menu Actions list that appears in the View/Modify a Voice Menu Definition screen. Your choices are:
  - **Acronym** - When selected, the Choice of Services/Menu Actions list is sorted according to the service acronym. Acronyms do not necessarily begin with the same letter as the service name. For example, the acronym for the voice menu service is “ms” (menu service).
  - **Description** - When selected, services are sorted alphabetically according to their full name. For example, Thru-Dial Service versus TS, or Voice Menu Service versus MS.
- **Display Choice of Services/Menu Actions in - Y** ou can selectively turn the display of the Choice of Services or Menu Actions list on or off for the following screens:
  - Channel Allocation Table
  - VSDN Table DN Information form (the View/Modify and Delete DN Information screens)
  - Voice Menu Definition form (the View/Modify and Delete a Voice Menu Definition screen)
  - Find form

The default for all four screens is “Yes”. Once you become more familiar with the service names and acronyms, you may no longer need to have this list displayed, in which case you can change this setting to “No”.

**Procedure 7-8xxx**  
**Setting the display options**

**Starting Point:** The Voice Services Administration menu.

- 1 Select the [Set Display Options] softkey.  
*The Set Display Options screen is displayed.*
- 2 Make the desired selections to customize the way in which data is displayed and sorted.
- 3 Choose step 3a to save the changes or 3b to cancel.
  - a. Use [Save].  
*The changes are saved and you are returned to the Voice Services Administration menu.*

- b. Use [Cancel].

*Changes are discarded and you are returned to the Voice Services Administration menu.*

### **Finding a subset of VSDNs or services**

If the VSDN table is accessed directly from the Voice Services Administration menu, all VSDN entries are retrieved and displayed. If you want to view or modify a particular VSDN or a subset of VSDNs, and do not want to have to search through the entire list of VSDNs, use the [Find Subset of VSDNs/Services] softkey. By specifying your search criteria you can retrieve a particular VSDN (by specifying the exact DN) or a subset of VSDNs (by using wildcard characters to create a search pattern). Wildcard characters are explained in the following section.

If voice menus are enabled, the Find function can also be used to find a particular service definition or a subset of service definitions (such as an announcement, thru-dialer, time-of-day controller or voice menu). When you select Announcement Definitions, Thru-Dial Definitions, Time-of-Day Control Definitions, or Voice Menu Definitions from the Voice Services Administration menu, all announcements, thru-dialers, time-of-day controllers, or voice menus are listed. Depending on how many services are defined, this list can be quite long. To retrieve a particular service definition or a subset of definitions, use the [Find Subset of VSDNs/Services] softkey.

To use the find functionality, you will have to remember some information about the VSDN or service you are trying to retrieve. In the case of a VSDN, you must be able to specify part or all of the DN, the service that is represented by the VSDN (announcement, voice menu, etc), or the comment that is stored as part of the DN information. In the case of a voice service, you must be able to provide the service ID or part or all of the service title.

If you leave all of the fields in the Find Subset of VSDNs/Services screen blank, a list of all VSDN entries/services will be displayed.

A [Find] softkey is also available in the VSDN table to help you retrieve a particular VSDN or a subset of VSDNs once you have accessed the VSDN table. This softkey is also available from the service definition selection menus (such as the Announcement Definitions screen). When you press the [Find] softkey, the Find Subset of VSDNs/Services screen is displayed (see Figure 7-8). This allows you to switch between different service definitions and DN definitions without having to traverse a hierarchy of menus. Since there is no restriction on the order in which objects (DNs, announcements, thru-dialers, etc.) are added to the system, you can manipulate DN information and then cross check the associated service definitions or vice versa.

### Using wildcard characters

Most of the fields in the Find Subset of VSDNs/Services screen accept three wildcard characters: “+” (the plus sign), “\_” (underscore), and “?” (question mark).

The plus sign (+) is used to match a number of characters. For example, if you enter “2+” in the *DN* field, all DNs beginning with 2 will be retrieved.

The underscore (\_) matches a single character. For example, if you enter “210\_” in the *DN* field, DNs in the range 2100 to 2109 will be retrieved. To retrieve all DNs numbered between 2100 and 2199, enter “21\_ \_”.

The question mark (?) produces a “sound match”. This is useful if, for example, you are unsure of the spelling of a customer’s name. For example, you want to retrieve all announcement definitions for a customer called Braemore. However, you cannot remember how to spell this name. If you enter “Br+”, the system will find all customer groups whose names begin with Br. If you enter “Braymore?” the system will find all names that sound like “Braymore”. This might include Braymore, Breymore, Braemer, etc.

### The Find Subset of VSDNs/Services screen

The same screen is displayed regardless of how it is accessed - either from the Voice Services Administration menu using the [Find Subset of VSDNs/Services] softkey, or from the VSDN table or a service definition using the [Find] softkey.

**Figure 7-8xxx**  
The Find Subset of VSDNs/Services screen

Voice Services Administration

**Find Subset of VSDNs/Services**

**Choice of Services:**

AN	AMIS Networking	AS	Announcement Service	EM	Express Messaging
GS	Greetings Service	PM	Prompt Maintenance	RA	Remote Activation
TS	Thru-Dial Service	TD	Time-of-Day Controls	TR	Transcription Service
VF	Voice Forms Service	MS	Voice Menu Service	VM	Voice Messaging

Customer Number: 123+      Customer Name: \_\_\_\_\_

# Type:                    [VSDN Entry]    Announcement    Thru-DialTOD\_Control    Voice Menu

\* DN:                      233+ \_\_\_\_\_

\* Service:                MS

\* Comment:                \_\_\_\_\_

\*\* ID:                      \_\_\_\_\_

\*\* Title:                    \_\_\_\_\_

---

Select a softkey >

	Cancel	Find Selection	Print Selection	
--	--------	----------------	-----------------	--

- # This field is displayed if Voice Menus are installed.  
 \* These fields are displayed if Type is VSDN Entry.  
 \*\* These fields are displayed if Type is not VSDN Entry.

**Note:** If this screen is accessed from the VSDN table or one of the service definition screens, the screen may or may not be prefilled with some information. This depends on whether or not an item was pre-selected when the [Find] softkey was pressed. If no item was selected, the fields in the form will be blank. If an item was selected (such as a DN in the VSDN table), then some of the fields will be datafilled with the information obtained from the selected item (such as the DN, Service and Comment).

The following fields appear on the Find Subset of VSDNs/Services form:

- **Choice of Services** - A list of available services and their acronyms.
- **Customer Number** - To retrieve the VSDNs or services associated with a particular customer group, enter the customer number in this field. To retrieve VSDNs or services across all customer groups, leave this field blank.
- **Customer Name** - If you want to retrieve the VSDNs/services associated with a particular customer group, and you remember the customer name (as opposed to the customer number), enter the customer name in this field. If you can't remember the exact name, use wildcard characters to create a search pattern. Leave this field blank if the customer name is not a relevant search criteria.
- **Type** - This field is displayed only if Voice Menus are enabled. If they are not enabled, you can only retrieve VSDNs. This field specifies the type of information you wish to retrieve. Your choices are:
  - VSDN Entry
  - Announcement
  - Thru-Dialer
  - Time-of-Day Control
  - Voice Menu

The following fields are displayed only if Type is "VSDN Entry":

- **DN** - To find a particular DN, enter the full DN in this field. To retrieve a subset of DNs, use wildcard characters to create a search pattern.
- **Service** - To retrieve all of the VSDNs for a particular service type (announcements, thru-dialers, time-of-day controllers, or voice menus), enter the acronym for that service. For example, to retrieve only announcement DNs, enter AS in this field.
- **Comment** - Any comment you enter here must match the comment that was entered in the Add or View/Modify DN Information screen. Wildcard characters are acceptable.

The following fields are displayed only if Type is not "VSDN Entry":

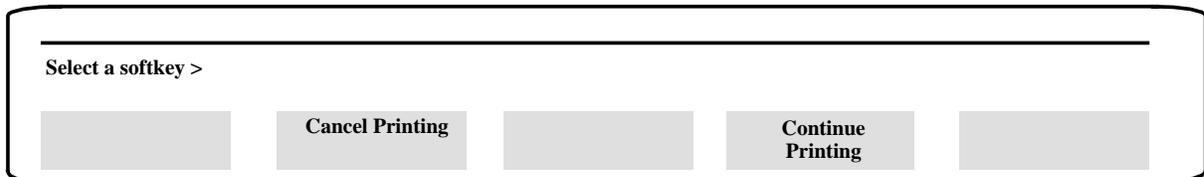
- **ID** - To retrieve a particular service definition, enter the service ID in this field. You cannot use wildcard characters in this field.
- **Title** - To retrieve a specific service definition, enter the title. The title must match exactly the title that was entered when the service definition was created. If you cannot remember the exact title of the service, use wildcard characters to create a search pattern.

Once you have filled in this screen, use the [Find Selection] softkey to display the results, or the [Print Selection] softkey to print the results.

**Procedure 7-9xxx****Finding or printing a subset of VSDNs or services**

**Starting Point:** The Voice Services Administration menu

- 1 Press the [Find Subset of VSDNs/Services] softkey.  
*The Find Subset of VSDNs/Services screen is displayed.*
- 2 Fill in the Find Subset of VSDNs/Services screen. See the field descriptions on the preceding pages.
- 3 To view the results on the screen, go to step 3a. To print the results, go to step 3b. If you do not want to continue, go to step 3c.
  - a. Press the [Find Selection] softkey.  
*If the data type was VSDN Entry, the VSDN Table is displayed.  
If the data type was a voice service (announcement, thru-dialer, time-of-day controller, or voice menu), the list of service definitions is displayed (such as the Announcement Definitions screen).*
  - b. Press the [Print Selection] softkey.  
*You are prompted to verify that the printer is ready and the following set of softkeys are displayed:*



*Press [Continue Printing] to go ahead with printing.*

*Press [Cancel Printing] if you do not want to print at this time. You can also press this softkey once printing has begun in order to cancel a print job.*

- c. Press the [Exit] softkey.  
*The search is not performed and the Voice Services Administration menu is displayed.*

## The Voice Services-DN Table

The Voice Services-DN (VSDN) Table (Figure 7-9) lists the Directory Numbers (DNs) associated with specific voice services. A DN is required for each voice service that you want users to be able to access directly by dialing a unique DN. The VSDN Table maps voice services onto DN so that when DMS VoiceMail receives an incoming call, it looks up the DN in the table to determine which service is being requested and which prompts to play.

**Note:** Because voice services are associated with specific customer groups, DNs can only be added to the VSDN table at the customer administration level. You can however, modify or delete already existing service DNs. Therefore, on the screens that follow, the [Modify] and [Delete] softkeys will appear, but the [Add] softkey will not be displayed. See the *Customer Administration Guide* (NTP 297-7001-301) for information about adding DNs.

For every service you plan to add to the VSDN table, an existing line DN (or UCD DN) must already be configured on the switch. See “Configuring services” earlier in this chapter.

If a voice service is going to share the agents in the voice messaging queue, you must first ensure that there is an available DN on the DMS, or configure one if there is not.

If you are going to dedicate agents to the service, you must create a UCD queue on the DMS (if there are none available). The corresponding UCD DN is then added to the VSDN table of one of the customer groups. The users in the same customer group can use this DN to access the service. However, all other customer groups that require this service must have a unique DN. This means creating a line DN that forwards to the UCD queue for all other customer groups. The line DNs are then entered in the VSDN tables of the customer groups and are used as the service access DNs. See “Configuring the DMS” earlier in this chapter. This section describes the three approaches to configuring voices messaging DNs, which also apply to any other service that has a dedicated UCD queue.

At the very least you must define a DN for Voice Messaging. This is the DN that users dial to log on to DMS VoiceMail and access their mailboxes.

**Note:** Each customer group requires a unique voice messaging DN to ensure that the proper service and prompts are accessed (call answering versus voice messaging, for example). Each customer group’s voice messaging DN will forward to the primary voice messaging UCD queue. See the section “Configuring the DMS” for more information.

The other DNs are essentially optional. However, the following DNs are commonly configured: at least one express messaging DN (if MMUI is enabled); if voice menus are installed, a DN for both remote activation and voice prompt maintenance as well as DNs for any directly dialed voice services such as announcements, thru-dialers, time-of-day controllers, voice menus and voice forms (if installed).

**Note:** The system will not allow DNs to be duplicated across customer groups. As system administrator, you may want to provide customer administrators with a set of allowable DNs (if you have delegated the responsibility of certain customer groups to a number of customer administrators) to avoid the possibility of a customer administrator modifying the service DN of another customer group.

**Figure 7-9xxx**  
**The Voice Services-DN Table**

Voice Services Administration				
Voice Services-DN Table				
Customer #	DN	Service		Comment
100	2663650	EM		Express Messaging
100	2663651	PM		Prompt Maintenance
100	2663654	VM		Voice Messaging
100	2663661	RA		Remote Activation
100	2663662	TS	2000	Thru-Dial
100	2663663	EM		Express Messaging
100	2663665	AS	2001	Announcement Service

Move the cursor to the item and press the space bar to select >

Exit		View/ Modify	Delete	Find
------	--	-----------------	--------	------

**Note 1:** The entries in the VSDN Table are sorted by DN by default. This can be changed in the Set Display Options screen so that they are sorted alphabetically according to the contents of the *Comment* field.

**Note 2:** If you tried accessing the VSDN table and no entries were retrieved, the following message is displayed near the bottom of the screen: “*There are no DNs associated with any service. Go to Customer Admin to add one.*”

The Voice Services-DN Table includes the following read-only fields:

- **Customer #** - The number of the customer group to which the service belongs.
- **DN** - (Directory Number) The DN for the voice service. For centrex customers, this is the 4-digit line DN or UCD DN. For residential/small business customers, this is usually a 7-digit number.

**Note:** On CO systems for which the SMDI link is set to 10-digit messaging, enter the full 10-digit DN (including the area code).

- **Service** - The service that is reached when the corresponding DN is dialed.

Voice services display a corresponding ID number.

- **Comment** - A description of the voice service.

You can use the [Find] softkey to retrieve a subset of DNs or a particular DN. When you press the [Find] softkey, the Find Subset of VSDNs/Services screen is displayed. See the description of this screen on page 7-35.

#### **Procedure 7-10xxx**

#### **Modifying And Deleting Voice Service DNs**

**Starting point:** The Voice Services Administration menu.

- 1 Select Voice Services-DN Table.

*The Voice Services-DN Table is displayed (Figure 7-9).*

- 2 Choose 2a to modify an existing service DN, 2b to delete an existing service DN, 2c to find a particular DN or a subset of DNs, or 2d to exit the VSDN Table.

- a. Use the cursor keys to move the cursor to the required voice service DN and press <Space Bar> to select it. Press the [View/Modify] softkey.

*The View/Modify DN Information screen appears. Refer to the section "Viewing and modifying DN information" later in this chapter for details.*

- b. Use the cursor keys to move the cursor to the required voice service DN and press <Space Bar>. Press the [Delete] softkey.

*The Delete DN Information screen appears. Refer to the section "Deleting DN information" later in this chapter for details.*

- c. Press the [Find] softkey.

*The Find Subset of VSDNs/Services screen is displayed. If a DN was selected when you pressed [Find], the screen will be datafilled with information taken from the selected DN. If no DN was selected, all of the fields in the screen are blank. See page 7-33 for more information about the Find function.*

- d. Use [Exit].

*The Voice Services Administration menu is redisplayed.*

## Viewing and modifying DN information

Once added to the system, voice service directory numbers can be modified by accessing the View/Modify DN Information screen (Figure 7-10).

Depending on the service that is specified, an additional field may appear on this screen (the field that is displayed depends on the service). Figure 7-11 displays an entry for each type of service and the associated fields that are displayed.

**Figure 7-10xxx**  
The View/Modify DN Information screen

**Voice Services Administration**

**View/Modify DN Information**

**Choice of Services:**

AN AMIS Networking	AS Announcement Service	EM Express Messaging
GS Greetings Service	PM Prompt Maintenance	RA Remote Activation
TS Thru-Dial Service	TD Time-of-Day Controls	TR Transcription Service
VF Voice Forms Service	MS Voice Menu Service	VM Voice Messaging

Customer Number: 1                      Customer Name: COVM 2

Access DN:   3651  

Service:   MS                        Voice Menu ID:   6054  

Comment:   Personnel Division  

---

Save

Cancel

**Figure 7-11xxx**  
**Additional service fields in the View/Modify DN Information screen**

Voice Services Administration

**View/Modify DN Information**

**Choice of Services:**

AN	AMIS Networking	AS	Announcement Service	EM	Express Messaging
GS	Greetings Service	PM	Prompt Maintenance	RA	Remote Activation
TS	Thru-Dial Service	TD	Time-of-Day Controls	TR	Transcription Service
VF	Voice Forms Service	MS	Voice Menu Service	VM	Voice Messaging

**Customer Number:** 1                      **Customer Name:** COVM 2

**Access DN:** \_\_\_\_\_

**\*Service:** AN

<b>Service:</b> <u>AS</u>	<b>Announcement ID:</b> <u>344</u>		
<b>Service:</b> <u>EM</u>	<b>Mailbox ID:</b> _____	<b>or Expansion digits:</b> _____	
	<b>Enforce Dial:</b> No [Yes]		

**Service:** GS

<b>Service:</b> <u>PM</u>	<b>Language of Service:</b> [American_English]		
	Canadian_French		

**Service:** RA

**Service:** TS

**Service:** TD

**Service:** TR

**Service:** VF

**Service:** MS

**Service:** VM

<b>Password:</b> _____			
<b>Thru-Dial ID:</b> _____	<b>Time-of-Day Control ID:</b> _____	<b>Voice Form ID:</b> _____	<b>Voice Form ID:</b> _____
<b>Voice Menu ID:</b> _____	<b>Expansion digits:</b> _____	<b>Enforce Dial:</b> No [Yes]	

**Comment:** \_\_\_\_\_

---

Select a softkey >

Save	Cancel			
------	--------	--	--	--

\* Only one service field will be displayed on your screen. These fields are for illustration purposes only to show the extra fields that are displayed for the various services.

The following fields are displayed:

- **Choice of Services** - This field lists the available voice services. By default, the list is sorted horizontally according to the feature description, not the acronym. This can be changed in the Set Display Options screen.
- **Customer Number** - This field lists the customer number. It is a read-only field.
- **Customer Name** - This field lists the customer name. It is a read-only field.

- **Access DN** - This is the DN that callers dial when accessing the voice service. This is either the line DN or the UCD DN as defined in the DMS. If there are no available DNs they will have to be programmed into the switch by a technician. You must provide a DN for Voice Messaging. This is the DMS VoiceMail Access Number, required by users to log on to DMS VoiceMail and access their mailboxes. The other DNs are optional.

**CAUTION****Access DNs, Service IDs and Mailbox IDs**

Each Access DN, Service ID and Mailbox ID must be unique. Ensure that the DNs and IDs you enter do not duplicate existing DNs/IDs.

- **Service** - This field defines which service is to be called up when the Access DN is dialed. Depending on the service selected, an extra field may be displayed. These are explained in the following descriptions.

**AN** **AMIS Networking.** This selection is possible only if AMIS networking is installed. No other fields are displayed when this service is selected.

**AS** **Announcement Service.** (This selection is possible only if voice menus are installed.) You are prompted to enter an Announcement ID. This ID is defined when you add an announcement definition. It distinguishes the announcement from all other voice services. When the access DN is dialed, the announcement associated with the ID entered in this field is played. (You do not have to define the announcement before making an entry in the VSDN table. However, if you enter an ID in this field, be sure to write it down and use it when defining the announcement.)

**EM** **Express Messaging.** When you specify Express Messaging, three additional fields - *Mailbox ID*, *Expansion Digits* and *Enforce Dial* - are displayed. You can use either the *Mailbox ID* field or the *Expansion Digits* field (or neither one), but not both.

**Note:** Express messaging is not available for VMUIF customer groups.

**Mailbox ID** - This is an optional field. If you fill in this field, you cannot enter anything in the *Expansion digits* field.

It is possible to have several Express Messaging services. Express Messaging is typically used to provide users with a service whereby they can leave messages in mailboxes without actually ringing the destination phone. Do not enter a Mailbox ID for this type of service.

You can also create Express Messaging services that connect callers to a specific mailbox. In this case you will need to enter a mailbox number in the *Mailbox ID* field. This is useful if, for example, you want to create a 'suggestion box'. You can ask users to dial the Express Messaging DN and leave their suggestions in the mailbox. You can then play the messages back. If the mailbox number you specify has not been added to the system (through User Administration), do so after adding the Express Messaging DN.

Each Express Messaging service you create will have a unique Access DN (make sure there are enough line DNs in the switch to accommodate a number of Express Messaging services).

Up to 18 digits can be entered in the Mailbox ID field.

***Expansion Digits*** - This is an optional field. If you have entered a Mailbox ID, you cannot enter expansion digits.

This feature allows you to make it more convenient for users to enter mailbox numbers during express messaging by allowing them to dial a mailbox number that is shorter than the system DN length.

***Note:*** To enter a value in this field, both the system DN length and the local addressing lengths must be specified. The system DN length is specified in the General Options screen. The local addressing lengths are defined in the Voice Messaging Options screen at the customer administration level.

For example, the system DN length is 10 digits (an example of a full 10-digit DN is 416-598-2011). For a centrex customer group, the local DN length is typically 4. (For any residential customer groups, the local DN length would be 7.)

If expansion digits are not used, the user would have to enter the full 10-digit DN when using express messaging. However, if expansion digits are implemented, the user need only enter the 4-digit DN (for centrex users) or the 7-digit DN (for residential users). The shortened DN is expanded out to the full system DN length using the expansion digits in this field.

Continuing with this example, you would enter six expansion digits for a centrex customer group (in this example you would enter 416598) since the local DN length is 4. For a residential customer group, you would enter 3 expansion digits (416 in this example) because the local DN length is 7. When a user belonging to a centrex customer group specifies the DN 2339, it is expanded to 4165982339.

***Enforce Dial*** - This field is displayed if you have specified a *Mailbox ID* or *Expansion Digits*.

If expansion digits are implemented, users can still dial a 10-digit DN. However, if Enforce Dial is implemented, they will not be allowed to enter a DN that conflicts with the expansion digits. For example, if Enforce Dial is set to “No”, users would be able to specify a 10-digit DN such as 416-575-2115 when using express messaging. If, however, Enforce Dial is set to “Yes”, the call would not be placed in this case since 416575 conflicts with the expansion digits (416598).

This field also affects user login from express messaging. For example, if a user dials “81” to login to his mailbox after leaving an express message, the user will not be allowed to enter a number that conflicts with the expansion digits.

**GS Greeting Service.** (This selection is possible only if the VMUIF interface is enabled.) This service allows subscribers to update their greetings in a manner that requires no keypad input. A DN should be created for this service to allow subscribers without digitone phones (i.e., those with rotary phones) to directly connect to the Greetings Service by dialing the specified Access DN. Once connected, the service prompts the subscriber to speak at certain times and requires no keypad input. This can also be provided to subscribers with digitone phones if they desire a simplified interface for changing greetings.

The greetings service can also be included within a voice menu. However, keep in mind that rotary phone users will not be able to access voice menus, and therefore, cannot access this service through a voice menu. To service your rotary phone subscribers you need to define a DN in the VSDN table.

**PM Prompt Maintenance.** On multilingual systems, the *Language of Service* field is displayed. The installed languages are displayed, from which you must select one. The default language is the first installed language.

- RA Remote Activation.** You are prompted for a password. (This is the password required by anyone dialing the remote activation DN in order to use the service to modify voice services.)
- Note:* If the password field is left blank, remote activation is disabled.
- TS Thru-dial Service.** You are prompted for the ID of the thru-dialer that is to be retrieved when the access DN is dialed. This ID is configured in the Add a Thru-Dial Definition screen.
- TD Time-of-day Controller.** You are prompted for the ID of the time-of-day controller that is to be retrieved when the access DN is dialed.
- TR Transcription Service.** This selection is possible only if voice forms are installed. The *Voice Forms ID* field is displayed in which you specify the voice form to be accessed by the transcription service. This field is optional. Leave this field blank to create a general transcription service which allows the transcriber to enter any voice form ID.
- VF Voice Form.** This selection is possible only if voice forms are installed. You are prompted for the ID of the voice form to be retrieved when the access DN is dialed.
- MS Voice Menu Service.** The *Voice Menu ID* field is displayed. Enter the ID of the voice menu to be retrieved when the access DN is dialed.
- VM Voice Messaging.** Two additional fields, *Expansion Digits* and *Enforce Dial*, are displayed.

***Expansion Digits*** - This is an optional field.

This feature allows you to make it more convenient for users to enter mailbox numbers when logging on to DMS VoiceMail by allowing them to dial a mailbox number that is shorter than the system DN length.

*Note:* To enter a value in this field, both the system DN length and the local addressing lengths must be specified. The system DN length is specified in the General Options screen. The local addressing lengths are defined in the Voice Messaging Options screen at the customer administration level.

For example, the system DN length is 10 digits (an example of a full 10-digit DN is 416-598-2011). For a centrex customer group, the local DN length would probably be 4 and for a residential customer group, the local DN length is typically 7.

If expansion digits are not used, the user would have to enter the full 10-digit DN when logging on. However, if expansion digits are implemented, the user need only enter the 4-digit DN (for centrex users) or the 7-digit DN (for residential users). The shortened DN is expanded out to the full system DN length using the expansion digits in this field.

Continuing with this example, you would enter six expansion digits for a centrex customer group (in this example you would enter 416598) since the local DN length is 4. For a residential customer group, you would enter 3 expansion digits (416 in this example) because the local DN length is 7. When a user belonging to a centrex customer group specifies the DN 2339, it is expanded to 4165982339.

***Enforce Dial*** - This field is displayed only if you have entered expansion digits in the previous field.

***Note:*** Enforce dial for voice messaging applies only to log on, not message addressing.

If expansion digits are implemented, a subscriber can enter a 10-digit mailbox number to log on to his or her mailbox. However, if Enforce Dial is implemented, the subscriber will not be allowed to enter a mailbox number that conflicts with the expansion digits. For example, if Enforce Dial is set to “No”, a subscriber could specify a mailbox number of 416-575-2115 to log on. If, however, Enforce Dial is set to “Yes”, the subscriber would not be allowed to log on since 416575 conflicts with the expansion digits (416598).

- ***Comments*** - This field is optional and can be used for descriptive purposes. This field holds up to 19 alphanumeric characters. In the VSDN table, you can have entries sorted alphabetically according to the comments entered here by making the appropriate selection in the Set Display Options form.

#### **Procedure 7-11xxx Modifying DN Information**

**Starting point:** The Voice Services-DN Table.

- 1 Move the cursor to the voice service you want to view or modify and press the <Space Bar> to select it.
- 2 Use the[View/Modify] softkey.  
*The View/Modify DN Information screen appears (Figure 7-10).*
- 3 Change the information as required.

- 4 Choose step 4a to save the changes or 4b to cancel.
  - a. Use [Save].  
*The changes are saved and you are returned to the Voice Services-DN Table.*
  - b. Use [Cancel].  
*The changes are not saved and you are returned to the Voice Services-DN Table.*

## Deleting DN information

Use the Delete DN Information screen (Figure 7-12) to delete Directory Numbers from the Voice Services-DN Table. The fields on this screen are read-only.

**Figure 7-12xxx**  
The Delete DN Information screen

**Voice Services Administration**

**Delete DN Information**

**Choice of Services:**

AN AMIS Networking	AS Announcement Service	EM Express Messaging	
GS Greetings Service	PM Prompt Maintenance	RA Remote Activation	
TS Thru-Dial Service	TD Time-of-Day Controls	TR Transcription Service	
VF Voice Forms Service	MS Voice Menu Service	VM Voice Messaging	

Customer Number: 1                      Customer Name: COVM 2

Access DN: 56672

Service: MS                      Voice Menu ID: 6054

Comment: Personnel Division

---

OK to delete

Cancel

**Procedure 7-12xxx**  
**Deleting DN Information**

**Starting point:** The Voice Services-DN Table.

- 1 Move the cursor to the voice service you want to delete and press the <Space Bar> to select it.
- 2 Use the [Delete] softkey.  
*The Delete DN Information screen appears (Figure 7-12).*

- 3 Choose step 3a to delete the service or 3b to cancel.
  - a. Use [OK to Delete].

*The entry is deleted and you are returned to the Voice Services-DN Table.*
  - b. Use [Cancel].

*You are returned to the Voice Services-DN Table without the entry being deleted.*



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## Hardware Administration

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Hardware Administration allows you to view the contents of the hardware database in your DMS VoiceMail system. The hardware database is a system utility which maintains a current listing and description of all nodes, cards, T1 links, T1 channels, data ports, and DSP ports in your system. If you need to modify the hardware database, you (or a representative from your support organization) must use the Modify hardware utility. This utility is documented in the *System Administration Tools* guide (NTP 297-7001-305).

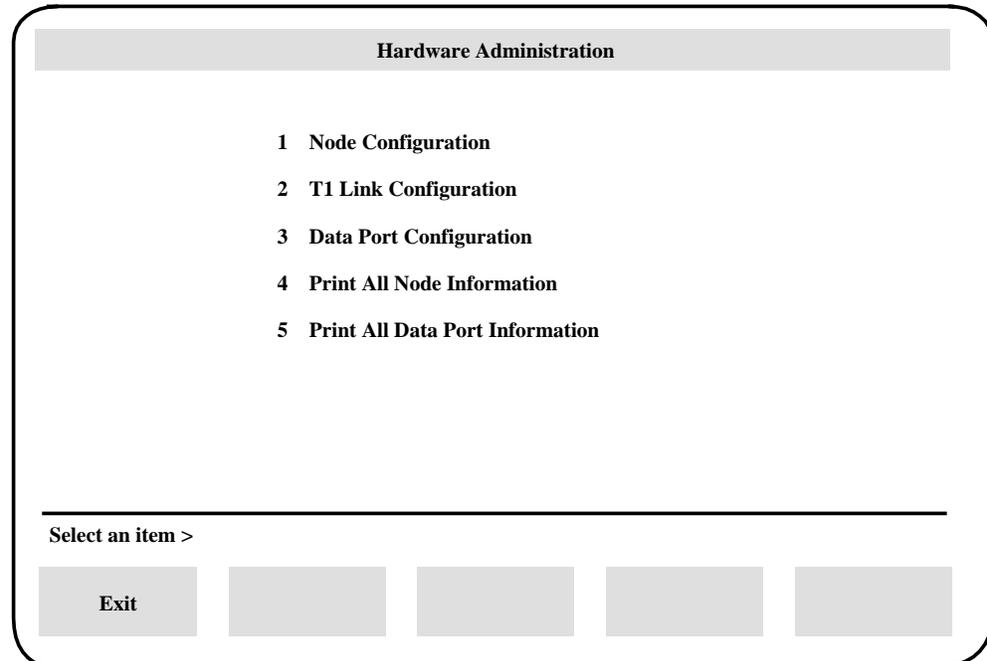
**CAUTION****Overnight system audits**

You should not leave the administrative console in any Hardware Administration menu overnight or important system audits may fail due to lack of available memory.

## The Hardware Administration menu

From the Hardware Administration menu (Figure 8-1) you can choose to view your system's node configuration, data port configuration and T1 link configuration. You can also print this information using one of the Print options in the Hardware Administration menu.

**Figure 8-1xxx**  
**The Hardware Administration menu**



### Procedure 8-1xxx

#### Using the Hardware Administration menu

**Starting point:** The Main Menu, item <3> selected.

*The Hardware Administration menu appears (Figure 8-1).*

- 1 Choose an item by entering its number and pressing <Return>.

*The menu corresponding to your selection appears. See the following sections for details:*

- <1> "Node configuration"
- <2> "T1 link configuration"
- <3> "Data port configuration"
- <4> "Printing node or data port information"
- <5> "Printing node or data port information".

- 2 Use [Exit] to return to the Main Menu.

## Node configuration

The Node Configuration screen (Figure 8-2) is a summary listing of the cards found on all nodes in your system.

**Figure 8-2xxx**  
Node Configuration screen

Hardware Administration			
Node Configuration			
Node	Card_1	Card_2	Card_3
1	Empty	SBC	Bus
2	Bus	Empty	SBC
3	VP12	VP12	SBC
4	VP12	VP12	SBC
..	...	...	...
13	T1	Empty	SBC
14	SBC	Empty	T1

Move the cursor to the node number and press the space bar to select.

Exit                      View

**Note:** The figures in this section do not necessarily represent actual hardware configurations. They are illustrations only.

The following fields are displayed:

- **Node** - The node number.
- **Card** - The types of cards found on the specified node. The following abbreviations identify the following cards:
  - **SBC** - single board computer (also known as the 68k card)
  - **Bus** - high-speed bus
  - **VP12** - 12-channel voice processor
  - **T1** - T1 link

**Procedure 8-2xxx**

**Viewing node configurations**

**Starting point:** The Hardware Administration menu, item <1> selected.

*The Node Configuration screen appears (Figure 8-2).*

- 1 Move the cursor to the node you want to view and press <Space Bar>.  
*Your selection is highlighted.*
- 2 Choose step 2a to view the configuration information of the node or 2b to return to the Hardware Administration menu.
  - a. Use [View].  
*The View Node screen appears; see the next section, "Viewing nodes".*
  - b. Use [Exit].  
*The Hardware Administration menu is redisplayed.*

### Viewing nodes

The View Node screen (Figure 8-3) displays the cards and ports (and their attributes) that are installed on the node you selected in the Node Configuration screen.

**Figure 8-3xxx**  
View Node screen

**Hardware Administration**

View Node

Location	Card_Type	Port_Type	Attributes
1-1-*	Empty		
1-2-*	SBC		
1-2-1		Data:	[Terminal] Printer NWModem MMLink AML/CSL SMDI PMS AdminPlus LIFNLinkModem
1-2-2		Data:	Terminal Printer NWModem MMLINK AML/CSL SMDI PMS AdminPlus LIFNLink[Modem]
1-2-3		Data:	[Terminal] Printer NWModem MMLINK AML/CSL SMDI PMS AdminPlus LIFNLinkModem
1-2-4		Data:	[Terminal] Printer NWModem MMLink AML/CSL SMDI PMS AdminPlus LIFNLinkModem
1-3-*	Bus		

MORE BELOW

Exit

**Hardware Administration**

MORE ABOVE

View Node

Location	Card_Type	Port_Type	Attributes
14-1-*	SBC		
14-1-1		Data	Terminal Printer NWModem MMLink AML/CSL [SMDI] PMS AdminPlus LIFNLinkModem
14-1-2		Data	Terminal Printer NWModem MMLink AML/CSL [SMDI] PMS AdminPlus LIFNLinkModem
14-1-3		Data:	Terminal Printer NWModem MMLink AML/CSL [SMDI] PMS AdminPlus LIFNLinkModem
14-1-4		Data:	Terminal Printer NWModem MMLink AML/CSL [SMDI] PMS AdminPlus LIFNLinkModem
14-2-*	Empty		
14-3-*	T1		
14-3-1		Link	
14-3-2		Link	
14-4-3		Link	
14-4-4		Link	

**Note:** The figures in this section do not necessarily represent an actual hardware configuration. They are presented for illustration purposes only. If the node you are viewing is a system node you may have the following types of cards installed: SBC or Bus. A voice node would have the following types of cards installed: SBC and VP12. A TIFN would have the T1 card and SBC card installed.

The screen displays the following read-only information about each card on the node:

- **Location** - The physical location of the card in the DMS VoiceMail system. The location is identified by the node-card-port number.
- **Card Type** - The function of the card; see “Node configuration” for a description of the abbreviations used in this field.
- **Port Type** - The type of port. “Data” indicates a serial data communications port. “Device” indicates a mass storage device or tape drive. “Voice” indicates a voice processor port. “Link” indicates a T1 link.
- **Attributes** (for ports with port type = Data)
  - **Terminal:** Indicates a connection to an administration terminal or a personal computer.
  - **Printer:** Printer serial connection.
  - **NWModem:** Not applicable.
  - **MMLink:** Not applicable.
  - **AML/CSL or Meridian Link:** Not applicable.
  - **SMDI:** Simplified Message Desk Interface. This is the communications channel between DMS VoiceMail and the switch.
  - **PMS:** Not applicable.
  - **AdminPlus:** Not applicable.
  - **LIFNLink:** Not applicable.
  - **Modem:** Connection to a modem used for remote access.
- **Attributes** (for ports with port type = Device)
  - **Disk:** Mass storage subsystem (hard disk)
  - **Tape:** Cartridge tape subsystem

## T1 link configuration

The T1 Link Configuration screen lists the T1 links in the DMS VoiceMail system.

**Figure 8-4xxx**  
T1 Link Configuration screen

Hardware Administration			
T1 Link Configuration			
T1 Link ID	Primary Connection (Node-Card-Span)	Secondary Connection (Node-Card-Span)	T1 Clock Reference Candidacy
A	13-1-1	14-1-1	Y
B	13-1-2	14-1-2	
C	13-1-3	14-1-2	
D	13-1-4	14-1-4	
E	15-1-1	16-1-1	Y
F	15-1-2	16-1-2	
G	15-1-3	16-1-3	
H	15-1-4	16-1-4	Y

Move the cursor to the item and press the space bar to select.

Exit	Modify T1 Chnl Configuration	Modify T1 Link Setup		
------	---------------------------------	-------------------------	--	--

**Note:** The figures in this section do not necessarily represent actual hardware configurations. They are illustrations only.

The following fields are displayed on this screen:

- **T1 Link ID** - A unique identifier for the T1 link. Each link actually consists of two connections, a primary and secondary connection, to provide redundancy.
- **Primary Connection** - The location (node-card-span) of the primary connection.
- **Secondary Connection** - The location (node-card-span) of the secondary connection.
- **T1 Clock Reference Candidacy** - This field shows whether or not the link has been configured as a candidate for clock referencing. Use the [Modify T1 Link Setup] softkey to nominate a link or to disqualify a current candidate. See the section “Modifying the T1 link setup” for more information about clock referencing.

**Procedure 8-3xxx**  
**Viewing or Modifying T1 link configurations**

**Starting point:** The Hardware Administration menu, item <2> selected.

*The T1 Link Configuration screen appears (Figure 8-4).*

- 1 Move the cursor to the T1 link you want to view or modify and press <Space Bar>.

*Your selection is highlighted.*

- 2 Choose step 2a to modify the T1 channel configuration information of the link. Choose step 2b to modify the T1 link setup information. Choose step 2c to return to the Hardware Administration menu.

- a. Use [Modify T1 Chnl Configuration].

*The Modify T1 Channel Configuration screen is displayed. See the next section, "Modifying T1 channels".*

- b. Use [Modify T1 Link Setup].

*The T1 Link Setup screen is displayed. See the section "Modifying the T1 link setup".*

- c. Use [Exit].

*The Hardware Administration menu is redisplayed.*

## Modifying T1 channels

The Modify T1 Channel screen (Figure 8-5) displays the T1 Channel configuration for the link you select.

**Figure 8-5xxx**  
The Modify T1 Channel Configuration screen

Hardware Administration

Modify T1 Channel Configuration for T1 Link ID A

Channel Number	Routing Address	Login Code	Logout Code	Agent ID Code	Not-ready Deactivation Code	Link ID
1	0 -1234	1234	1234	1234	1234	Link1
2	0 -5432	2222	3333	4444	5555	Link2
3	0 -0					
4	0 -0					
5	0 -0					
6	0 -0					
7	0 -0					
8	0 -0					
9	0 -0					
10	0 -0					
11	0 -0					
12	0 -0					
13	0 -0					
14	0 -0					
15	0 -0					
16	0 -0					
17	0 -0					
18	0 -0					
19	0 -0					
20	0 -0					
21	0 -0					
22	0 -0					
23	0 -0					
24	0 -0					

Save

Cancel

**Note:** The figures in this section do not necessarily represent an actual hardware configuration. They are presented for illustration purposes only.

The following fields are displayed on this screen:

- **Channel Number** - The number of the T1 channel.
- **Routing Address** - The location of the corresponding agent in the switch. This is the Message Desk Number and is represented in the format xx-yyyy, where xx is the message desk number and yyyy is the terminal number.

- **Login Code** - The channel access code for logging in to the UCD group. This field should be blank if the SMDI\_AUTOLOG option has been configured as “Y” (yes) on the switch. When this field is left blank, DMS VoiceMail inserts a default login code.  
If SMDI\_AUTOLOG is configured as “N” on the switch, ensure that the code displayed here matches the code configured on the switch. See your DMS administrator.
- **Logout Code** - The channel access code for logging out of the UCD group. This field should be blank if the SMDI\_AUTOLOG option has been configured as “Y” (yes) on the switch. When this field is left blank, DMS VoiceMail inserts a default login code.  
If SMDI\_AUTOLOG is configured as “N” on the switch, ensure that the code displayed here matches the code configured on the switch. See your DMS administrator.
- **Agent ID Code** - This ID must match the line number (SMDI\_LINE\_NO) of the UCD agent that is configured on the DMS. The LINE\_NO can either be configured through **so** (servord) or through Table IBNFEAT by entering the SMDI option.
- **Not-ready Deactivation Code** - This field is not applicable to DMS UCD environments and should be left blank. It is used in DMS ACD environments for putting the channel to the ACD queue after the channel has logged into the ACD group.
- **Link ID** - The Link ID of the SMDI link associated with the T1 channel.

For more information about these options, see the *Translations Guide* (NTP 297-7001-310).

**Procedure 8-4xxx**  
**Viewing or Modifying T1 channel configurations**

**Starting point:** The Hardware Administration menu, item <2> selected.

*The T1 Link Configuration screen appears (Figure 8-4).*

- 1 Move the cursor to the T1 link you want to view or modify and press <Space Bar>.

*Your selection is highlighted.*

- 2 Use [Modify T1 Chnl Configuration].

*The Modify T1 Channel Configuration screen is displayed (Figure 8-5).*

- 3 Use arrow keys to position the cursor where you want to make changes. Use backspace or delete keys to make changes as required. Type in new information where required.
- 4 Use [Cancel] to undo the changes, or use [Save] to save the changes. In both cases, the T1 Link Configuration screen re-appears.

## Modifying the T1 link setup

The T1 Link Setup screen (Figure 8-6) is used to modify the T1 clock reference candidacy of a T1 link, the line code format of a T1 link, or the T1 debounce time. You may nominate one or more links to serve as the clock reference for the SPM. An external device in the network (such as the DMS-100, for example) serves as the reference provider. The line code format setting should correspond to the setup for the T1 link on a DMS-100 switch. If this field is modified, the change will not take effect until the T1 link is enabled.

The actual link that is used as the reference is defined in the T1 Link Status screen (see the “System Status and Maintenance” chapter). If any problems occur on the link that is the current clock reference, or if certain maintenance procedures are being carried out on the link or the card, the system will automatically select one of the other nominated links as the new reference and generate a SEER to indicate that a link has been activated as the reference provider. The following situations will cause the system to select another reference.

- a red alarm is detected
- a yellow alarm is detected
- there is a hardware fault
- the T1 card on which the link resides is disabled
- the TIFN is disabled
- the switch T1 link command is issued
- the T1 link that is the clock reference is disabled

In order to nominate a T1 link for clock reference candidacy, modify the T1 Line Code Format, or modify the T1 Debounce Time, you must first take both the primary and secondary spans associated with the T1 link out-of-service. T1 links are enabled and disabled in the T1 Link Status screen (described in the “System Status and Maintenance” chapter).

The line code format setting must correspond to the line code format setting on the DMS-100 switch for the T1 link. If you modify this field, the change will not take effect until the T1 link is re-enabled.

**Figure 8-6xxx**  
**The T1 Link Setup screen**

**Hardware Administration**

**T1 Link Setup for Link ID A**

**T1 Clock Reference Candidacy:**            [No]    Yes

**T1 Line Code Format:**                    B7            [B8ZS]

**T1 Debounce Time:**                    130

---

Select a softkey >

Save \*      Cancel      [ ]      [ ]      [ ]

\* If you have not disabled the primary and secondary spans, only the [Exit] softkey is displayed and the screen is read-only.

The following field is displayed on this screen:

- ***T1 Clock Reference Candidacy*** - “Yes” indicates that the selected T1 link is nominated as a clock reference candidate. “No” indicates that the link has not been nominated.
- ***T1 Line Code Format*** - “B7” and “B8ZS” are protocols for the T1 link. The setting on this screen must match the setting on the DMS-100 switch for the T1 link
- ***T1 Debounce Time*** - Enter a value between 0 and 512. This value is the amount of time the system will wait for a T1 span to be cleared of noise after a T1 signal is sent. The default is 130.

#### **Procedure 8-5xxx**

##### **Nominating/disqualifying a T1 link as a clock reference candidate**

**Starting point:** The Main Menu.

- 1 Select System Status and Maintenance.
- 2 Select T1 Link Status.
- 3 Press [Disable T1].  
*You are prompted for the number of the link you want to disable.*
- 4 Enter the number of the link you want to disable followed by <Return>.  
*To disable another link, repeat steps 3 and 4.*

- 5 Press [Exit].  
*The System Status and Maintenance menu is displayed.*
- 6 Press [Exit].  
*The Main Menu is displayed.*
- 7 Select Hardware Administration.
- 8 Select T1 Link Configuration.
- 9 Move the cursor to the T1 link you want to nominate/disqualify and press <Space Bar> to select it.  
*Your selection is highlighted.*
- 10 Press [Modify T1 Link Setup].  
*The T1 Link Setup screen is displayed.*
- 11 Select “Yes” to nominate a link or “No” to disqualify a current candidate.
- 12 Press [Save].  
*The selected link is nominated/disqualified and the T1 Link Configuration screen is displayed.*
- 13 Return to the T1 Link Status screen in System Status and Maintenance and re-enable the link(s).
- 14 If necessary, activate one of the candidates as the clock reference using [Change T1 Clocking Mode] in the T1 Link Status screen. See the section “T1 Link Status” in the “System Status and Maintenance” chapter for more information.

## Data port configuration

The Data Port Configuration screen (Figure 8-7) summarizes the data ports on all nodes in your system. From this screen you can select a data port and view the configuration. The abbreviations used in this screen are described under “Node configuration” earlier in this chapter.

Before continuing with the description of the Data Port Configuration screen and the View data port screens, the recommended data port uses are listed in the table below (Table 8-1).

**Table 8-1xxx**  
**Recommended data port uses**

Node	Card	Port	Allowable uses
1 (MSP 1)	2	1	Console (note 1)
1 (MSP 1)	2	2 (modem)	Remote Access
1 (MSP 1)	2	3	Maintenance Printer
1 (MSP 1)	2	4	MAT (note 2)
2 (MSP 2)	3	1	Console (note 1)
2 (MSP 2)	3	2 (modem)	Remote Access

<b>Node</b>	<b>Card</b>	<b>Port</b>	<b>Allowable uses</b>
2 (MSP 2)	3	3	
2 (MSP 2)	3	4	MAT (note 2)
3 (SPN 1)	1	1	AdminPlus (if less than 60 ports) (note 3)
3 (SPN 1)	1	2 (modem)	Remote MAT, SMDI (notes 2, 4)
3 (SPN 1)	1	3	
3 (SPN 1)	1	4	MAT (note 2)
4 (SPN 2)	3	1	
4 (SPN 2)	3	2 (modem)	Remote MAT, SMDI (notes 2, 4)
4 (SPN 2)	3	3	
4 (SPN 2)	3	4	ACCESS (note 5)
5 (SPN 3)	3	1	AdminPlus (60 ports or greater) (note 3)
5 (SPN 3)	3	2 (modem)	Remote MAT, SMDI (notes 2, 4)
5 (SPN 3)	3	3	
5 (SPN 3)	3	4	
6 (SPN 4)	3	1	
6 (SPN 4)	3	2 (modem)	SMDI (note 4)
6 (SPN 4)	3	3	
6 (SPN 4)	3	4	ACCESS (note 5)
7 (SPN 5)	1	1	
7 (SPN 5)	1	2 (modem)	SMDI (note 4)
7 (SPN 5)	1	3	
7 (SPN 5)	1	4	
8 (SPN 6)	3	1	
8 (SPN 6)	3	2 (modem)	SMDI (note 4)
8 (SPN 6)	3	3	
8 (SPN 6)	3	4	ACCESS (note 5)
9 (SPN 7)	3	1	
9 (SPN 7)	3	2 (modem)	SMDI (note 4)
9 (SPN 7)	3	3	
9 (SPN 7)	3	4	
10 (SPN 8)	3	1	
10 (SPN 8)	3	2 (modem)	SMDI (note 4)
10 (SPN 8)	3	3	
10 (SPN 8)	3	4	ACCESS (note 5)

Node	Card	Port	Allowable uses
13 (TIFN 1)	3	1 (modem)	SMDI
13 (TIFN 1)	3	2 (modem)	SMDI (note 4)
13 (TIFN 1)	3	3 (modem)	SMDI (note 4)
13 (TIFN 1)	3	4 (modem)	SMDI (note 4)

**Notes:**

- 1 A relay on the I/O panel switches the terminal to MSP2 port 1 if MSP1 fails.
- 2 If the Multi-Admin feature is enabled, up to 3 MATs (Multiple Administration Terminals) may be assigned. In the case of local terminals, it is recommended that MSP1 data port 4 be assigned to the first MAT, MSP2 data port 4 be assigned to the second MAT and SPN1 dataport 4 be assigned to a third MAT. For remote user administration, MATs may instead be assigned to a modem data port on an SPN node.
- 3 If the Multi-SMDI feature is enabled, additional SMDI ports may be assigned. The maximum number of SMDI links that may be supported by the SPM will be determined by the number of ports provisioned, and the number of SPN modem data ports not being used for other features. As an example, an SPM provisioned with 48 voice ports could support 6 SMDI links if no other feature required use of either SPN modem data port. SPMs provisioned with 48 ports will support up to 4 redundant SMDI ports (TIFN 1 & 2, ports 1 - 4) and 2 non-redundant SMDI ports (SPN 1 & 2, port 2).

The remainder of this section describes the Data Port Configuration screen, and the View data port screens.

**Figure 8-7xxx**  
**Data Port Configuration screen**

Hardware Administration			
Data Port Configuration			
Port Location	Description	Device Type	Status
1-3-1	Node 1 SBC Port 1	Terminal	InService
1-3-2	Node 1 SBC Port 2	Modem	InService
1-3-1	Node 1 SBC Port 3	Terminal	InService
1-3-2	Node 1 SBC Port 4	Terminal	OutofService
2-3-1	Node 2 SBC Port 1	Terminal	InService
2-3-2	Node 2 SBC Port 2	Modem	OutofService
2-3-3	Node 2 SBC Port 3	Terminal	InService
2-3-4	Node 2 SBC Port 4	Terminal	InService
11-1-1	Node 12 SBC Port 1	Terminal	InService
11-1-2	Node 13 SBC Port 2	Terminal	InService
12-1-1	Node 12 SBC Port 1	Terminal	InService
12-1-2	Node 13 SBC Port 2	Terminal	InService

Move the cursor to the data port location and press space bar to select.

Exit      View/Modify

The Data Port Configuration screen displays the following information:

- **Port Location** - The port's physical location (node-card-port) in the system.
- **Description** - The node and card type on which the port resides.
- **Device Type** - The function of the port.
- **Status** - The current operational state of the port.

#### Procedure 8-6xxx

##### Viewing data ports

**Starting point:** The Hardware Administration menu, <3> entered.

- 1 The Data Port Configuration screen appears (Figure 8-7).
- 2 Move the cursor to port to be viewed and press <Space Bar>.
 

*Your selection is highlighted.*
- 3 Choose step 3a to view or modify the configuration information, or 3b to return to the Hardware Administration menu.
  - a. Use [View/Modify].
 

*The View Data Port screen is displayed for the selected device. See the next section for details.*

- b. Use [Exit].

*The Hardware Administration menu appears.*

## View data port

The following sections describe the different Data Port screens which can be displayed. The screen that is displayed is determined by the data port that is selected in the Data Port Configuration screen when you press [View/Modify].

### Terminal data ports

The View Data Port screen for terminals (Figure 8-8) allows you to view information about the terminal connected to the selected port.

**Figure 8-8xxx**  
**View Data Port screen (Terminal)**

Hardware Administration	
<b>View Data Port</b>	
<b>Data Port Location:</b>	1-1-1
<b>Device Type:</b>	Terminal
<b>Device Name:</b>	CON0181
<b>Baud Rate:</b>	1200 [2400] 4800 9600
<b>Parity:</b>	Even Odd [None]
<b>Number of Windows:</b>	4
<b>Window Width:</b>	80
<b>Window Height:</b>	24
<hr/>	
Select a softkey >	
Exit	

The following read-only fields are displayed in the screen:

- **Data Port Location** - The port's physical location (node-card-port) in the system. A terminal must be located on node 1, SBC port 1. Other terminals can also be in the system on other data ports.
- **Device Type** - "Terminal" will be displayed.
- **Device Name** - The name that identifies the terminal.
- **Baud Rate** - This setting depends on the current set-up of the terminal on the port.

- **Parity** - The method by which data is communicated. This can be “Even”, “Odd”, or “None”, depending on the current set-up of the terminal connected to the port. It is usually set to “None”.
- **Number of Windows** - This field specifies the number of windows that can be used simultaneously. This will be “6” for the System Administration terminal.
- **Window Width** - This field specifies the window width used.
- **Window Height** - This field specifies the window height used.

**Procedure 8-7xxx**

**Viewing the terminal data port**

**Starting point:** The Hardware Administration menu, <3> entered.

*The Data Port Configuration screen appears.*

- 1 Move the cursor to the terminal data port you want to view.
- 2 Press the <Space Bar> to select it.
- 3 Press [View/Modify].

*The View Data Port screen (for the selected Terminal) is displayed.*

- 4 Press [Exit] to return to the Data Port Configuration screen.

**Printer data ports**

The View Data Port screen for printers (Figure 8-9) allows you to view the baud rate and parity of the printer that is connected to the selected port.

**Note 1:** A secondary printer can be attached directly to the administration terminal. It does not require a separate data port.

**Note 2:** Operational Measurement reports must be directed to a particular printer. The printer is specified in the General Options screen (see the “General Administration” chapter.)

**Figure 8-9xxx**  
**View Data Port screen (Printer)**

Hardware Administration	
<b>View Data Port</b>	
<b>Data Port Location:</b>	1-3-4
<b>Device Type:</b>	Printer
<b>Device Name:</b>	PRT0134
<b>Baud Rate:</b>	1200 [2400] 4800 9600
<b>Parity:</b>	Even Odd [None]
<hr/>	
Exit	

The following read-only fields are displayed in the screen:

- **Data Port Location** - The port's physical location (node-card-port) in the system.
- **Device Type** - The function of the port. This will be set to "Printer".
- **Device Name** - The name of the device.
- **Baud Rate** - The setting will depend on the current set-up of the printer connected to the port.
- **Parity** - The setting will depend on the current set-up of the printer connected to the port.

**Procedure 8-8xxx**  
**Viewing the printer data port**

**Starting point:** The Hardware Administration menu, <3> entered.

*The Data Port Configuration screen appears.*

- 1 Move the cursor to the printer data port you want to view.
- 2 Press the <Space Bar> to select it.
- 3 Press [View/Modify].

*The View Data Port screen (for the selected printer) is displayed.*

- 4 Press [Exit] to return to the Data Port Configuration screen.

### SMDI data port

The View Data Port screen for SMDI (Figure 8-10) allows you to view the baud rate, parity, and transmit mode of the serial connection to the DMS switch at the selected port.

**Figure 8-10xxx**  
View Data Port screen (SMDI)

Hardware Administration	
<b>View Data Port</b>	
<b>Data Port Location:</b>	13-1-3
<b>Device Type:</b>	SMDI
<b>Device Name:</b>	SMDI183
<b>Baud Rate:</b>	1200 [2400] 4800 9600
<b>Parity:</b>	[Even]Odd None
<b>Transmit Mode:</b>	Simplex [Duplex]
<b>Link name:</b>	Link1 *

Exit [ ] [ ] [ ] [ ]

\* The link name used here is for illustration purposes only.

The following read-only fields are displayed in the screen:

- **Data Port Location** - The port's physical location (node-card-port) in the system.
- **Device Type** - The function of the port. This will be "SMDI".
- **Device Name** - The name of the device.
- **Baud Rate** - Set this field to "2400" for the MPC card or "1200" for the 1X67FA card.
- **Parity** - This will be "Even".
- **Transmit Mode** - This will be "Duplex".
- **Link Name** - The name of the link as defined during installation. This name should not be changed once users have been added to the system. See the chapter "Modify hardware" in the *System Administration Tools* guide (NTP 297-7001-305).

**Procedure 8-9xxx****Viewing the SMDI data port**

**Starting point:** The Hardware Administration menu, <3> entered.

*The Data Port Configuration screen appears.*

- 1 Move the cursor to the SMDI data port you want to view.
- 2 Press the <Space Bar> to select it.
- 3 Press [View/Modify].

*The View Data Port screen (for the selected SMDI link) is displayed.*

- 4 Press [Exit] to return to the Data Port Configuration screen.

**Modem data port**

The View Data Port screen for Modems (Figure 8-11) allows you to view the modem characteristics.

**Figure 8-11xxx****View Data Port screen (Modem)**

Hardware Administration	
<b>View Data Port</b>	
<b>Data Port Location:</b>	1-8-1
<b>Device Type:</b>	Modem
<b>Device Name:</b>	CON0181
<b>Baud Rate:</b>	1200 [2400] 4800 9600
<b>Parity:</b>	Even Odd [None]
<hr/>	
Exit	

The following fields are displayed on this screen:

- **Data Port Location** - The port's physical location (node-card-port) in the system.
- **Device Type** - The function of the port. This will be "Modem".
- **Device Name** - The name of the device.
- **Baud Rate** - The setting will depend on the current set-up of the modem connected to the port.

- **Parity** - The setting will depend on the current set-up of the modem connected to the port.

**Procedure 8-10xxx**

**Viewing the Modem data port**

**Starting point:** The Hardware Administration menu, <3> entered.

*The Data Port Configuration screen appears.*

- 1 Move the cursor to the Modem data port you want to display.
- 2 Press the <Space Bar> to select it.
- 3 Press [View/Modify].

*The View Data Port screen (for the selected Modem) is displayed.*

- 4 Press [Exit] to return to the Data Port Configuration screen.

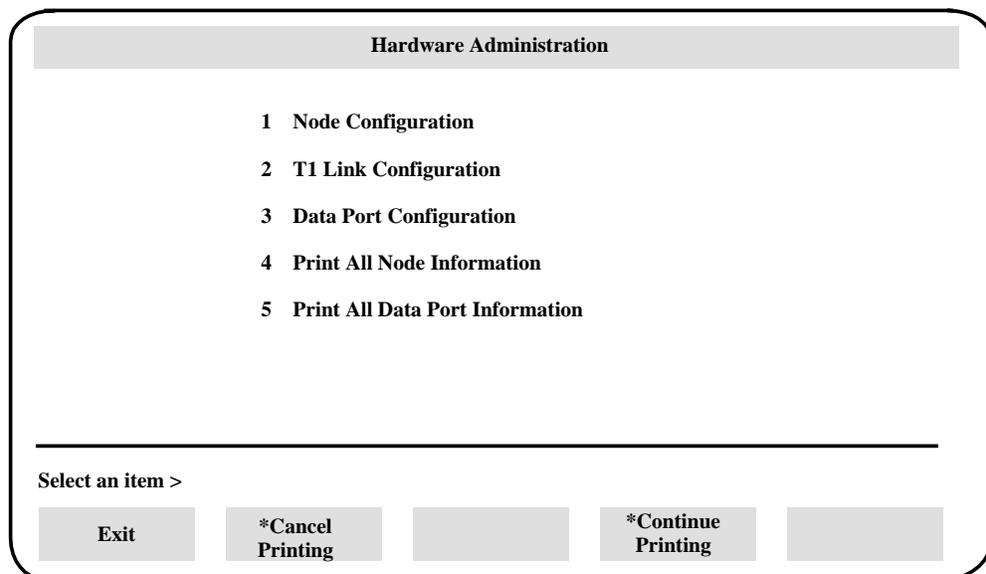
*The Data Port Configuration screen is displayed.*

## Printing node or data port information

The following procedure describes how to print a list of all the node or data port information contained in the hardware database.

**Figure 8-12xxx**

**The Hardware Administration menu**



\* The Printing softkeys appear after item 4 or 5 has been selected.

**Procedure 8-11xxx**  
**Printing node and data port information**

**Starting point:** The Hardware Administration menu, item <4> or <5> selected.

*The following softkeys appear: [Continue Printing] and [Cancel Printing].*

*You are prompted to check that the printer is ready and on-line.*

**1** Choose step 1a to print the node or data port information or 1b to cancel.

a. Use [Continue Printing].

*The node or data port information begins printing.*

*Once printing is complete, the Hardware Administration menu and its softkeys are redisplayed; you may stop printing at any time by proceeding to 2b.*

b. Use [Cancel Printing].

*The print operation is cancelled and you are returned to the Hardware Administration menu.*

*There may be some delay before control is returned to the screen while the system waits for the printer to stop printing.*



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## System Status and Maintenance

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The System Status and Maintenance function provides monitoring and control screens through which you obtain views of the operational state of the system at eight levels: system, nodes, cards, T1 links, SMDI links, T1 channels, DSP ports, and disks.

The System Status and Maintenance functions are used in the course of routine maintenance, and allow you to take any component of the system out of service while performing maintenance. A component can be taken out of service by disabling it (forcing it out of its operational state), or by performing a courtesy disable, which progressively disables active ports as they become idle. The Courtesy Disable avoids any disruption of calls in progress. The following maintenance-related actions can be taken:

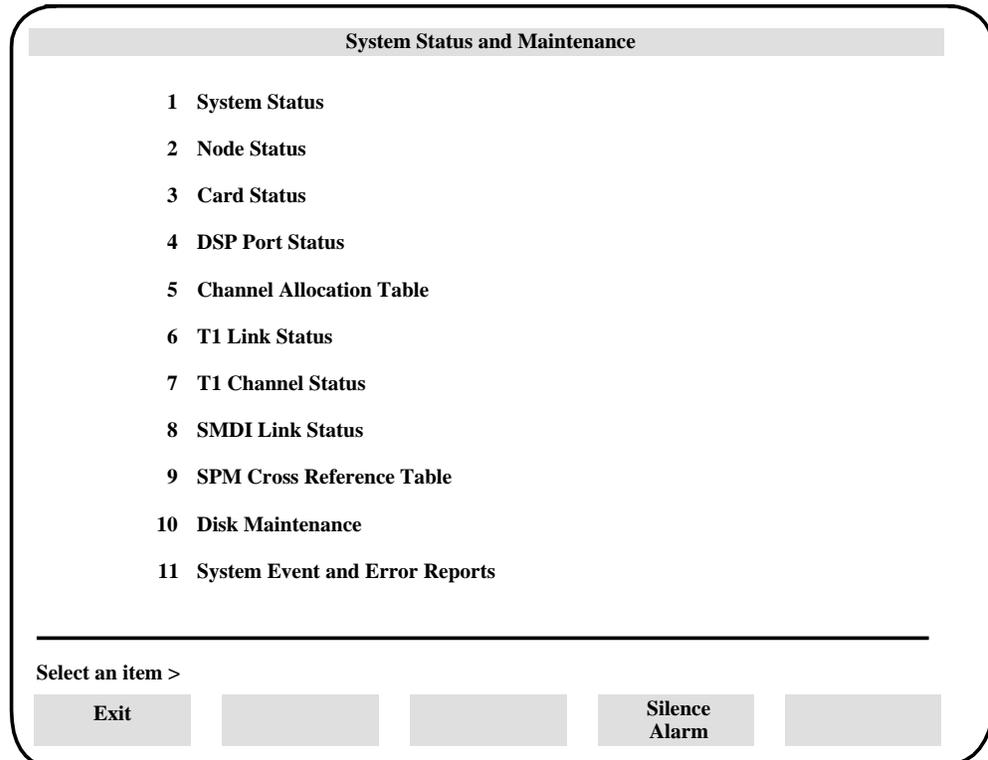
- **System Courtesy Down** - is for broad maintenance activities, such as reconfiguring the switch, which necessitates a power shutdown on the DMS VoiceMail system.
- **Courtesy Disable Ports or (forced) Disable Node** - the choice of which is dependent on the nature of the work to be carried out, and the state of the node (information about which is obtained through the System Status and Maintenance displays).
- **Card Disable** - is used before performing diagnostics on a card, such as for a card showing "Faulty" status on one of its ports.
- **Courtesy Disable or (forced) Disable of DSP Ports** - is used before performing tests on a port.
- **Courtesy Disable or (forced) Disable of T1 Channels** - is used before performing maintenance on a T1 channel.
- **Disk Maintenance** - is used after a faulty disk has been replaced with a new disk and needs to be resynchronized with its partner.

The System Status and Maintenance function also provides a facility to print SEERs, an integral part of service and maintenance activities.

## The System Status and Maintenance menu

The System Status and Maintenance menu (Figure 9-1) provides several options.

**Figure 9-1**  
**The System Status and Maintenance menu**



### Procedure 9-1 Using the System Status and Maintenance menu

**Starting point :** The Main Menu, <4> entered.

*The System Status and Maintenance menu appears (Figure 9-1).*

- 1 Choose an item by entering its number and pressing <Return>.

*The menu corresponding to your selection appears.*

See the following sections for details:

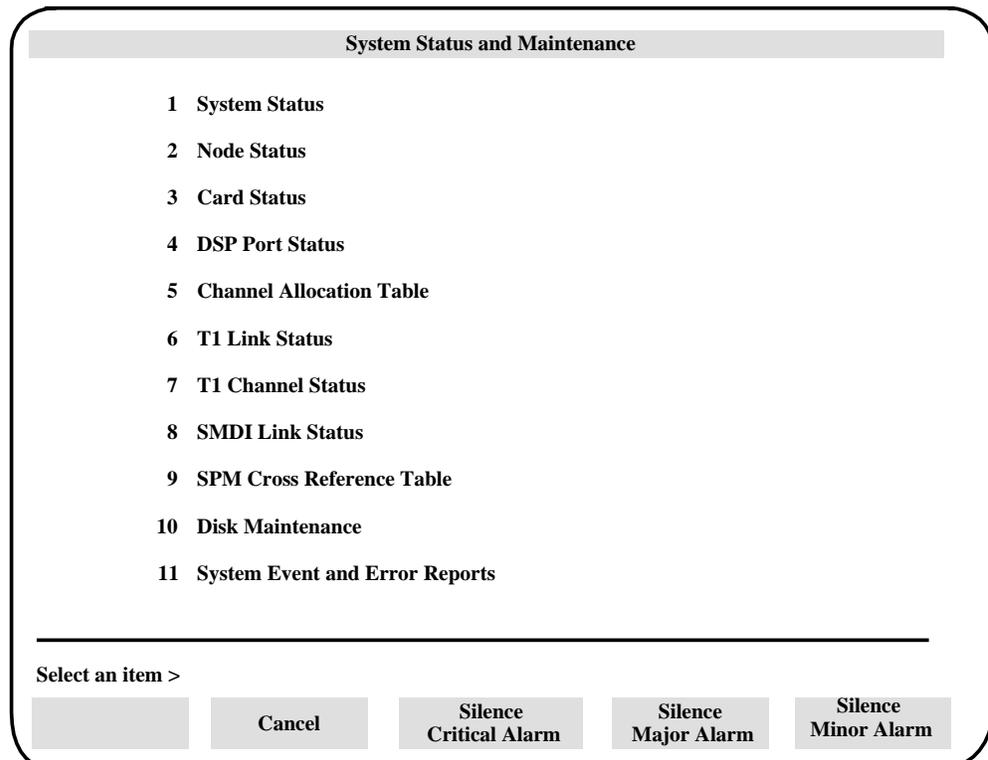
- <1> "System Status"
- <2> "Node Status"
- <3> "Card Status"
- <4> "DSP Port Status"
- <5> "Channel Allocation Table"
- <6> "T1 Link Status"
- <7> "T1 Channel Status"
- <8> "SMDI Link Status"
- <9> "SPM Cross Reference Table"
- <10> "Disk Maintenance"
- <11> "System Event and Error Reports"

- 2 Use [Exit] to return to the Main Menu.

## Silencing Alarms

When the system sounds an alarm, you may silence it using the [Silence Alarm] softkey. When this softkey is pressed, the softkeys displayed in Figure 9-2 are displayed.

**Figure 9-2**  
Alarm softkeys

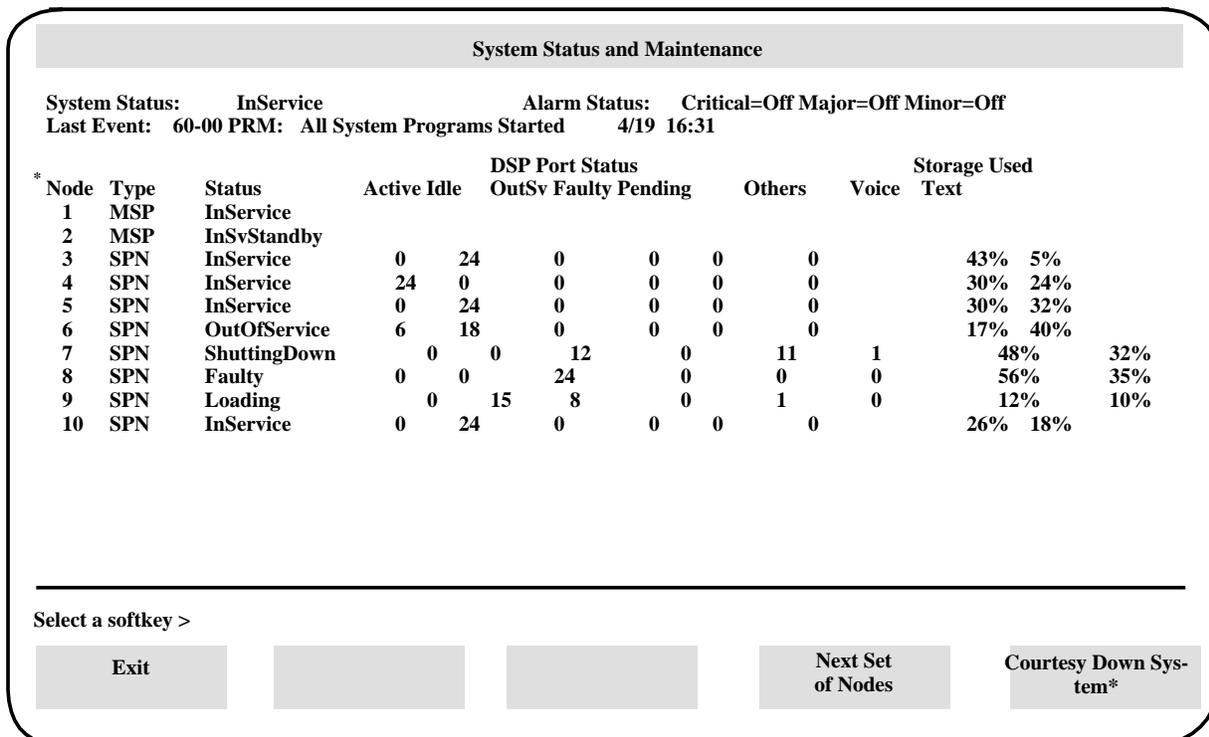


An alarm will sound if the corresponding severity level SEER is issued indicating that a problem exists. By using the appropriate softkey you can silence either critical, major, or minor alarms. The [Cancel] softkey causes the original set of softkeys to be displayed without silencing any alarms. Try to clear the problem as well or the alarm could be turned on again if you simply silence it. Alarms persist until you silence them. (There is no timeout period after which they are turned off by the system.)

## System Status

The System Status screen (Figure 9-3) allows you to view the operational status of the system, and courtesy down the system. This screen is identical to the System Status screen displayed from the Logon/Status screen, with the exception being that the System Status screen that is displayed from the Logon/Status screen does not have the Courtesy Down System softkey.

**Figure 9-3**  
System Status screen



\* When the system is in CourtesyDown state, this softkey becomes [Activate System].

To view the next set of nodes, select the [Next Set of Nodes] softkey. The details for the remaining nodes are displayed, as shown in Figure 9-4. Note in Figure 9-4 that the [Next Set of Nodes] softkey is changed to [Previous Set of Nodes].

**Figure 9-4**  
**System Status - Next Set of Nodes**

System Status and Maintenance									
System Status:		InService			Alarm Status:		Critical=Off Major=Off Minor=Off		
Last Event:		60-00 PRM: All System Programs Started			4/19 16:31				
Node	Type	Status	DSP Port Status				Storage Used		
			Active	Idle	OutSv	Faulty	Pending	Others	Voice
13	TIFN	InService							
14	TIFN	InService							
15	TIFN	InService							
16	TIFN	OutOfService							

---

Select a softkey >

Exit			Previous Set of Nodes	Courtesy Down System
------	--	--	-----------------------	----------------------

The following fields are displayed in the System Status screen:

- **System Status** - This field displays the current system status. Your system can be in one of the following states:
  - **InService** indicates that all critical programs on all nodes are operational and the system is accepting calls.
  - **CourtesyPending** indicates that the system is in the process of shutting down. This occurs after using the [Courtesy Down System] softkey. Incoming calls are directed to an attendant. Calls in progress are not interrupted. Each port is disabled as it becomes idle. The software remains loaded.
  - **CourtesyDown** indicates that the system has shut down and is no longer operational nor accepting calls. The software remains loaded. When the system is down, the [Courtesy Down System] softkey becomes [Activate System]. When used, the system will restart and eventually return to an InService state.
  - **Loading** indicates that the system is loading software while booting up.

- **Alarm Status** - This field indicates the alarm category, as described below:

**Critical** alarms indicate a service-affecting problem that requires immediate attention.

**Major** alarms indicate a service-threatening problem that may be allowed to persist (for up to 24 hours). If not attended to, the alarm will become critical.

**Minor** alarms indicate a problem that has no impact on the system or users.

The status for each type of alarm will be one of the following:

- **Off** indicates that there are no new alarms. This does not necessarily mean that there are no error conditions as alarms may have been silenced from the Logon screen, but the error conditions causing the alarm may still exist.
- **On** indicates that one or more alarm situations was detected.
- **Unk** indicates that the status is unknown.
- **Last Event** - The most recent system event or error (SEER) logged.
- **Node** - The node to which the following measurements apply.
- **Type** - The type of node.
- **Node Status** - The status of the nodes in your system. The node types include the MSP (Multi-Server Processor), SPN (Signal Processing Node), and TIFN nodes (Telephony Interface Node). A node may be in one of the following states:
  - **InService** indicates that node is running and accepting calls. For the MSP node, it indicates that node is running.
  - **UnEquipped** (used with the MSP , SPN, or TIFN node) indicates that the node is not defined in the hardware database. The “Modify hardware” chapter in the *System Administration Tools* guide (NTP 297-7001-305) describes how to modify the hardware database.
  - **Faulty** indicates that a hardware problem is detected.
  - **Loading** (used with the MSP , SPN, or TIFN node) indicates that the node is currently starting up and loading software into memory. No software is running when the node is in this state.
  - **InSvStandby** (used with the TIFN node) indicates that the node is running and is ready to take over operations for the paired redundant node.
  - **ShuttingDown** (used with the MSP , SPN, or TIFN node) indicates that the node is in the process of shutting down (the software is unloading), as a result of a forced disable.
  - **OutOfService** indicates that the node is no longer operational, as a result of a forced disable.

- **Booting** indicates that an operating system is being loaded on to the node.
- **DSP Port Status** - These fields reflect the state of each DSP port on the associated SPN node. For each port that is in a particular state, an entry is made in the appropriate column. A DSP port may be in one of the following states:
  - **Active** indicates that the port is operational and is currently in use.
  - **Idle** indicates that the port is operational but not in use at the moment. The port is ready to accept calls.
  - **OutSv** indicates that the associated port is not operational, and is not accepting calls.
  - **Faulty** indicates that a hardware problem has been detected in the DSP port.
  - **Pending** indicates that there has been a request to shut down the port. The port is still active, pending an active call being disconnected before shutting down.
  - **Other** indicates that the port is temporarily unavailable. This usually occurs while the system is booting up. The status remains as “Other” while the software is loading. Once fully loaded, the status automatically becomes “Idle”. The status may also appear as “Other” when you re-enable a port (for as long as the necessary software is loading). The status returns to “Idle” once the port has been enabled.
- **Storage Used** - This field indicates the amount of voice and text storage used as a percentage of available storage on the user volume of this node. (If the disk on a node is bad, percentages are not displayed.) It is only valid for the SPN node.

### Procedure 9-2 Courtesying down the system

**Starting point:** The System Status and Maintenance menu, <1> entered.

*The System Status screen appears (Figure 9-3).*

- 1 Choose step 1a to courtesy down the system, or 1b to return to the System Status and Maintenance menu.
  - a. Use [Courtesy Down System].

*[Activate System] replaces [Courtesy Down System].*

*The system may take some time in disabling the system since it waits for all active T1 channels on all nodes to become idle; the message “WORKING ...” will be displayed during this interval.*

*If the T1 channel does not become idle during a courtesy down, disable the T1 channel manually by following the procedure described under “T1 Channel Status”. Wait a few minutes to ensure that an in-progress call is not dropped.*

The system can be re-enabled at any time during the process by using [Activate System].

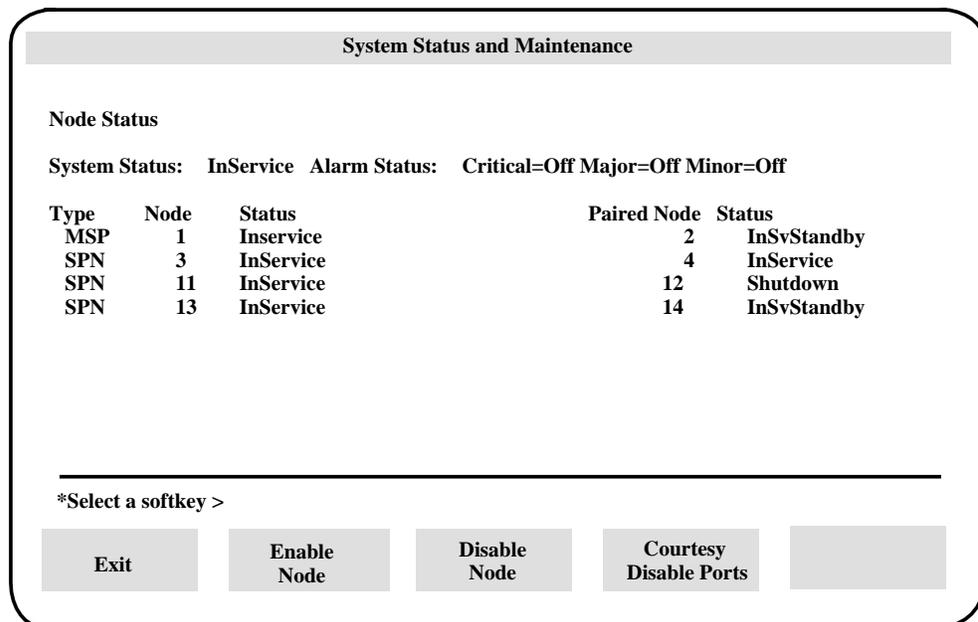
If a T1 channel does not re-enable, enable it by following the procedures described under "T1 Channel Status".

- b. Use [Exit] to return to the System Status and Maintenance menu.

## Node Status

The Node Status screen (Figure 9-5) displays the operational status of the nodes in your system. The softkeys displayed on this screen are used to enable and disable nodes on the system and courtesy disable ports on an SPN node in the system.

**Figure 9-5**  
**Node Status screen**



- \* "Enter the number of the node you want to enable" appears when [Enable Node] is used.
- \* "Enter the number of the node you want to disable" appears when [Disable Node] is used.
- \* "Enter the number of the node you want to Courtesy Disable Ports" appears when [Courtesy Disable Ports] is used.

The following fields are displayed on the Node Status screen:

- **System Status** - This field displays the current system status. See the section "System Status" for details.
- **Alarm Status** - This field indicates whether there are any critical, major or minor alarms. See the section "System Status" for details.
- **Type** - The type of node. The types of nodes are:
  - **MSP** or Multi-Server Processor

- *SPN* or Signal Processing Node
- *TIFN* or Telephony Interface Node
- **Node** - The node number to which the following measurements apply.
- **Status** - The node will be in one of the following states:  
*Note:* The status at this level does not indicate the status of a given card on the node. For more information for particular cards, go to the Card Status screen (page 9-11).
  - **InService** indicates that node is running and accepting calls. For the MSP node, it indicates that node is running.
  - **UnEquipped** (used with the MSP , SPN, or TIFN node) indicates that the node is not defined in the hardware database. The *System Administration Tools* guide (NTP 297-7001-305) describes how to modify the hardware database.
  - **Faulty** indicates that a hardware problem is detected.
  - **Loading** (used with the MSP , SPN, or TIFN node) indicates that the node is currently starting up and loading software into memory. No software is running when the node is in this state.
  - **InSvStandby** (used with the TIFN node) indicates that the node is running and is ready to take over operations for the paired redundant node.
  - **ShuttingDown** indicates that the node is in the process of shutting down (the software is unloading), as a result of a forced disable.
  - **OutOfService** indicates that the node is no longer operational, as a result of a forced disable.
  - **Booting** indicates that an operating system is being loaded on to the node.
- **Paired Node** - The number of the node which is paired with the original node.
- **Status** - The status of the paired node. See the above descriptions.

### Procedure 9-3

#### Enabling and disabling nodes

**Starting point:** The System Status and Maintenance menu, <2> entered.

*The Node Status screen appears (Figure 9-5).*

- 1 Choose step 1a to enable a node, 1b to disable a node, 1c to courtesy disable ports on a node, 1d to return to the System Status and Maintenance menu.
  - a. Use [Enable Node].  
*You are prompted for the node number.*  
 Enter the required number followed by <Return>.

**Note 1:** *If you have just disabled a node and are re-enabling it, wait 3 to 5 minutes after using [Disable Node] before you use [Enable Node].*

**Note 2:** *If you enable MSP1 when it is InSvStandby, an MSP switchover will occur.*

*The system may take some time in enabling the node.*

- b. Before you disable an SPN node, use [Courtesy Disable Ports] on the affected node. Once the ports are disabled (status appears as OutOfService on the DSP Port Status screen), press the [Disable Node] softkey.

*You are prompted for the number of an in-service node.*

Enter the node number followed by <Return>.

*The system may take some time in disabling the node.*

*If you are going to re-enable the node, wait 3 to 5 minutes before using [Enable Node].*

- c. Use [Courtesy Disable Ports].

*You are prompted for the number of an in-service node.*

Enter the SPN node number followed by <Return>.

*The system may take some time in disabling all the ports on a node since it waits for all active DSP ports to become idle. The node itself will remain InService.*

- d. Use [Exit] to return to the System Status and Maintenance menu.

## Card Status

The Card Status screen (Figure 9-6) displays the operational status of the cards in your system. The softkeys displayed on this screen are used to enable and disable VP and T1 cards on the SPN and TIFN nodes and initiate diagnostics when necessary. (To disable other types of cards, use [Disable Node] on the Node Status screen.)

**Figure 9-6**  
The Card Status screen

System Status and Maintenance

Card Status for Node 13

System Status: InService    Alarm Status: Critical=Off Major=Off Minor=Off

Card#	Location	Description	Status
1	1-1-*	SBC	InService
2	1-2-*	T1	InService

---

Select a softkey >

Exit    Enable Card    Disable Card    OutOfService Diagnostics

The following fields are displayed on the Card Status screen:

- **System Status** - See the description in the section “System Status”.
- **Alarm Status** - See the description in the section “System Status”.
- **Card Number** - The number of each card on the selected node.
- **Card Location** - The location (node-card) of each card on the selected node.
- **Card Description** - Function of each card.
- **Card Status** - The current state of each card on the selected node.
  - **UnEquipped** indicates that either the card slot is empty but defined in hardware database or the card is in the slot but not defined in the hardware database.
  - **Faulty** indicates that a hardware problem has been detected for the card.

- *InService* indicates that the card is operational.
- *OutOfService* indicates that the card has been disabled.

**Procedure 9-4**  
**Enabling and disabling cards**

**Starting point:** The System Status and Maintenance menu, <3> entered.

*You are prompted for a node number:*

**Enter the node number for card status > \_\_\_**

- 1 Enter the number of the node with the card that you want to enable, disable, or run OutOfService Diagnostics on.

*The Card Status screen appears (Figure 9-6).*

- 2 Choose step 2a to enable a card, 2b to disable a card, 2c to activate diagnostics on an out-of-service or faulty card, or 2d to exit.

- a. Use [Enable Card].

**Note:** Only voice processor and T1 cards can be enabled from this screen. To enable other cards use [Enable Node] in the Node Status screen. See the previous section, "Node Status".

*You are prompted for the number of an out-of-service card.*

Enter the card number followed by <Return>.

*The system may take some time in enabling the card. The message "WORKING ..." will be displayed during this interval.*

- b. Use [Disable Card].

**Note:** Only voice processor cards and T1 cards can be disabled from this screen. To disable other cards use [Disable Node] in the Node Status screen.

*You are prompted for the number of the card you want to disable.*

Enter the card number followed by <Return>.

*The system may take some time in disabling the card. The message "WORKING ..." will be displayed during this interval.*

- c. Use [OutOfService Diagnostics].

*You are prompted for the number of an out-of-service or faulty card.*

Enter the card number followed by <Return>.

*The system may take some time in running diagnostics. The message "WORKING ..." will be displayed during this interval.*

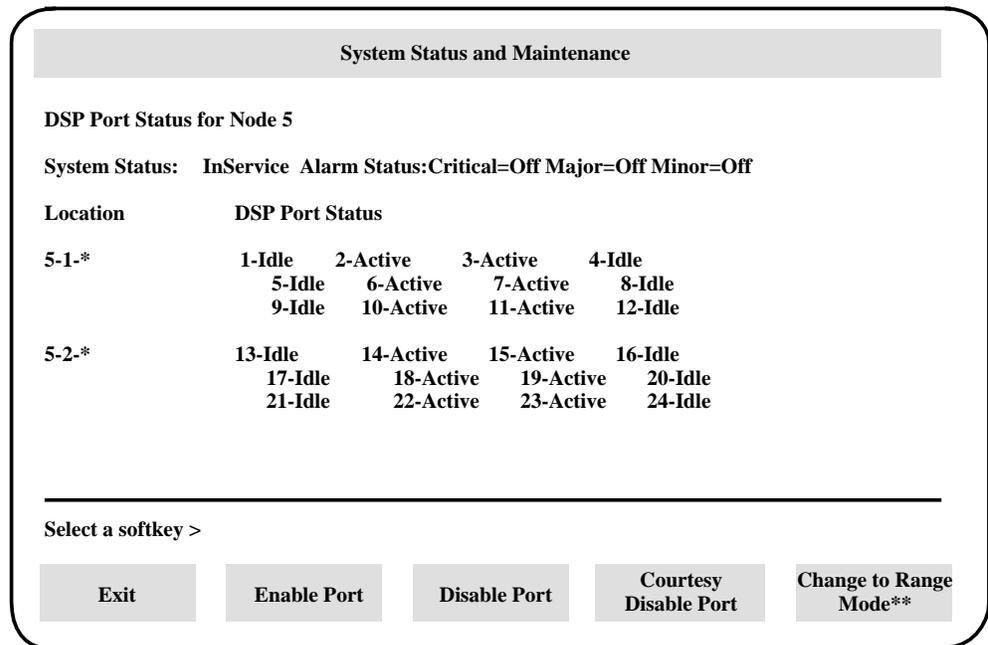
**Note:** If the OutOfService Diagnostics fails the card will become faulty. If the card state is faulty you can run OutOfService diagnostics. If passed, the card is put into the OutOfService state.

- d. Use [Exit] to return to the System Status and Maintenance menu.

## DSP Port Status

The DSP Port Status screen (Figure 9-7) allows you to view the operational status of the DSP ports on a node, manipulate their status, and courtesy disable individual ports when necessary.

**Figure 9-7**  
The DSP Port Status screen



\*\* This softkey is a toggle. When in Range Mode, the softkey is [Change to Single Mode].

The following fields are displayed on the DSP Port Status screen:

- **System Status** - See the description in the section “System Status”.
- **Alarm Status** - See the description in the section “System Status”.
- **Location** - The location (node-card) of each port on the selected node. For example, “23-Active” indicates that the 23rd DSP port on the fifth node is active.
- **DSP Port Status** - The current state of each DSP port.
  - **Active** indicates that the DSP port is operational and in use.
  - **Idle** indicates that the DSP port is operational but not in use.
  - **Faulty** indicates that the system has detected an error.
  - **OutOfService** indicates that the port is no longer operational, as a result of a courtesy disable or forced disable.
  - **POutOfService** indicates that the port is in the process of shutting down, pending disconnection of an active call. The port is still active.

- **UnEquipped** indicates that the DSP port is not defined in the hardware database. For more information about modifying the hardware database, see the *System Administration Tools* guide (NTP 297-7001-305).
- **No Resource** indicates a transition state that occurs during the initial stages of software loading (after a request to enable a port). When software begins to load, the port is initially in this state, followed by Loading, and finally, once the software has finished loading, Idle.
- **Loading** indicates that the DSP port is currently starting up after a request to enable and that the necessary software is loading.

If you need to enable, disable or courtesy disable a number of DSP ports, use the [Change to Range Mode] softkey first. (This only works with a contiguous range of ports. For example, it will work if you need to disable ports 3 to 7, but not if you need to disable ports 1, 3 and 7). When you toggle to range mode, this softkey changes to [Change to Single Mode]. If you are in single mode, follow Procedure 9-5. If you are in range mode, follow Procedure 9-6.

**Procedure 9-5**  
**Enabling and disabling DSP ports in single mode**

**Starting point:** The System Status and Maintenance screen, <4> entered.

*You are prompted for a node number:*

**Enter the node number for port status> \_\_**

- 1 Enter the number of the node on which the port resides.  
*The DSP Port Status screen appears (see Figure 9-7).*
- 2 Choose step 2a to enable a DSP port, 2b to disable a DSP port, 2c to courtesy disable a DSP port, or 2d to exit the DSP Port Status screen.

- a. Use [Enable Port].

*You are prompted for the number of an out-of-service port.*

Enter the port number followed by <Return>.

*The system may take some time to enable the DSP port. The system displays a message to inform you that the DSP port is being enabled. The message "WORKING ..." may also be displayed during this interval.*

*While the port is being enabled, its status will change to Loading and then to Idle.*

- b. Use [Disable Port].

*You are prompted for the number of an in-service port.*

Enter the port number followed by <Return>.

*The system may take some time to disable the DSP port. The system displays a message to inform you that the DSP port is being disabled. The message "WORKING ..." may also be displayed during this interval.*

*While the port is being disabled, its status will change to POutOfService and then to OutOfService.*

- c. Use [Courtesy Disable Port].

*You are prompted for the number of an in-service or active DSP port.*

Enter the port number followed by <Return>.

*The system may take some time to disable the port since it waits for the port to become idle before disabling it. The DSP port status will be POutOfService during this interval. Also, the message "WORKING ..." will be displayed during this interval.*

*The system also displays a message to inform you of the number of the port being courtesy disabled.*

- d. Use [Exit] to return to the System Status and Maintenance menu.

### **Procedure 9-6**

#### **Enabling and disabling DSP ports in range mode**

**Starting point:** The System Status and Maintenance screen, <4> entered.

*You are prompted for the node number.*

**Enter the node number for port status> \_\_**

- 1 Enter the number of the node on which the DSP port resides.

*The DSP Port Status screen is displayed (see Figure 9-7).*

- 2 Choose step 2a to enable a range of DSP ports, 2b to disable a range of DSP ports, 2c to courtesy disable a range of DSP ports, or 2d to exit the DSP Port Status screen.

- a. Use [Enable Port].

*You are prompted for the number of the first DSP port in the range of ports you want to enable.*

Enter the number of the first DSP port in the range followed by <Return>.

*You are prompted for the number of the last DSP port in the range.*

Enter the number of the last DSP port in the range followed by <Return>.

*The system may take some time to enable the DSP ports. The system displays a message to inform you that the DSP ports are being enabled. While the ports are being enabled, their status will change to Loading and then to Idle. The message "WORKING ..." will be displayed during this interval.*

*The system displays a message to inform you of the number of ports successfully enabled, and the number of ports that could not be enabled.*

- b. Use [Disable Port].

*You are prompted for the number of the first DSP port in the range of ports you want to disable.*

Enter the number of the first DSP port in the range followed by <Return>.

*You are prompted for the number of the last DSP port in the range.*

Enter the number of the last DSP port in the range followed by <Return>.

*The system may take some time to disable the DSP ports. The system displays a message to inform you that the DSP ports are being disabled. While the ports are being disabled, their status will change to POutOfService and then to OutOfService. The message "WORKING ..." may also be displayed during this interval.*

*The system displays a message to inform you of the number of ports successfully disabled, and the number of ports that could not be disabled.*

- c. Use [Courtesy Disable Port].

*You are prompted for the number of the first DSP port in the range of ports you want to courtesy disable.*

Enter the number of the first DSP port in the range followed by <Return>.

*You are prompted for the number of the last DSP port in the range.*

Enter the number of the last DSP port in the range followed by <Return>.

*The system may take some time to disable the DSP ports since it waits for the ports to become idle before disabling them. The DSP port status for each port will be POutOfService during this interval. The message "WORKING ..." may also be displayed during this interval.*

*The system displays a message to inform you of the number of ports successfully courtesy disabled, and the number of ports that could not be courtesy disabled.*

- d. Use [Exit] to return to the System Status and Maintenance menu.

## The Channel Allocation Table

The Channel Allocation Table (CAT), shown in Figure 9-9, should only be configured by those who are knowledgeable about programming the DMS-100 switch. Normally, you will not have to configure this table. The technician that installed the DMS VoiceMail system should have done so in order to ensure consistency between the switch and DMS VoiceMail. After installation, it may be necessary to alter this table at a later date if, for example, it is decided that certain services require dedicated channels for effective performance or if channels are added to the system.

The Channel Allocation Table (Figure 9-9) associates each agent on the switch with a voice channel (T1 channel) on a DMS VoiceMail T1 card. Agents are identified by a Terminal Number (Routing Address) and Directory Number. Each T1 channel must be associated with an existing UCD agent in the Central Office switch (e.g., DMS-100) or SL-100 data base to handle the queuing of calls coming in to DMS VoiceMail and to handle dial-out features such as remote notification and delivery to non-users.

A channel may be shared by all services or dedicated to a specific service. Dedicated channels may reduce the overall efficiency of the system since dedicated channels currently not in use can't be used by any other service. Also, when a channel is dedicated to the Outcalling service, Outcalling features are restricted to those channels (i.e., they can not use a channel

configured for “ALL” services). Therefore, most of your channels should be shared by all services. However, certain features may require dedicated channels. See the “Guidelines for configuring voice services” section in the “Voice Administration” chapter for details.

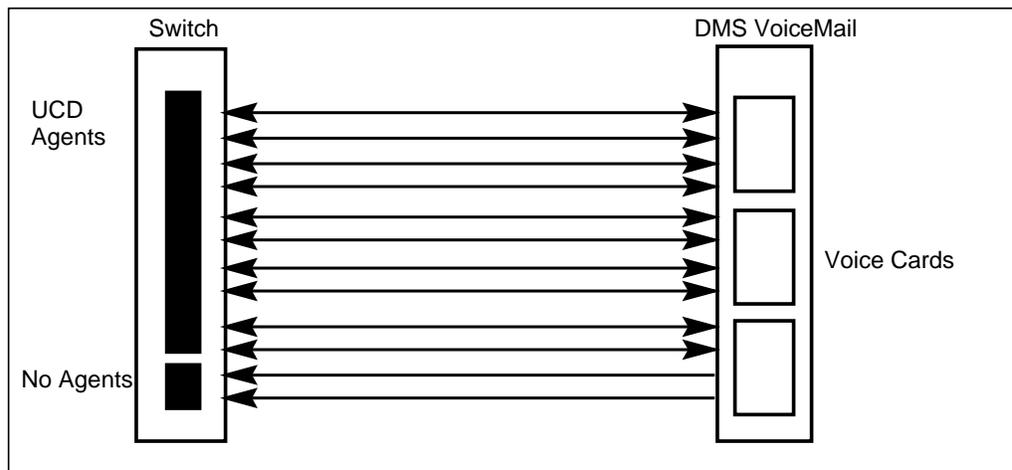
When a channel is dedicated to a service in the CAT, incoming calls from the switch are still accepted on that channel. This is because the switch, not DMS VoiceMail, is in control of incoming calls. For each dedicated channel for which you want to prohibit incoming calls, make sure that there is one agent that has not been assigned to any UCD queue.

For example, your system has a total of 12 agents. To dedicate two channels to outcalling so that those channels do not accept incoming calls:

- 1 In the switch, only assign a maximum of 10 agents to your UCD queues.
- 2 In the Channel Allocation Table (CAT), make sure that the two outcalling channels are associated with the two agents that were not assigned to a queue. (You can enter the DN of the primary voice messaging UCD queue as normal. It is ignored when the TN or routing address corresponds to an agent that is not assigned to a queue.)

In Figure 9-8 the top ten channels are set to “ALL” in the CAT and the bottom two channels are reserved as outgoing channels for the Outcalling service.

**Figure 9-8**  
**Prohibiting incoming calls on dedicated channels**



To get to the Channel Allocation Table you will need to specify the T1 link number for the Channels you wish to view/modify.

When you select the Channel Allocation Table item from the System Status and Maintenance menu, you are first presented with a Channel Allocation Table screen shown in Figure 9-9. From this screen, you must specify the T1 link for which you want to view the CAT. Then a Channel Allocation Table appears for that T1 link (Figure 9-10).

**Figure 9-9**  
**The Selectable Channel Allocation Table data menu**

**System Status and Maintenance**

**Channel Allocation Table**

T1 Link ID	Primary Connection (Node-Card-Span)	Secondary Connection (Node-Card-Span)
A	11-1-1	12-3-1
B	11-1-2	12-3-2
C	11-1-3	12-3-3
D	11-1-4	12-3-4
E	13-1-1	14-3-1
F	13-1-2	14-3-2
G	13-1-3	14-3-3
H	13-1-4	14-3-4

---

Move the cursor to the item and press the spacebar to select >

Exit

View/Modify

**Figure 9-10**  
**The Channel Allocation Table**

**System Status and Maintenance**

Channel Allocation Table:    Primary Conn. 13-1-1                      Secondary Conn. 14-3-1

Choice of Services:

ALL	All Services	AS	Announcement Service	EM	Express Messaging
GS	Greetings Service	VA	Voice Administration	OC	Outcalling Agent
PM	Prompt Maintenance	RA	Remote Activation	TS	Thru-Dial Service
TR	Transcription Service	VF	Voice Forms Service	MS	Voice Menu Service
VM	Voice Messaging				

Channel	Routing Address	Primary DN	Channel DN	Service
1	010-0-00-01	12345678	12345671	ALL
2	010-0-00-02	12345678	12345672	NW
<b>3</b>	<b>010-0-00-03</b>	<u>12345678</u>	<u>12345673</u>	<u>ALL</u>
<b>4</b>	<b>010-0-00-04</b>	<u>12345678</u>	<u>12345674</u>	<u>ALL</u>
5	010-0-00-05	12345678	12345676	ALL
6	010-0-00-06	12345678	12345677	ALL
7	010-0-00-07	12345678	12345678	ALL


---

Select a softkey >

Save	Cancel			
------	--------	--	--	--

**Note:** To change the Primary DN and/or Channel DN you must first disable the T1 channel. Channels are disabled from the T1 Channel Status screen. This screen is accessed from the System Status and Maintenance menu. Rows that are displayed in bold type on the CAT represent disabled channels. Modifiable fields are underlined. The Routing Address can only be modified from the Tools menu (Modify hardware) described in the *System Administration Tools* guide (NTP 297-7001-305).

The following fields are displayed in the Channel Allocation Table:

- **Primary Connection** - This is the location of the primary T1 connection in the system. This represents the node-card-span location.
- **Secondary Connection** - This is the location of the secondary or backup T1 connection in the system. This represents the node-card-span location.

- **Choice of Services** - This is a list of voice services and their associated acronyms. See “Configuring voice services” earlier in this chapter for information on shared and dedicated channel configuration. Typically, most of your channels will be shared (i.e., ALL is specified).

The following services are feature-dependent: Greetings Service (VMUIF), Express Messaging (Voice Messaging), AMIS Networking, Outcalling Agent, Transcription Service (Voice Forms) and Voice Forms Service. Announcement Service, Thru-Dial Service, Voice Menu Service, Remote Activation, and Prompt Maintenance are available only if voice menus are installed. Any of the above features that are not installed on your system will not be displayed in the CAT.

- **Channel** - The channel number. This is a read-only field.
- **Routing Address** - This is a read-only field specifying the location of the corresponding agent in the switch. This is the Message Desk Number. The elements in the address represent the message desk number and the terminal number and is expressed in the format xx-yyyy.
- **Primary DN** - This is the directory number assigned to the agent queue that contains this agent (channel). On CO systems this is typically the 7-digit directory number.

**Note:** Typically, systems with SMDI links are set to support 7-digit DNs. Ensure that the CAT is configured with the same DNs.

For channels that are shared by all services, this is the DN of the primary voice messaging queue. However, if the channel is dedicated to a particular service, enter the DN of the corresponding service UCD queue.

**Note:** The channel must be disabled before changing the Primary DN. If the T1 channel is not disabled, this is a read-only field.

- **Channel DN** - This is the DN of the UCD agent that corresponds to this channel. This field cannot be modified unless the T1 channel is disabled.
- **Service** - The DMS V oiceMail service to which the channel and agent are dedicated. The default is “ALL”, indicating a shared channel.

#### **Procedure 9-7**

#### **Modifying the Channel Allocation Table**

**Starting point:** The Main Menu.

**Note:** Update the Channel Allocation Table only when the system is idle. You must first disable the channels that will be updated.

- 1 Select System Status and Maintenance from the Main Menu.
- 2 Select T1 Channel Status.

- 3 Select the [Disable Channel] softkey.  
*You are prompted for the in-service channel number.*
- 4 Enter the number(s) of the channel(s) you want to disable and press <Return>.
- 5 Select [Exit] to return to the System Status and Maintenance menu.
- 6 Select Channel Allocation Table.  
*The Selectable Channel Allocation Table data menu appears.*  
*See Figure 9-9.*
- 7 Select the T1 link you wish to modify.  
*The Channel Allocation Table data menu appears.*  
*See Figure 9-10.*
- 8 For each disabled channel, you may modify the Primary DN, Channel DN, and the Service if the channel is being re-allocated.
- 9 Choose step 9a to save the changes or 9b to cancel.
  - a. Use [Save].  
*The changes are saved and you are returned to the selectable Channel Allocation Table data menu.*
  - b. Use [Cancel].  
*You are returned to the selectable Channel Allocation Table data menu.*

## T1 Link Status

The T1 Link Status screen (Figure 9-11) allows you to view the operational status of the T1 links on the system, enable or disable a link, activate one of the clock reference candidates, and switch a link to its alternate connection when required.

**Figure 9-11**  
**The T1 Link Status screen**

System Status and Maintenance								
T1 Link Status								
System Status: InService			Alarm Status: Critical=Off Major=On Minor=Off					
Link ID	Cand	Clocking Mode	Primary Connection			Redundant Connection		
			T1 Number	T1 Location	Status	T1 Number	T1 Location	Status
A	Y		1	11-1-1	InService	5	12-1-1	InService
B			2	11-1-2	InService	6	12-1-2	OutOfService
C			3	11-1-3	InService	7	12-1-3	InSvStandby
D			4	11-1-4	OutOfService	8	12-1-4	InService
E	R	9	13-1-1	InService	13	14-1-1	InService	
F			10	13-1-2	Faulty	14	14-1-2	InService
G			11	13-1-3	InService	15	14-1-3	InSvStandby
H	Y		12	13-1-4	InService	16	14-1-4	Faulty

Select a softkey >

Exit	Enable T1	Disable T1	Change T1 Clocking Mode	Switch Link
------	-----------	------------	-------------------------	-------------

The following fields are displayed on the T1 Link Status screen:

- **System Status** - See the description in the section “System Status”.
- **Alarm Status** - See the description in the section “System Status”.
- **Link ID** - An alphabetic designation used to identify the T1 link in your system. This corresponds to the Link ID in the T1 Link Configuration screen in Hardware Administration.
- **Cand** - This is a read-only field. A “Y” in this field indicates that the link has been nominated as a candidate for clock referencing. A candidate is nominated from the T1 Link Setup screen in Hardware Administration. See the section “Modifying the T1 link setup” in the “Hardware Administration” chapter for more information about clock referencing.
- **Clocking Mode** - The currently activated clock reference is indicated with an “R” in this field. A link is activated by using the [Change T1 Clocking Mode] softkey as described in Procedure 9-8. If none of the links are activated as the clock reference, the system is in free-run mode, meaning that the system is using the internal SPM clock.
- **Primary Connection T1 Number** - The number of the primary T1 connection within the specified T1 link.

- **Primary Connection T1 Location** - The location of the primary T1 connection in the system. This number represents the location in terms of the node-card-span.
- **Primary Connection Status** - The current state of the primary T1 connection.

**Note:** The status at this level does not indicate the status of a given card on the node. For more information for particular cards, go to the Card Status screen (page 9-11).

- **UnEquipped** indicates that the link is not defined in the hardware database. For more information about modifying the hardware database, see the *System Administration Tools* guide (NTP 297-7001-305).
- **Faulty** indicates that a hardware problem has been detected on the connection.
- **InSvY elAlarm** indicates that the T1 link is in service but has lost the modem connection.
- **InSvRedAlarm** indicates that the T1 link has lost the signaling with the DMS host.
- **InService** indicates that the T1 connection is fully operational and is currently accepting calls.
- **InSvStandby** indicates that the connection is not currently taking calls but is ready to accept calls for the paired T1 connection on the same T1 link.
- **OutOfService** indicates that the connection is not operational due to a forced disable.
- **Pending** indicates that the connection is in the process of shutting down or restarting.
- **Secondary Connection T1 Number** - The number of the secondary T1 connection within the specified T1 link.
- **Secondary Connection T1 Location** - The location of the secondary T1 connection in the system. This number represents the location in terms of the node-card-span.
- **Secondary Connection Status** - The current state of the secondary connection. See the descriptions for the **Primary Connection Status**.

You may perform the following actions on T1 connections:

- **Disable T1** - When a T1 connection is disabled it is no longer used to accept calls. (This action is not allowed when the connection status is “UnEquipped”.) Once the connection is disabled, its status becomes OutOfService.

- **Enable T1** - This action starts up a T1 connection that is currently in an OutOfService state. Once the connection is fully enabled, its status becomes InService if the paired T1 connection is not InService, or InSvStandby if the paired T1 connection is already InService.
- **Change T1 Clocking Mode** - This action allows you to activate one of the nominated links as the clock reference. Alternatively, you can place the system in free-run mode (in which case the internal SPM clock is used instead of an external reference provider).
- **Switch Link** - This action allows you to switch from an InService T1 connection to the paired InSvStandby T1 connection. This switching is allowed only if one T1 connection (of a pair) is InService and its partner is InSvStandby.

*Note:* Only one of the paired T1 connections can be InService at any one time.

#### **Procedure 9-8**

#### **Enabling, disabling and switching T1 Links**

**Starting Point:** The System Status and Maintenance menu, <6> entered.

*The T1 Link Status screen is displayed (Figure 9-11).*

- 1 Choose step 1a to enable a T1 connection, 1b to disable a T1 connection, 1c to change the T1 clock reference, 1d to switch the T1 link, or 1e to exit the T1 Link Status screen.
  - a. Use [Enable T1].

*You are prompted for the T1 number.*

Enter the T1 number followed by <Return>.

*The system may take some time in enabling the T1 connection.*
  - b. Use [Disable T1].

*You are prompted for the T1 number of a connection.*

Enter the T1 number followed by <Return>.

*The system may take some time in disabling the T1 connection.*
  - c. Use [Change T1 Clocking Mode].

*You are prompted for the Link ID.*

Enter the Link ID followed by <Return>. Alternatively, you can enter **Z** followed by <Return> (for free run mode).

*The specified link ID becomes the new clock reference. If another link was previously activated, it is de-activated as only one link can serve as the reference. If you entered Z, a previously activated link is de-activated and the system is put in free run mode.*
  - d. Use [Switch Link].

*You are prompted for the Link ID.*

Enter the Link ID followed by <Return>.

This changes the status of the primary and redundant connections from InSvstandby to InService and vice versa.

- e. Use [Exit] to return to the System Status and Maintenance menu.

## T1 Channel Status

The T1 Channel Status screen (Figure 9-12) allows you to view the operational status of the T1 channels in the system, manipulate their status, and courtesy disable individual channels when necessary.

**Figure 9-12**  
The T1 Channel Status screen

System Status and Maintenance

**T1 Channel Status**

System Status:    InService            Alarm Status:    Critical=Off Major=Off Minor=Off

Link	Channels																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	a	a	a	.	.	.	.	.	.	.	.	a	.	.	a	a	.	.	.	.	.	.	.	.
B	a	a	a	o	o	o	o	.	.	.	.	.	.	.	a	a	.	.	.	a	.	.	.	.
C	.	a	a	.	.	.	.	.	.	.	a	.	.	.	a	.	.	.	.	.	.	.	.	.
D	a	a	a	.	.	.	.	.	.	.	a	.	.	.	a	a	.	.	.	.	.	.	a	.
E	a	.	.	o	o	o	o	a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
F	.	a	a	.	.	.	a	.	.	.	.	a	.	.	a	a	.	.	.	.	.	.	.	.
G	a	a	.	.	.	.	.	.	.	.	a	.	.	.	.	.	.	.	.	.	.	.	.	.
H	a	a	a	.	.	.	.	.	.	.	a	.	.	.	a	a	.	F	F	F	.	F	.	.

a = Active/in use	. = Idle	O = Out of Service	R = No Resource
F = Faulty	P = Pending	space = Unequipped	L = Loading
C = Courtesy Down	M = MakeBusy		

---

Select a softkey >

Exit	Enable Channel	Disable Channel	Courtesy Disable Channel	Change to Range Mode
------	----------------	-----------------	--------------------------	----------------------

The following fields are displayed on the T1 Channel Status screen:

- **System Status** - See the description in the section “System Status”.
- **Alarm Status** - See the description in the section “System Status”.
- **Link** - The ID of the T1 link. This is an alphabetic character.
- **Channel Status** - The current state of each channel, indicated by a single-character code (a legend for the codes is at the bottom of the screen).
  - **Active/in use** indicates that the T1 channel is operational and in use.
  - **Idle** indicates that the channel is operational but not currently in use.
  - **OutOfService** indicates that the channel is no longer operational.

- **No Resources** indicates that the T1 channel is available, but there is no software associated with it.
- **Faulty** indicates that the system has detected an error in the channel.
- **Pending** indicates that the channel is in the process of shutting down or restarting.
- **UnEquipped** indicates that the channel is not defined in the hardware database. For more information about modifying the hardware database, see the *System Administration Tools* guide (NTP 297-7001-305).
- **Loading** indicates that the channel is currently starting up after a request to enable and that the necessary software is loading.
- **Courtesy Down** indicates that the channel is in a courtesy down state as a result of performing a Courtesy Down System. The channel does not accept calls in this state.
- **MakeBusy** indicates that the channel is in a maintenance-busy state (being used for maintenance procedures). The channel does not accept calls in this state.

If you need to enable, disable or courtesy disable a number of T1 channels, use the [Change to Range Mode] softkey first. (This only works with a contiguous range of channels. For example, it will work if you need to disable T1 channels 3 to 7, but not if you need to disable T1 channels 1, 3 and 7). When you to toggle to range mode, this softkey changes to [Change to Single Mode].

If you are in single mode, follow Procedure 9-9. If you are in range mode, follow Procedure 9-10.

#### **Procedure 9-9**

##### **Enabling and disabling T1 channels in single mode**

**Starting point:** The System Status and Maintenance screen, <7> entered.

*The T1 Channel Status screen appears (see Figure 9-12).*

- 1 Choose step 1a to enable a channel, 1b to disable a channel, 1c to courtesy disable a channel, or 1d to exit the T1 Channel Status screen.
  - a. Use [Enable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of an out-of-service channel.*

Enter the channel number followed by <Return>.

*The system may take some time in enabling the channel. The message "WORKING ..." will be displayed during this interval.*
  - b. Use [Disable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of an in-service channel.*

Enter the channel number followed by <Return>.

*The system may take some time in disabling the channel. The message "WORKING ..." will be displayed during this interval.*

- c. Use [Courtesy Disable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of an in-service channel.*

Enter the channel number followed by <Return>.

*The system may take some time in disabling the channel since it waits for the channel to become idle before disabling it.*

*The message "WORKING ..." will be displayed during this interval.*

- d. Use [Exit] to return to the System Status and Maintenance menu.

#### **Procedure 9-10**

#### **Enabling, disabling and switching T1 channels in range mode**

**Starting Point:** The System Status and Maintenance menu, <7> entered.

*The T1 Channel Status screen is displayed (see Figure 9-12).*

- 1 Choose step 1a to enable a range of T1 channels, 1b to disable a range of T1 channels, 1c to switch a range of T1 channels, or 1d to exit the T1 Channel Status screen.

- a. Use [Enable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of the first channel in the range of channels that you want to enable.*

Enter the first channel number followed by <Return>.

*You are prompted for the number of the last channel in the range of channels that you want to enable.*

Enter the last channel number followed by <Return>.

*The system may take some time in enabling the channels. The message "WORKING ..." will be displayed during this interval.*

- b. Use [Disable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of the first channel in the range of channels that you want to disable.*

Enter the first channel number followed by <Return>.

*You are prompted for the number of the last channel in the range of channels that you want to disable.*

Enter the last channel number followed by <Return>.

*The system may take some time in disabling the channels. The message "WORKING ..." will be displayed during this interval.*

- c. Use [Courtesy Disable Channel].

*You are prompted for the link ID.*

Enter the letter designation of the link followed by <Return>.

*You are prompted for the number of the first channel in the range of channels that you want to courtesy disable.*

Enter the first channel number followed by <Return>.

*You are prompted for the number of the last channel in the range of channels that you want to courtesy disable.*

Enter the last channel number followed by <Return>.

*The system may take some time in disabling the channels since it waits for the channels to become idle before disabling them.*

*The message "WORKING ..." will be displayed during this interval.*

- d. Use [Exit] to return to the System Status and Maintenance menu.

## SMDI Link Status

This screen displays the SMDI links in the system and the status of the primary and secondary ports on those links.

**Figure 9-13**  
The SMDI Link Status screen

System Status and Maintenance						
SMDI Link Status						
System Status:		InService		Alarm Status:Critical=Off Major=Off Minor=Off		
Link ID	Primary Link			Redundant Link		
	SMDI Number	SMDI Location	SMDI Status	SMDI Number	SMDI Location*	SMDI Status
A	1	13-1-1	InService	5	14-1-1	InSvStandby
B	2	13-1-2	InService	6	14-1-2	OutOfService
C	3	13-1-3	InService	7	14-1-3	InSvStandby
D	4	13-1-4	OutOfService	8	14-1-4	InService
E	9	15-1-1	InSvStandby	13	16-1-1	InService
F	10	15-1-2	Faulty	14	16-1-2	InService
G	11	15-1-3	InService	15	16-1-3	InSvStandby
H	12	15-1-4	InService	16	16-1-4	Faulty

Select a softkey >

Exit	Enable SMDI	Disable SMDI	Next Set of Links **	Switch Link
------	-------------	--------------	----------------------	-------------

\* The Location field is blank if your system does not have redundant ports.

\*\* This softkey is displayed only if more than 9 non-redundant SMDI Links exist in the system. Toggles between "Previous Set of Links" and "Next Set of Links".

The following fields are displayed on the SMDI Link Status screen:

- **System Status** - See the description in the section "System Status".
- **Alarm Status** - See the description in the section "System Status".
- **Link ID** - An alphabetic designation used to identify the SMDI link in your system.
- **SMDI Number** - The specific SMDI port at which the SMDI link from the serving switch terminates on the SPM. There are two SMDI connections (one redundant) associated with each SMDI link.
- **SMDI Location** - The location (node-card-port) of the port in the system.
- **Status** - The current state of the SMDI port.
  - **UnEquipped** indicates that the port is not defined in the hardware database. For more information about modifying the hardware database, see the *System Administration Tools* guide (NTP 297-7001-305).

- **Faulty** indicates that a hardware problem has been detected on the port.
- **InSvY elAlarm** indicates that the SMDI port is in service but has lost the modem connection.
- **InSvRedAlarm** indicates that the SMDI port has lost the signaling with the DMS host.
- **InService** indicates that the SMDI port is fully operational and is currently accepting calls.
- **InSvStandby** indicates that the port is not currently taking calls but is ready to accept calls for the paired SMDI port on the same SMDI link.
- **OutOfService** indicates that the port is not operational, due to a forced disable, and is not accepting calls.
- **Pending** indicates that the link is in the process of shutting down or restarting.

You may perform the following actions on SMDI links:

- **Disable SMDI** - When an SMDI port is disabled, the in call detail information no longer accompanies the call and the SMDI port status becomes OutOfService.

Calls that are already in the UCD queue when the SMDI port is disabled will get the default service (i.e., the service associated with the primary UCD queue, namely voice messaging). Any new calls will also get the the default service.

If this is not acceptable, disable the associated telephony channels before you disable the SMDI port. This will log out the UCD agents and, depending on how the UCD group is datafilled, calls can be routed for alternative treatment. For example, if the system has multiple SMDI links, calls could be routed to another UCD group. If you use this method, enable the associated channels before re-enabling the SMDI port.

- **Enable SMDI** - This action starts up an SMDI port that is currently in an OutOfService state. Once the port is fully enabled, its status becomes InService if the paired SMDI port is not InService, or InSvStandby if the paired SMDI port is already InService.
- **Next Set of Links** - If selected, the remaining SMDI links are displayed and the softkey changes to [Previous Set of Links]. This softkey is available on systems with more than 9 non-redundant SMDI links.

- **Switch Link** - This action is only possible if your system has redundant ports. It allows you to switch from an InService SMDI port to the paired InSvStandby SMDI port. This switching is allowed only if one SMDI port is InService and its partner is InSvStandby.

**Note:** Only one of the SMDI ports within a pair can be InService at any one time. (Multiple pairs can be InService at the same time.)

#### Procedure 9-11

#### Enabling, disabling and switching SMDI Links

**Starting Point:** The System Status and Maintenance menu, <8> entered.

*The SMDI Link Status screen is displayed (Figure 9-13).*

- 1 Choose step 1a to enable an SMDI port, 1b to disable an SMDI port, 1c to switch the SMDI link, or 1d to exit the SMDI Link Status screen.
  - a. Use [Enable SMDI].

*You are prompted for the number of the SMDI port.*  
Enter the SMDI number followed by <Return>.  
*The system may take some time to enable the port.*
  - b. Use [Disable SMDI].

*(If necessary, disable the associated channels first. See the description of Disable SMDI on the previous page for details.)*  
*You are prompted for the number of an SMDI port.*  
Enter the SMDI number followed by <Return>.  
*The system may take some time to disable the port.*
  - c. Use [Switch Link].

*You are prompted for the Link ID.*  
Enter the Link ID followed by <Return>.  
*This changes the status of the primary and redundant ports from InSvStandby to InService and vice versa.*
  - d. Use [Exit] to return to the System Status and Maintenance menu.

## SPM Cross Reference Table

The SPM Cross Reference Table (Figure 9-14) allows you to look up the card number (part number), shelf and slot for each card in the system.

**Figure 9-14**  
The SPM Cross Reference Table

System Status and Maintenance					
SPM Cross Reference Table					
Node	Card	Card Type	CardNumber	Shelf	Slot
1	1	Filler	NT9X19AA	26	07F
1	2	SBC	NTGX05AA	26	08F
1	3	Bus	NTGX10AA	26	09F
2	1	Bus	NTGX10AA	26	10F
2	2	Filler	NT9X19AA	26	11F
2	3	SBC	NTGX05AA	26	12F
3	1	SBC	NTGX05AA	26	30F
3	2	VP12	NTGX12AA	26	31F
3	3	VP12	NTGX12AA	26	32F
4	1	VP12	NTGX12AA	26	27F
4	2	VP12	NTGX12AA	26	28F
4	3	SBC	NTGX05AA	26	29F
5	1	VP12	NTGX12AA	26	17F
5	2	VP12	NTGX12AA	26	18F

MORE BELOW

Select a softkey >

Exit

The following fields are displayed:

- **Node** - The node on which the card resides.
- **Card** - The card number.
- **Card Type** - Examples of card types as shown in Figure 9-14 are:
  - **SBC** - a single board computer (also known as the 68K card)
  - **Bus** - high-speed bus
  - **VP12** - 12-channel voice processor
  - **Filler** - an empty card slot
  - **T1** - T1 card

Other examples include the T1 transition module, 68k transition module, modem transition module, and bus controller transition module.

- **CardNumber** - The part number of the card.
- **Shelf** - The shelf on which the card is located.
- **Slot** - The physical slot in which the card resides. "F" indicates front. "R" indicates rear.

## Disk maintenance

Disks are added to DMS VoiceMail in pairs. When new data is written to disk, both drives in a pair are updated at the same time with the same information. If one of the drives in a pair fails, it can be removed from service and replaced without loss of data or interruption of service.

When a disk fails due to any sort of SCSI error, the system automatically takes it out of service (puts it in “No Access” state) and generates a SEER. The shadowed disk continues to function and there is no service interruption. However, the failed disk should be replaced as soon as possible. You may also have to replace (or repair) a disk that has reported a large number of recovered errors. In the second case, you will have to take the disk out of service manually before replacing it. After a disk has been replaced or repaired, you will have to perform a disk synchronization in order to bring the paired disks in line with each other.

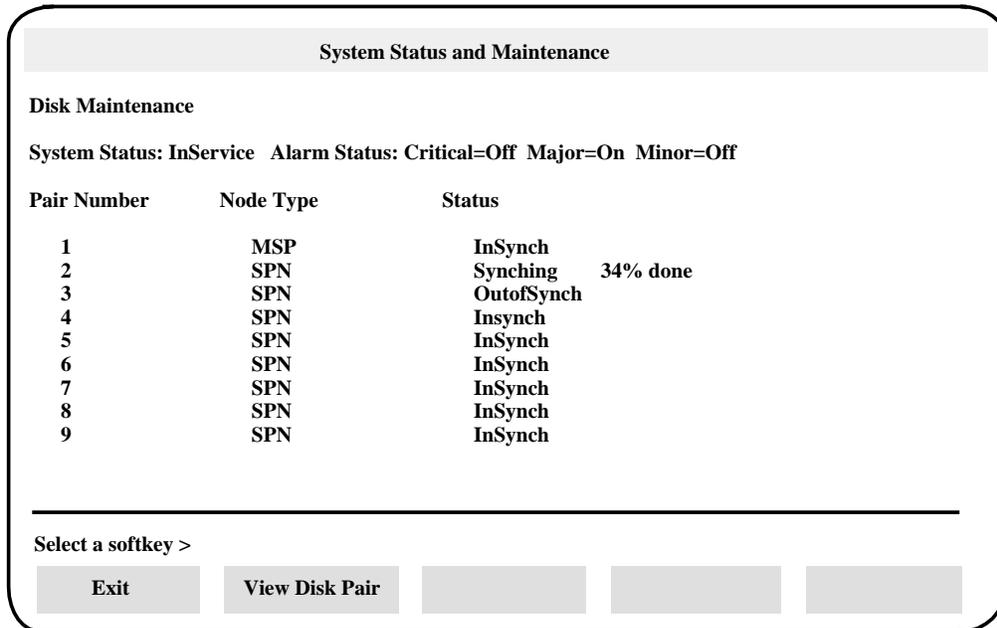
To replace a failed disk:

- 1 Disable the drive (if not already in No Access state). This disables the drive and puts it in No Access so that it can be replaced or repaired. See Procedure 9-12.
- 2 Replace the failed drive.
- 3 Resynchronize the disks. See Procedure 9-13.

### The disk maintenance screen

The Disk Maintenance screen (Figure 9-15) shows the status of each disk pair in the system. The possible states for a disk pair are “InSynch”, “Synching”, “OutofSynch”, and “SynchIntrpted”. If a SEER has alerted you to the fact that the system has automatically taken a disk out of service, check the Disk Maintenance screen to determine which pair is out of synch.

**Figure 9-15**  
**The Disk Maintenance screen**



The following fields are displayed on this screen:

- **System Status** - This field displays the current system status. See the section “System Status” for a description of possible system states.
- **Alarm Status** - This field indicates whether or not there are any Critical, Major or Minor alarm. See the section “System Status” for a description of possible alarm states.
- **Pair Number** - The number of each disk pair in the system.
- **Node Type** - The type of node on which the pair resides.
- **Status** - The synchronization status. A disk pair can be in one of the following states:
  - **InSynch** indicates that both disks are operational and in synch with each other.
  - **Synching** indicates that the disks are currently synching (i.e., after pressing [Enable] in the Disk Pair Status screen). The system also indicates the percentage of synching done so far.
  - **OutofSynch** indicates that one of the disks is NoAccess and consequently out of synch with its shadowed pair. This happens if the system automatically puts a bad disk in No Access or if you disable the disk in order to replace or repair it.

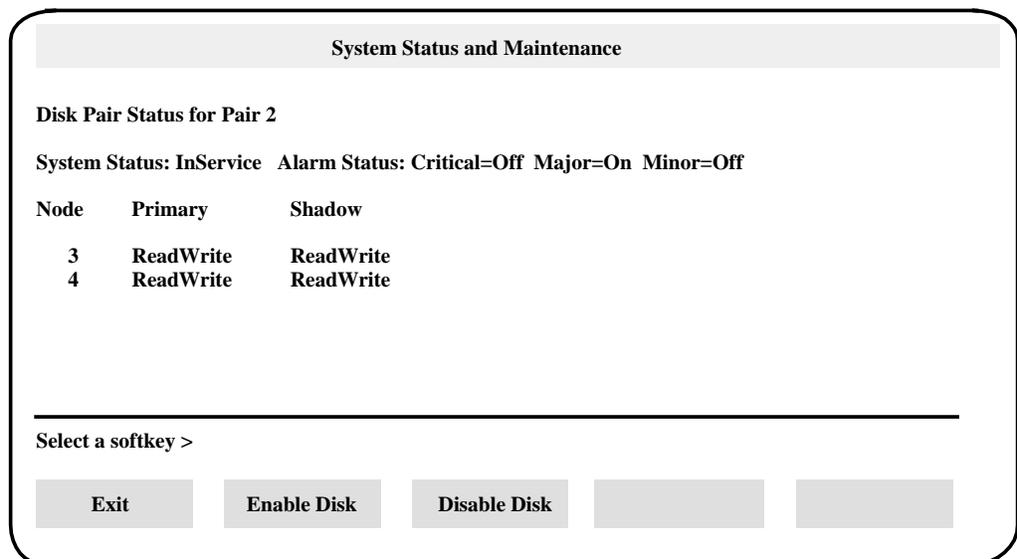
- ***SynchIntrpted*** indicates that a disk synchronization operation has been interrupted. To recover from this state:

**Note:** For more information about working at the Tools level as described in the following procedure, refer to the *System Administration Tools* guide (NTP 297-7001-305).

- 1 Log on at the Tools level.
- 2 Select Synchronize Disks.
- 3 Run the init command on one of the nodes that the disk pair belongs to.
- 4 Return to System Status and Maintenance, the Node Status screen.
- 5 Disable and then re-enable one of the nodes the disk pair belongs to.
- 6 Return to Disk Maintenance and try synching the disk pair again.

When you press [View Disk Pair], the system prompts for the disk pair number, and then displays the screen shown in Figure 9-16.

**Figure 9-16**  
**The Disk Pair Status screen**



The following fields are displayed on this screen:

- ***System Status*** - The current system status. See the section “System Status” for a description of possible system states.

- **Alarm Status** - Indicates whether there are any critical, major or minor alarms. See the section “System Status” for a description of possible alarm states.
- **Node** - The node on which the disk resides.
- **Primary** - This field indicates the status of the primary disk. A disk may be in one of the following states:
  - **ReadWrite** indicates that the disk is currently being read and written to. A disk that is in this state is operating normally.
  - **NoAccess** indicates that the disk is not being read or written to due to an error condition or a manual disable.
  - **SynchSource**, during a disk synch, indicates that the disk is the source of a disk synchronization.
  - **SynchDest**, during a disk synch, indicates that the disk is the destination of a disk synchronization.
- **Shadow** - This field indicates the status of the shadowed disk. A disk may be in one of the following states:
  - **ReadWrite** indicates that the disk is currently being read and written to.
  - **NoAccess** indicates that the disk is not being read or written to due to an error condition or a manual disable.
  - **SynchSource**, during a disk synch, indicates that the disk is the source of a disk synchronization.
  - **SynchDest**, during a disk synch, indicates that the disk is the destination of a disk synchronization.

If you have replaced a failed disk, follow Procedure 9-13 to resynchronize the replacement drive.

**Procedure 9-12**  
**Disabling disk shadowing**

**Starting point:** Main menu

- 1 Select System Status and Maintenance.
- 2 Select Disk Maintenance.
- 3 Press the [View Disk Pair] softkey.  
*You are prompted for a pair number.*
- 4 Enter the number of the pair you want to disable. The Disk Pair Status screen appears (Figure 9-16). The [Exit] softkey on this screen returns you to the Disk Maintenance screen.
- 5 Press the [Disable] softkey.  
*You are prompted for the node number.*

- 6 Enter the appropriate node number.  
*You are prompted to indicate whether or not to disable primary disk synchronization.*
- 7 Enter **yes** to disable synchronization for the primary disk. This puts the disk in the No Access state. Enter **no** to disable synchronization for the shadowed disk.

**Procedure 9-13**  
**Synching a disk**

**Starting point:** Main menu

- 1 Select System Status and Maintenance.
- 2 Select Disk Maintenance.
- 3 Press the [View Disk Pair] softkey.  
*You are prompted for a pair number.*
- 4 Enter the number of the pair you want to view/synch. The Disk Pair Status screen appears (Figure 9-16). The [Exit] softkey on this screen returns you to the Disk Maintenance screen.
- 5 Press the [Enable] softkey.  
*You are prompted for the node number.*  
*If both nodes are InService, you can select either node. If one node is not InService (or InSvStandby), choose the node that is InService.*  
*If you want to speed up the enabling process and both nodes are InService, choose the node that is less busy. Check the DSP Port Status screen (described earlier in this chapter) to check how busy each node is. For MSP nodes, the node that is InSvStandby is always less busy than the InService node.*
- 6 Enter the appropriate node number.  
*The system determines the source of the synch by choosing the disk that is in ReadWrite mode.*

## System Event and Error Reports (SEERs)

System Event and Error Reports (SEERs) collect statistics on every system event and error reported by DMS VoiceMail system software components. The reports provide information about the SEER class, SEER number, the date and time that the SEER was generated, and a description of the event or error that occurred at that time.

SEERs are mostly used by maintenance personnel for isolating system faults and repairing hardware and software problems. However, administrators should be able to read, interpret, and assess the severity of events and errors to determine if they are regular events (such as a system audit), errors which can be corrected by the administrator, or if it is necessary to alert support personnel. Once the administrator becomes familiar with SEERs it may also be possible to identify potential problems in their early stages before they become critical errors.

In order to help you judge how serious a system problem might be, SEERs have been classified according to various severity levels. These classifications are based on the impact of the operation that has failed. This reduces the risk of neglecting real problems that have been buried amongst a lot of minor problems or regular system events. When retrieving SEER information, you can therefore filter out all but the most severe problems in order to deal with them quickly.

Each SEER is put into one of the following severity classifications:

- **Critical** - indicates any service-affecting problem. A critical problem requires immediate attention, usually from a qualified technician. Examples of critical errors are system reboots, a major base feature not operating, hardware failure (where the system failed to recover from the failure), system capacity reduced below a threshold, software configuration problems, a full volume, a disk drive error.
- **Major** - indicates any service-threatening problem. Such problems do not require immediate attention, but will require attention from the administrator or technician to prevent it from becoming a critical problem. A major problem may be allowed to persist up to 24 hours. Examples of major errors are hardware failures from which the system has successfully recovered, unrecovered hardware problems in non-critical components such as tape drives or voice cards, malfunction of a minor feature such as the recording of spoken names or administrative functions, a nearly full volume, a disk drive error when disks are shadowed, or excessive minor problems.

- **Minor** - indicates a problem that has no impact on the system or users of the system. No immediate attention is required on the part of the administrator or a technician. The fault can be allowed to exist for some time. However, an excessive accumulation of minor problems can in itself become a major problem.
- **Info** - indicates a normal system event. Knowledge of these events is of use to the administrator as they indicate occurrences such as invalid administrator logon attempts, system time changes, disabled user mailboxes (due to password expiry/violation), successful backups, and the forwarding of non-users to voice messaging.

Each SEER can also be one of several types.

- **Error** - Indicates an error which requires the attention of a trained technician.
- **Admin** - Indicates an error which can probably be solved by the system administrator. If the administrator is unable to solve the problem, they may call a trained technician.
- **System** - Indicates a normal event that should be logged and noted, for example, a successful audit or Operational Measurement collection. This does not sound an alarm.

For a more detailed description of SEERs and their interpretation, see *Maintenance Messages (SEER) Manual* (NTP 297-7001-510).

The System Event and Error Reports screen (Figure 9-17) allows you to set parameters for the type of report you want to generate. In this screen, you are able to specify the range of SEERs that you want included in the report by indicating the class and severity level of the SEERs you wish to monitor. You can also specify the period of time that the report should cover (by entering a start and end date and time). Once the report has been generated according to the criteria you have specified in this screen, you can either view it or print it out.

**Note:** DMS VoiceMail filters SEERs at different levels for printing from the SEER printer. This level can be set so that only those SEERs that the administrator considers important are displayed. SEER filtering is discussed in the *Maintenance Messages (SEER) manual* (NTP 297-7001-510). To reset the SEER filtering level, contact your Northern Telecom Support organization.

**Figure 9-17**  
**The System Event and Error Reports screen**

System Status and Maintenance

System Event and Error Reports

SEER Class: 100

Severity Level: Critical Major Minor [All]  
 SEER Type: Error AdminSystem [All]

Report Start (mm/dd/yy hh:mm): 05/17/91 04:00 (or blank for oldest)  
 Report End (mm/dd/yy hh:mm): \_\_\_\_\_ (or blank for newest)

---

Select a softkey >

Exit      View Reports      Print Reports

The System Event and Error Reports screen contains the following fields:

- **SEER Class** - This field allows you to specify the class of SEERs that you want to view or print. The SEER class is the code which identifies the type of event or error being reported. There are over 40 classes, each pertaining to a particular software component. Explanations for these codes are given in *Maintenance Messages (SEER) Manual* (NTP 297-7001-510). If you want to retrieve SEERs from all classes, leave the field blank.
- **Severity Level** - The selection you make in this field determines the SEERs that are displayed in the report by allowing you to selectively view SEERs according to their severity. For a description of the severity levels, see the introduction to this section on SEERs.
  - **Critical** retrieves only those SEERs classified as Critical.
  - **Major** retrieves those SEERs classified as Major and the level above, namely the Critical Severity SEERs.
  - **Minor** retrieves those SEERs classified as Minor and the ones in the levels above, i.e., Major and Critical.
  - **All** causes SEERs at all levels of severity to be displayed in the report. This includes the Info level SEERs.

- **SEER Type** - This field allows you to specify the type of SEERs that you want to view or print. The types are:
  - **Error** - Error-level SEERs are those which may indicate a system problem, to be corrected by the administrator, possibly with the assistance of technical support. Examples of Error-level SEERs include: hardware errors; software errors; indications that a hardware error may develop.
  - **Admin** - Administration-level SEERs are those which indicate system problems or configuration difficulties that are likely to be handled by the system administrator without external assistance (for example, a non-DMS VoiceMail user whose calls are forwarded to the DMS VoiceMail system). When the filtering level is set to Admin, the Error-level SEERs are also printed.
  - **System** - System-level SEERs are those which indicate normal system behaviour, and others which do not require action (for example, nightly audits by the various sub-systems of DMS VoiceMail). When the filtering level is set to System, the Error- and Admin-level SEERs are also printed.
  - **All** - When All is selected, all SEER types are printed.
- **Report Start** - determines the day and time at which the report starts. If this field is left blank, the report starts with the oldest SEER data currently stored in the buffer.
- **Report End** - determines the day and time at which the report ends. If this field is left blank, the report will include SEER data up to the last (most recent) entry currently stored in the buffer. If neither the start or end day and time are specified, all SEER data currently stored in the buffer will be included in the report.

## Viewing SEER reports

Once you have filled in the System Event and Error Reports screen, you can either view the report on screen or print it. If you choose to view the report, the screen illustrated in Figure 9-18 is displayed.

**Figure 9-18**  
The Report screen

System Status and Maintenance			
SEER Period from 5/17/91 04:00 to End of SEER data.			
Error	Date	Time	Type/Severity, Description
35-0	5/17	04:30	SysInf SEER registered and active
26-0	5/17	04:32	SysInf PP_Base:Number of mappable DSPs on the node is 6
0001 0 2030405			
60-0	5/17	04:35	SysInf Program Completed: VPDMASTER on Node 1
25-5	5/17	04:50	SysInf CSL Link is up
...	...	...	...
90-5	5/17	04:50	ErrMin OCS:Start:Problem Creating New Audit Trail File.
1224			
90-5	5/17	04:50	ErrMin OCS:Audit trail disabled due to a file access error, to retry enable in OutCalling Options Screen. 1224
Select a softkey>			
Exit			Next Page*

\*Appears when the information fills more than one screen.

SEER reports contain the following read-only fields:

- **SEER Period** - reflects the time period that the report covers. This is determined by the entries that were made in the System Event and Error Reports screen. If no start and end date were entered there, the report will display all SEER data that is currently stored in the buffer.
- **Error** - identifies the SEER. The first number indicates the report class (which identifies a particular software component). The second number indicates the report number (which specifies the report within the class, numbered from 0 to 99). This classification system is described in the introduction to the *Maintenance Messages (SEER) Manual* (NTP 297-7001-510). If no class was specified in the System Event and Error Reports screen, SEERs from all classes will be included in the report.
- **Date & Time** - indicates the date and time at which the event or error occurred in the system.
- **Type/Severity** - indicates the SEER type (Error, Admin or System) and its severity level (Critical, Major, Minor, or Info).

- **Description** - gives a brief explanation of the event or the cause for the error.

An alternative method of obtaining SEER information is to monitor the DMS VoiceMail SEER printer, if there is one, thus allowing you to view SEERs as they occur. To have SEERs print as they occur, SEER printing must be enabled in the General Options screen (it is, by default). Although the format of the report is different from that shown on the administration terminal, most of the information is the same (such as the class, number, description, and date and time). In some instances you may also see additional information at the end of the message such as:

RC xxxx

where xxxx is a number signifying a Return Code. These codes provide further information about the SEER and can be found at the back of *Maintenance Messages (SEER) Manual* (NTP 297-7001-510).

Serv. File <filename>

where the filename refers to a voice service ID.

#### **Procedure 9-14** **Viewing and printing SEERs**

**Starting point:** The System Status and Maintenance menu, <11> entered.

*The System Events and Error Reports screen appears (Figure 9-17).*

- 1 Enter the class of SEERs that you want to retrieve. If you want to retrieve all SEER classes, leave the *Class* field blank.
- 2 Select a severity level. (To view SEERs at all severity levels, select "ALL".)
- 3 Select an error type.
- 4 If you wish to specify a start and end time for the reporting period, enter the required values in the *Report Start* and *Report End* fields.
- 5 Choose step 5a to view the report on the terminal, 5b to print the report, or 5c to cancel.

- a. Use [View Reports].

*The report is displayed (Figure 9-18).*

*Use [Next Page] to view subsequent pages of the report.*

- b. Use [Print Reports].

*You are prompted to make sure your printer is ready and on-line.*

*Use [Continue Printing] to continue printing, or use [Cancel Printing] at any time to stop printing. There may be some delay before control is returned to the terminal because the system waits for the printer to stop printing.*

- c. Use [Cancel].

*The System Status and Maintenance screen appears.*



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# Operational Measurements

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## Introduction

The Operational Measurement (OM) reports allow administrators and Northern Telecom support staff to study how a DMS VoiceMail system is being used. These reports may be used to determine if a change in the system is required to improve the level of service provided by DMS VoiceMail. For example, if overall traffic on the system is higher than was originally anticipated, a channel expansion may be necessary.

OM reports also show what features are being used a lot, and what features are not being used at all. You may find it necessary to remove unused features to reduce the overall load on the system. OM reports can also reveal potential technical problems with the system, such as low disk space (the amount of disk space affects DMS VoiceMail's ability to store messages and perform its features).

The remainder of this chapter describes the OM reports and how to use these reports to identify system problems. Sample reports (with a full description of the fields in each report) are also included in this chapter.

## OM traffic reports

The OM traffic reports show how much the system is being used. That is, the reports identify the number of calls processed, number of times a user logs in to DMS VoiceMail or accesses particular features such as voice messaging, voice menu applications, and outcalling. The following traffic reports are available:

- *V oice Service Summary*
- *V oice Messaging Detail*
- *Channel Usage Detail*
- *V oice Menus and Announcements Detail (if installed)*
- *AMIS Networking Detail (if installed)*
- *Outcalling Detail*

- *Disk Usage Detail*
- *T1 Link Handler Detail*

The traffic reports are described in more detail later in this chapter.

## **OM user usage reports**

The OM user usage reports can only be viewed by logging on as customer administrator as this information is customer-specific. User usage data is used to monitor how specific users are making use of voice messaging and AMIS networking (if installed). See the *Customer Administration Guide* for more details.

## **Using OM to detect or investigate system problems**

OM reports can also be used to identify potential system problems, and possibly the cause of the problem. Although you should always use input from the users of the system to help determine if there is a problem, OM reports provide more definite data to work with.

For example, if customers complain that they cannot access the DMS VoiceMail system, channels may be busy or tied up, or disk space may be low. OM reports can help you determine if the problem is with system capacity or inefficient usage. Some of the potential problems that can be detected through OM reports are discussed in the subsections that follow.

### **Disk space low**

If the voice space used on a disk volume is consistently over 60%, then disk space is getting low. Steps should be taken to reduce the voice space used. See the “Voice Space Used” column and the “Report Analysis” section for the Disk Usage Detail report.

### **Channels busy/tied up**

The Channel Usage Detail report shows the number of calls and voice mail usage (in CCS) per channel. If the number of calls is high or the average message length is exceptionally long, the channels may be too busy to handle all calls coming in. As a result, users may not be able to access DMS VoiceMail. Several of the “Report Analysis” sections that follow the sample reports refer to analyzing or dealing with high traffic problems.

### **Inefficient usage**

The Voice Services Summary report provides an overview of how much all your DMS VoiceMail features are being used. If you notice that some features are not being used at all, this may indicate that the users are not aware of the feature (or don't know how to use it), or that the feature is not required. The users may require more training. Use broadcast messages to give brief pointers or to inform users of available training courses or material.

### Unauthorized usage

If the thru-dial feature is being accessed more frequently during “off hours” or if the average length of the thru-dial sessions is long, this may indicate that unauthorized users (i.e., hackers) are accessing your DMS VoiceMail system in order to use the thru-dial feature (e.g., to make long distance calls). If you notice unusual use of the thru-dial feature, change the access password and continue to monitor the thru-dial usage. See the Voice Services Summary report for the number of thru-dial sessions and the average session lengths during specific time periods.

### Using OM as a Capacity Planning Tool

As a capacity planning tool, operational measurements are used to generate traffic reports that you subsequently analyze to determine whether your system requires an upgrade either in disk storage, channel capacity, or perhaps in the number of nodes (should the number of users on your system approach one of the limits discussed in *The DMS VoiceMail Product Guide* (NTP 297-7001-010)). If your organization’s use of DMS VoiceMail is fairly stable, you need only use the traffic measurement component of operational measurements on an infrequent basis to verify that the system’s resources are adequate for your needs. This can only be done at the System Administration level.

### Disk capacity

Because operational measurement data must be stored in a finite amount of disk space, it is periodically overwritten by new data. You must ensure that you view or print any vital information before it is overwritten. (The Operational Measurement Options screen defines how long data is stored.) You must also ensure that operational measurement data does not exceed the available storage capacity.

In order to calculate your projected storage requirements, you must determine the number of days that you wish to store OM data before it is overwritten. This value is entered in the *Number of days of Traffic Data Stored* field in the Operational Measurement Options screen. (See page 10-8 for details.)

The amount of storage required for each operational measurement can be estimated from Table 10-1.

**Table 10-1xxx**  
**Storage requirements for operational measurements**

System type	Number of users	Billing Data Cost	User Usage Data Cost
12 channel, 5 hr	500	5% per day	0.4% per day
	1000	10% per day	1.0% per day
12 channel, 24, 36, 54 hr	1000	5% per day	0.7% per day
20 channel, 26, 54, 84, 114 hrs	1000	8% per day	0.7% per day
	2000	10% per day	1.4% per day
	3500	21% per day	2.2% per day
36 channel, 45, 90, 120, 180 hrs	3750	10% per day	1.0% per day
	7500	18% per day	2.0% per day
48 channel	5000	12% per day	1.0% per day
	10000	25% per day	2.0% per day

Assumptions:

- System in use 12 hours per day, 5 days per week, at an average of 0.5 peak traffic
- Average holding time is 40 seconds.
- 10% of traffic is network traffic
- Voice menu traffic is 10% of voice message traffic
- Operational measurements set for one hour commit interval

Once you have this information, compute the storage as follows:

If User Usage is enabled, 2 days of billing data will be stored.

Total storage = 2 x Billing Data Cost + number of traffic days x 1% + number of user usage days x cost of user usage days
---

Example: 20 channel system with 1000 users, 31 user usage days, 4 days of traffic stored.

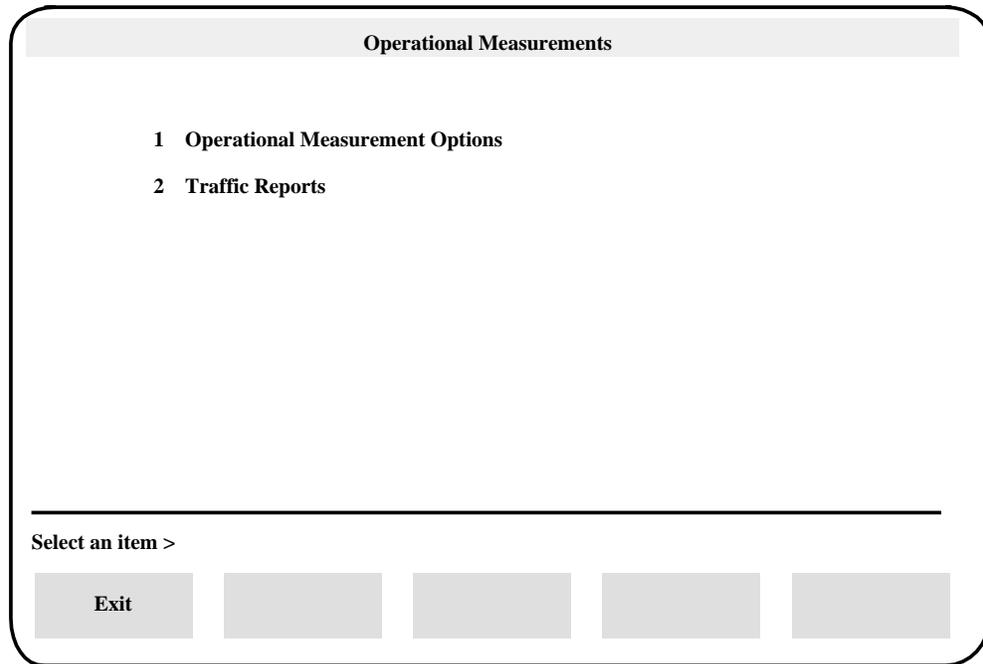
$$\text{Total storage} = (2 \times 8\%) + (4 \times 1\%) + (0.7 \times 31) = 42\%$$

The total storage cannot exceed 100%, or you are likely to run out of disk space. Should your calculations yield a result greater than 100%, reduce traffic days or user usage days, and repeat your calculations. The values presented in Table 10-1 are based on typical parameters for various DMS VoiceMail configurations. Should your system deviate markedly in any of these assumed traffic patterns, you will need to experiment to determine what your system can accommodate.

## The Operational Measurements menu

The items listed in the Operational Measurements menu (Figure 10-1) allow you to access screens that are used to set parameters related to the collection and storage of data and to view and print traffic reports.

**Figure 10-1xxx**  
**The Operational Measurements menu**



### Procedure 10-1xxx

#### Using the Operational Measurements menu

**Starting point:** The Main Menu, <5> entered.

*The Operational Measurements menu appears (Figure 10-1).*

- 1 To choose an item, enter its number and press <Return>.

*The menu corresponding to your selection appears. See the following sections later in this chapter for details:*

*<1> "Operational Measurement Options" (collection parameters)*

*<2> "Traffic Reports" (for viewing and printing reports)*

- 2 Use [Exit] to return to the Main Menu.

## Operational Measurement Options

Operational Measurement Options (Figure 10-2) define how system and user statistics are collected. This includes the time traffic data collection begins and ends every day, how often collected traffic statistics are written to disk, and whether or not user usage data is collected. As system administrator, you will configure parameters for both traffic reports (system-wide information) and user usage reports (customer-specific information), even though you can only view traffic reports.

To view user usage reports, you must log on as customer administrator and view the reports for each customer group configured on the system. User usage reports are described in the *Customer Administration Guide*. Two fields on the OM Options screen pertain to user usage reports: *Collect User Usage Data* and *Number of days of User Usage Data stored*.

The values you configure in this screen apply to all customer groups. Customer administrators can view the values you have configured but can not modify them.

**Note:** Because operational measurements are kept on hard disk, they are periodically overwritten (as determined by the number of days they have been specified to be kept on disk), and it is important that you view or print these reports before the system overwrites them with new information.

**Figure 10-2xxx**  
The Operational Measurement Options screen

**Operational Measurements**

Operational Measurement Options

Collect Traffic Data:	Disabled [Enabled]
Traffic Period Start (hh:mm)	<u>01:00</u>
Traffic Period End (hh:mm):	<u>01:00</u>
Traffic Commit Interval (hh:mm):	<u>01:00</u>
Number of days of Traffic Data stored:	<u>8</u>
Collect User Usage Data:	[Disabled] Enabled
Number of days of User Usage Data stored:	<u>31</u>

---

Save

Cancel

The following fields are displayed:

- **Collect Traffic Data** - When this field is “Enabled” a statistical record of voice messaging and other voice services, voice channel traffic, networking message traffic (AMIS networking), and disk space usage will be collected and stored on disk. The default is “Enabled”.
- **Traffic Period Start (hh:mm)** - The time at which data begins to be collected, based on the 24-hour clock. The valid range is from 00:00 to 23:30. You may only enter values in half-hour increments, for example, 01:00, 01:30; 02:00, 02:30, etc. The default is “01:00”.
- **Traffic Period End (hh:mm)** - The time at which data stops being collected, based on the 24-hour clock. The valid range is from 00:00 to 23:30. You may only enter values in half-hour increments, for example, 01:00, 01:30; 02:00, 02:30, etc. To continuously collect traffic data, set the Period Start equal to the Period End (i.e., Period Start = 01:00 and Period End = 01:00). In this manner, data will be collected 24 hours a day. The default is “01:00”.
- **Traffic Commit Interval (hh:mm)** - The value entered in this field determines how often the collected traffic statistics are written to the hard disk within the defined traffic period. The default is “01:00”. The valid range is from 00:30 to 23:30. For example, if *Collect Traffic Data* is set to “Enabled” and

Traffic Period Start = 8:00 am,  
Traffic Period Stop = 5:00 pm,  
Traffic Commit Interval = 1 hour and 30 minutes,

traffic data is collected between 8:00 a.m. and 5:00 p.m. daily, and traffic reports are written to the hard disk every 1 hour and 30 minutes during this period. The first report is written out at 9:30 a.m. and the last one is written out at 5:00 p.m.

Commit intervals should be entered in half-hour increments and equally divisible into the period range. The smallest allowed interval is 30 minutes. However, a one hour interval will provide similar granularity of data and will require only half as many writes to disk (resulting in less disk usage) as the 30 minute interval.

**Note:** The traffic commit interval can be set to 24 hours. However, an interval greater than 2 hours is not recommended because the accumulated numbers may be too large to be accommodated by the fields in the report screens. If a number is too large, “>999” is displayed in the field to indicate overflow. Furthermore, any data that is not written to disk is lost if a system reboot occurs.

- **Number of days of Traffic Data Stored** - This field determines the number of days that traffic data is maintained before being overwritten by new traffic data. For example, if this field is set to 8, on the 9th day you will not be able to view traffic data collected on the first day as it will have been overwritten, but you will be able to view the data from the remaining eight days. The valid range is from 1 to 8 days. The default is "8". The old traffic data is removed from the disk at 1:20 am each day.
- **Collect User Usage Data** - This field controls the collection of daily user usage data and may be "Disabled" or "Enabled". The default is "Disabled".

You can only view user usage reports if you have logged on as customer administrator because each user is associated with a particular customer group. See the section "User Usage Reports", in the chapter "Operational Measurements" in the *Customer Administration Guide* (NTP 297-7001-301).

- **Number of days of User Usage Data Stored** - This field determines the number of days that information about user activity is kept on the hard disk before it is overwritten. The range is from 1 to 63. The default is "31".

#### **Procedure 10-2xxx**

#### **Setting Operational Measurement parameters**

**Starting point:** The Operational Measurements menu, <1> entered.

*The Operational Measurement Options screen appears (Figure 10-2).*

- 1 Set the parameters as required.
- 2 Choose step 2a to save the changes or 2b to cancel.
  - a. Use [Save].

*The changes are saved and the Operational Measurements menu is redisplayed.*

**Note:** Any saved changes force all traffic data to be committed at the time of the save, regardless of the interval and period specified.

- b. Use [Cancel].

*Any changes you have made are discarded; the Operational Measurements menu is redisplayed.*

## Traffic Reports

The Traffic Reports screen appears when item <2> is selected from the Operational Measurements menu.

**Figure 10-3xxx**  
The Traffic Reports screen

The screenshot shows the 'Operational Measurements' menu with 'Traffic Reports' selected. Below this, a list of report types is shown with their status:

Voice Service Summary:	No	Yes
Voice Messaging Detail:	No	Yes
Channel Usage Detail:	No	Yes
Voice Menus and Announcements Detail:	No	Yes
AMIS Networking Detail:	No	Yes
Outcalling Detail:	No	Yes
Disk Usage Detail:	No	Yes
T1 Link Handler Detail:	No	Yes

Below the list, there are two input fields for the report period:

Report Start (dd/mm/yy hh:mm): \_\_\_\_\_ (or blank for oldest)  
 Report End (dd/mm/yy hh:mm): \_\_\_\_\_ (or blank for newest)

At the bottom, there are five buttons: Exit, View Reports, Print Reports, and two empty buttons.

Each line in the Traffic Reports screen represents a specific type of report. These reports are described briefly here:

- ***Voice Services Summary*** - This report displays statistics such as the number of accesses and average session length for the services that are installed on the system.
- ***Voice Messaging Detail*** - This report displays statistics for voice messaging usage. This includes information about the number of messages created in various categories, average message lengths, hold times, and the number of internal and external calls.
- ***Channel Usage Detail*** - This report displays statistics, including the number of incoming and outgoing calls, for each channel.
- ***Voice Menus and Announcements Detail*** - This report displays statistics for voice menu and announcements services. The report displays the number of times that each voice menu option, in the specified voice menu application, has been used within the specified reporting period. This report is available only if the Voice Menu feature is installed.

- **AMIS Networking Detail** - This report is listed only if AMIS Networking is installed. This report displays information about the number of non-delivery notifications (NDNs), economy, standard and urgent messages sent and received by the system, as well as connection statistics.
- **Outcalling Detail** - This line appears only if Outcalling is installed. The Outcalling Detail report displays statistics for Remote Notification and Delivery to Non-Users activity.
- **Disk Usage Detail** - This report summarizes how much voice space and text space have been used for each voice storage volume.
- **T1 Link Handler Detail** - This report shows the error counts for the T1 links during a given reporting interval.
- **Report Start (dd/mm/yy hh:mm)** - When requesting reports, this field allows you to specify the date and time at which the report should begin. The value you enter is based on the 24-hour clock. The valid range is from 00:00 to 23:59 (12:00 midnight to 11:59 p.m.). If this field is left blank, the default-the start of available data-is used.
- **Report End (dd/mm/yy hh:mm)** - This field determines the date and time at which the report should end. The value entered in this field, based on the 24-hour clock, can be set from 00:00 to 23:59. If this field is left blank, the default-the end of the available data-is used.

#### **Procedure 10-3xxx**

#### **Viewing and printing Traffic Reports**

**Starting point:** The Operational Measurements screen, <2> entered.

- 1 The Traffic Reports screen appears (Figure 10-3).
- 2 Select the reports you wish to view.
- 3 (This step is optional.) Specify start and stop times for the report period by entering the values in the *Report Start* and *Report End* fields.
- 4 Choose step 4a to view the reports on the terminal, 4b to print the reports, or 4c to cancel.

- a. Use [View Reports].

*The selected report screens are displayed (see the following pages for descriptions of each report).*

*When you select the various reports screens, you will see <Next Report> and <Exit> softkeys at the bottom of the screen. <Next Report> lets you exit from the current report screen to the next report screen, while <Exit> lets you exit from all the report screens back to the Traffic Reports screen.*

*Use [Next Page] to view subsequent pages of the current report.*

- b. Use [Print Reports].

*You are prompted to ensure the printer is ready and on-line.*

Use [Continue Printing] to print the reports, or use [Cancel Printing] at any time to cancel printing. (There may be some delay before control is returned to the screen because it waits for the printer to stop printing.)

- c. Use [Cancel].

The Operational Measurements menu is redisplayed.

## How to Interpret OM Reports

Many of the OM reports refer to the CCS value (centa call seconds per hour, or hundred call seconds per hour). The formula for calculating the CCS is:

$$CCS = \frac{60 \text{ minutes}}{\text{interval (in minutes)}} * \frac{\text{total call seconds}}{100 \text{ seconds}}$$

The first part of the formula compensates for intervals which are not one-hour intervals. For example, 320 total call seconds during a half-hour interval produces the following CCS:

$$CCS = \frac{60 \text{ minutes}}{30 \text{ minutes}} * \frac{320 \text{ seconds}}{100 \text{ seconds}} = 2 * 3.2 = 6.4 \cong 6$$

If the interval is one hour, the first part of the formula can be ignored. For example, 320 total call seconds over a one-hour interval produces the following CCS:

$$CCS = \frac{60 \text{ minutes}}{60 \text{ minutes}} * \frac{320 \text{ seconds}}{100 \text{ seconds}} = 1 * 3.2 = 3.2 \cong 3$$

When interpreting the OM reports, also keep the following points in mind:

- Look not only at the counts for each service, but also at the relationship between the counts for different services. For example, both express messaging and call answering features allow messages to be left in the system. Therefore, both counts should be taken into consideration when looking at the total number of incoming messages during a particular time period.
- Know the size of the system: both channels and disk capacity. Obviously, smaller systems will be much more sensitive to high peg counts and durations than larger systems.

- Know how the organization using the system operates. Many of the counts and durations will have a direct relationship on how the organization uses the system as part of its overall operation (e.g., voice messaging only?, auto attendant?, menus?, etc.). If you don't know how the organization functions, find someone within the organization who does and interpret the information together. That person will provide the necessary knowledge about how the organization works, and you can provide the information about the system.
- Make sure you have taken any unusual operational activity into consideration. For example, is it a national holiday? or election day? or was there a major news event recently? Such unusual activities may cause an abnormal usage of your system, which will distort the figures.
- Many reports relate to one another. For instance, the voice services summary report provides a summary of the voice menus and announcement traffic, but the voice menus and announcement detail report provides much more detail about this one particular service. Know what reports a system can produce, and know which ones relate to each other. Read through each report and move back and forth through the information making sure you have optimized the interpretation and analysis process.
- Consult the users of the system to gain further insight into a report's findings. Find out how the system is working for the users and if they have any problems to report. Some apparent system problems may be the result of improper usage of the system (perhaps due to lack of training or awareness of certain system features).
- Consider how long a feature or service has been in operation. When something is new, it may generate more traffic than normal as a result of human curiosity, or it may generate less traffic due to unfamiliarity with the new feature, so the initial figures may be distorted.
- If you are working on numerous DMS VoiceMail systems, remember that each DMS VoiceMail system is unique. Make sure you apply all the above points separately to each system.

### Voice Service Summary Report

The Voice Service Summary Report provides statistics for each of the voice services installed in your system (Figure 10-4). The total number of times a user dialed a service directly (number of accesses), and the average length of each access are given. Indirect accesses, through other services such as voice menus, are not displayed in this report.

Figure 10-4xxx  
Voice Service Summary Report screen

Operational Measurements					
Voice Service Summary					
Interval	Start-End	Service Name	Number of Accesses	Average Length (in seconds)	Voice Mail Usage (in CCS)
04/22	09:00-10:00	Thru-Dial	53	7	4
04/22	09:00-10:00	Voice Menus	301	12	36
04/22	09:00-10:00	Voice Messaging	1022	65	664
04/22	09:00-10:00	Call Answering	1437	29	416
04/22	09:00-10:00	AMIS	0	0	0
04/22	09:00-10:00	Express Messaging	86	49	42
04/22	09:00-10:00	Voice Announcements	31	111	34
04/22	09:00-10:00	Voice Administration	0	0	0
04/22	09:00-10:00	Voice Prompt Admin	0	0	0
04/22	09:00-10:00	Time of Day Control	0	0	0
04/22	09:00-10:00	Delivery to Non User	0	0	0
04/22	09:00-10:00	Remote Notification	26	42	11
04/22	09:00-10:00	Remote Activation	0	0	0
04/22	09:00-10:00	Voice Forms	0	0	0
04/22	09:00-10:00	Transcription Service	0	0	0

Select a softkey >

Exit      Next Report      Next Page\*

\* The "Next Page" softkey appears when the information fills more than one screen.

The following read-only fields are displayed:

- **Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.

- **Service Name** - displays the name of the service that was accessed.
- **Number of Accesses** - displays the number of direct calls made to the corresponding service.

Note that if a call continues past the interval, the access is only counted in the second interval (when the call is completed), although the call length is properly divided between the two intervals. For example, if a call starts 10 minutes before the end of an interval, that 10 minutes of call length is counted in that interval. If the same call continues for 5 minutes into the next interval, the 5 minutes is counted in the second interval. The number of accesses is increased by 0 in the first interval and by 1 in the second interval. The call is pegged in this way to match the way calls are tracked by the switch.

If a call that spans two intervals is the only call to that service in those intervals, the number of accesses in the first interval would be 0 while the number of accesses in the second interval be 1.

- **Average Length (seconds)** - displays the average length of the corresponding voice service sessions during the specified interval.
- **VoiceMail Usage (in CCS)** - displays the amount of time that a DMS VoiceMail service was active in the defined interval. The value is given in CCS (hundred call-seconds), a traffic measurement statistic. One CCS is equal to 100 seconds of call connection time per hour.

### Report Analysis

The second line in the sample report shows that 301 calls were placed to the Voice Menu service for a total of 3612 seconds (301 x 12), or an average of 36 seconds in the one hour interval. The CCS count (hundred call-seconds) is computed for the one hour interval as follows:

$$CCS = \frac{3612 \text{ seconds}}{100 \text{ seconds}} = 36.12 \cong 36$$

Use the summary report, including the CCS values, to get an overall sense of which services are generating the most traffic and which are generating little or no traffic. And consider the following points:

- If a feature is not being used, it may mean that it is not working properly, or that the users are not aware of the feature and therefore do not use it. After the administrator notices a low (or no) usage of a particular feature, it is up to the administrator to then do additional research (e.g., consult the users or get more detailed reports) to determine if there is a technical problem with the feature or if it simply is not being used.
- If a feature is generating an unusually high amount of traffic, you may encounter system performance problems, such as no free channels. Run the report that goes with that service, if there is one, for more information. As the administrator, you may need to do more research beyond checking the OM reports to learn more about the nature of the problem and possibly come up with a solution.  
For example, you need to determine if the high traffic level was due to some unusual event that affected your organization (if so, the high traffic would not be expected to continue).

If the high traffic for a particular feature is expected to continue, one solution may be to dedicate a channel to the feature so that the feature does not tie up the whole system. Another solution is to expand the system if overall traffic for the whole system is higher than what was originally anticipated for the system.

- Another area to check is the average length for Voice Menu and Voice Announcement accesses. If the average length is long, review your menus and announcements to see if they can be shortened or rearranged for more efficient use.  
For example, for menus place the popular items first so that users do not need to stay on the line as long before the item they want is presented. If a menu has a long average length and it accesses an announcement, try to shorten the announcement.
- If the number of Call Answering accesses is high, check the logon count versus the number of times Call Answering has been accessed (the Voice Messaging Detail report gives the logon count). If the logon count is low compared to the number of Call Answering accesses, this means that users are accumulating several messages before logging on to listen to them. Too many accumulated messages lowers the amount of available disk space to the point where overall system performance may be affected.
- If users are having trouble logging in to DMS VoiceMail at a certain time, check the level of traffic for that time period. You may have found your heavy traffic period or *busy hour*. If there is no way you can reduce the traffic during that time period, you may need to expand your system.

- If you have an unusually high number of thru-dial accesses, this may be a sign of hackers present on your system. If you suspect hackers are accessing the thru-dial feature, first check how the thru-dial service is setup to see if the OM data are unusual.

For example, if thru-dial is part of a menu service that executives use to call in and access thru-dial capability, then you can expect the outgoing calls to be lengthy. If your research still suggests the possible presence of hackers, change the thru-dial access password immediately.

### **Dedicating a Channel**

If you choose to dedicate a channel to a particular service, first consider the following points and review them with a system engineer before making a final decision. Dedicating a channel can have a major impact on DMS VoiceMail services.

- How many channels are on the system? A small system would experience a significant impact from the removal of even one channel for specific services.
- How many users are on the system? A large number of users make greater demands on all channels. Again, removing a channel may impact services.
- Does the organization experience high peak traffic periods? During low traffic periods, traffic reports may indicate that a channel can be spared. But all channels may be necessary during peak periods if the traffic is high at those times.
- Is the service with the dedicated channel going to receive enough demand to make dedicating a channel worth the cost to the rest of the system?
- Is the assignment temporary or permanent? If the assignment is temporary and during a low traffic period, then the removal of the channel may not greatly affect the system. If the assignment is permanent, then the removal of the channel will have some impact.

### Voice Messaging Detail Report

The Voice Messaging Detail Report (Figure 10-5) provides information about logon sessions, call answering sessions, and messages composed during logon sessions. If data is unavailable for a given statistic, "N/A" (not available) is displayed instead of a value; if a value is too large to fit in a field, ">999" is displayed.

Figure 10-5xxx  
The Voice Messaging Detail Report

Operational Measurements											
Voice Messaging Detail											
Interval	Start-End	Number of Calls		Number of Sessions		Session Length		Messages Created		Message Length	
		Int	Ext	EM/Ans	Log	Avg	Max	EM/Ans	Log	Avg	Max
10/28	09:00-10:00	18	0	2	16	238	470	0	2	20	25
10/28	10:00-11:00	12	2	5	9	310	310	1	32	14	14
10/28	11:00-12:00	17	1	1	17	478	624	1	20	20	20

Select a softkey >

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\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen. For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.

- **Number of Calls** - The number of voice messaging, call answering, and express messaging calls made. More specifically,
  - **Int** indicates the number of calls made from inside the switch during the specified interval.
  - **Ext** indicates the number of calls made from outside the switch during the specified interval.
- **Number of Sessions (EM/Ans and Log)** - The number of sessions in the interval.
  - **EM/Ans** indicates the number of sessions used for express messaging and call answering services.
  - **Log** indicates the number of times users logged into their mailboxes during the interval.

The sum of the values in these two columns should equal the sum of the two *Number of Calls* values. To determine the number of messages that were actually received or created during these sessions, check the *Messages Created* fields.

- **Session Length (Avg and Max)** - The average length and maximum length (in seconds) of call answering, express messaging, and logon sessions for the interval.
- **Messages Created (EM/Ans and Log)** - The number of messages created during the interval.
  - **EM/Ans** indicates the number of messages left during express messaging and call answering services.
  - **Log** indicates the number of messages that were created (using the compose, forward or reply command) during the interval.
- **Message Length (Avg and Max)** - The average length and maximum length (in seconds) of messages received and created during the interval. Since message length impacts disk storage, use this information to determine if enough disk space has been provisioned for voice messages.

### Report Analysis

The first line in the sample report shows that eighteen calls were placed to DMS VoiceMail. Sixteen were logon sessions (e.g., to compose, forward, or listen to messages). Two calls accessed Express Messaging or Call Answering feature (an attempt to leave a message at another mailbox). If the number of sessions does not equal the number of calls, there is a problem with your system.

The number of EM/Ans sessions should match or be close to the number of EM/Ans messages created. When there are more EM/Ans sessions than EM/Ans messages created (as in the sample report), this means that during an Express Messaging session, or after reaching the Call Answering greeting, users are hanging up without leaving a message, or they are pressing 0 to transfer to an attendant (resulting in Express Messaging or Call

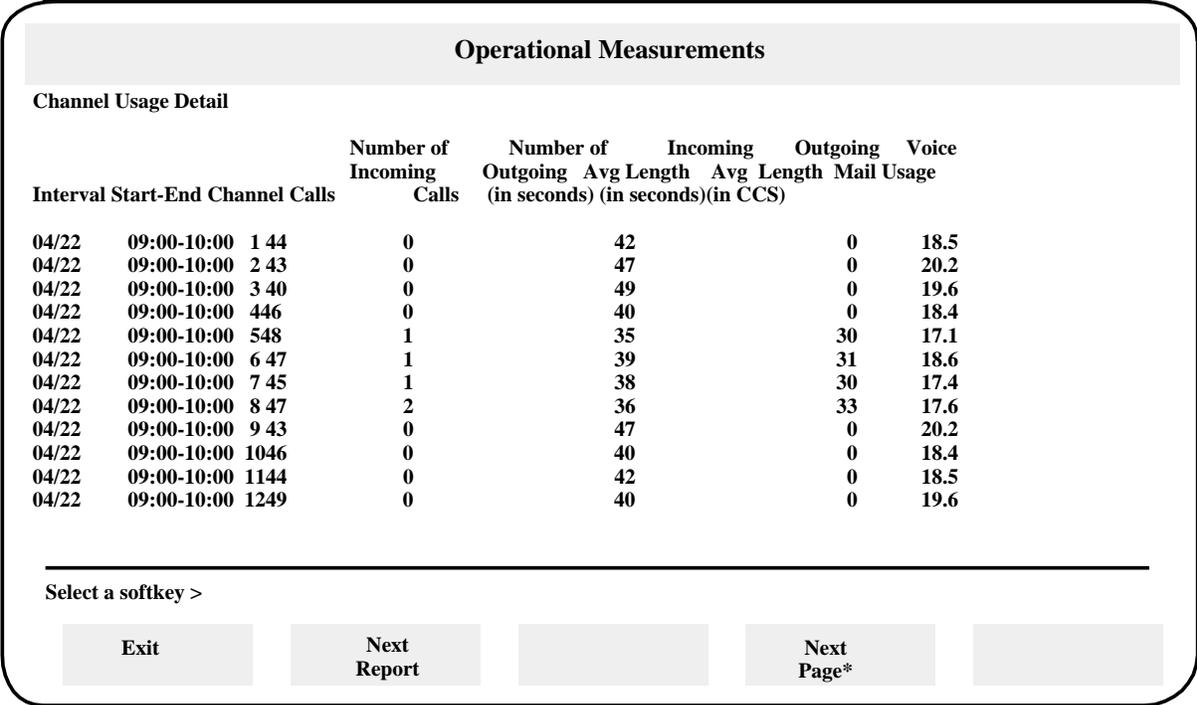
Answering sessions but no messages created). If the disparity between the two numbers is high, the users may need some training on the use of Express Messaging and Call Answering. Also, users should review their greetings. If greetings are unfriendly or if instructions are too complex, this may be causing users to hang up without leaving a message.

On this report, watch for high numbers of calls and long messages. Too many calls in a short period of time will tie up channels and prevent others from accessing DMS VoiceMail. If the high number of calls is from internal logon sessions and the level of voice space used is not high (see Disk Usage Detail report), consider ways to reduce the number of logon sessions. If the channel tie-up is from outside callers, then you probably don't want to discourage the callers, so you may need to expand your system.

**Channel Usage Detail Report**

The Channel Usage Detail Report shows channel activity for incoming and outgoing calls, including average session lengths and CCS (hundred call-seconds) statistics.

**Figure 10-6xxx**  
**Channel Usage Detail Report**



\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- ***Interval Start-End*** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.

- ***Channel*** - The channel being monitored.
- ***Number of Incoming Calls*** - Number of calls incoming during the interval.
- ***Number of Outgoing Calls*** - Number of calls outgoing during the interval. (This value is 0 for services which do not use thru-dialers, Outcalling RN or DNU, or AMIS.)
- ***Incoming Avg Length (seconds)*** - Average length of incoming calls during the interval.
- ***Outgoing Avg Length (seconds)*** - Average length of outgoing calls during the interval.
- ***Voice Mail Usage (CCS)*** - Represents the amount of time in terms of CCS (hundred call-seconds) that a DMS VoiceMail channel was active in the defined interval. CCS is a traffic measurement statistic. One CCS is equal to 100 seconds of call connection time per hour. The value is displayed in the nearest one tenth of a CCS (for example, 11.0).

**Note:** There is a similar *Voice Mail Usage* field in the Voice Service Summary screen (Figure 10-4). However, because the two fields measure usage differently (one in terms of channels and the other in terms of voice services), there may be small differences between the two fields if you calculate the totals for the displayed values.

### **Report Analysis**

The CCS for each channel gives an indication of how busy each channel is. With Call Distribution (UCD), the traffic (measured in CCS) should be evenly distributed across all channels over a lengthy period (e.g., 12 hours).

Channels with short durations will have a higher number of calls than channels with long durations, but the average amount of traffic (e.g., CCS) for each non-dedicated channel should be similar. If the traffic is not evenly distributed, check if all channels are working properly. If a channel has no traffic at all for the entire period of the report, this may indicate that the

channel is out of service. If any channels are dedicated to a particular service, the number of calls for the dedicated channels may differ significantly from the number of calls on the other channels.

If users are having trouble accessing DMS VoiceMail (e.g., callers are getting ringback or busy signal), check if dedicated channels appear to have much fewer calls than other channels. If so, you may be better off removing the dedication and opening the channel to all services. A busy system cannot afford to have any channels that are not sharing the full load on the system.

**Voice Menus and Announcements Detail report**

The Voice Menus and Announcements Detail report records the number of times that each menu option in a voice menu application was used during the reporting period. This report details all accesses, direct or indirect, to voice menus and announcements. Direct accesses occur when a user dials the DN of the menu or announcement. Indirect accesses occur when a service is accessed from another service through a menu selection.

**Figure 10-7xxx**  
**The Voice Menus and Announcements Detail Report**

Operational Measurements													
Voice Menus and Announcements Detail													
Interval	Start-End	Service ID	Accesses	For each menu item, the number of accesses are:									
				1	2	3	4	5	6	7	8	9	0
9/30	9:00-10:00												
M 5009	167			41	116	0	0	0	0	0	0	0	0
M 5004	4			3	0	0	0	0	0	0	0	0	1
A 1003	11			0	0	0	0	0	0	0	0	0	0
M 4058	1			1	0	0	0	0	0	0	0	0	0
M 5003	1			0	0	0	0	0	0	0	0	0	0
M 5012	42			6	21	0	6	4	0	0	0	0	1
M 5013	21			5	4	6	0	4	0	0	0	0	1
M 4033	5			0	0	1	0	0	1	0	2	0	0
M 1011	2			0	0	0	0	0	0	0	0	0	0
M 4023	2			1	0	0	1	0	0	0	0	0	0

Select a softkey >

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\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- **Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.

- **ID** - This is the ID number of the voice menu or announcement. Voice menus are indicated by the letter "M" followed by the ID number. Announcements are preceded by an "A".
- **Service Accesses** - The number of times the menu or announcement was accessed (either directly or indirectly) during the measurement period.
- **For Each Menu Item, the Number of Accesses** - The total number of times that each menu option was used during the measurement period. For announcements, all frequencies are "0" since announcements do not process digits. The number of accesses for the individual menu items may not add up to the number of accesses for the menu itself (Service Accesses) because some callers will hang up after reaching the menu if they do not want to choose any of the menu options, or if they want to talk to a live person.

Similarly, calls from rotary dial phones that are able to directly access a menu will be counted in the Service Accesses column but not in the number of accesses for individual menu items since the rotary dial phone does not have the touch tone capability required to select a menu item.

### Report Analysis

This report provides a detailed breakdown of which menu items or announcements are actually being accessed, and a sense of the traffic that each menu or announcement is generating. While reviewing the report, consider the following points:

- If the menu items that are at the end of the menu (e.g., item 8 or 9) are being accessed more frequently than earlier items, you may wish to reorganize the menu so that the popular items are presented first. This structure prevents users from having to wait through all the earlier options before hearing the one they want, thus reducing the call length.

- If a particular service is generating a high volume of traffic, find out if there is any call blockage (i.e., users unable to access the system). If announcements or menus are causing call blockage, see if the information can be provided in some other way other than through DMS VoiceMail (e.g., through hard-copy memos, bulletin boards, etc.). If the service is a definite requirement and its usage cannot be decreased, then your system may require a channel expansion.
- If a menu item has few or no accesses, the reason may be a lack of training or awareness regarding those items, or that those items are simply not required. If you find that certain menu items or announcements are not required, either remove them or replace them with a more useful menu item or announcement. Be sure to re-record the greetings and menu choices to reflect the changes.
- Whether the traffic is high or low for a particular voice menu or announcement, consult the users to determine if there was some unusual reason for the change in traffic. If the high or low traffic is expected to return to acceptable levels, no adjustment may be necessary to the system.

For a proper analysis of this report, have the transcripts of the voice menus and announcements in front of you to refer to.

### AMIS Networking Detail

This screen is displayed only on those systems with AMIS networking capability. The AMIS Network Detail report (Figure 10-8) displays traffic totals for your site. Statistics are shown for the number of AMIS messages received at your site and delivered to other sites, the connect time, and the number of failures for each time interval displayed in the report.

**Figure 10-8xxx**  
The AMIS Network Detail report

Operational Measurements											
AMIS Network Detail											
Interval	Start-End	Messages		Messages Delivered			Time (mm:ss)	Connect		Failures	
		Received	Eco	StdUrg	NDN	Failed		Res	Not Reach	Prot	Error
09/30	10:00-11:00	12	0	5	2	0	0	4:00	0	1	1
09/30	11:00-12:00	0	0	2	0	0	0	2:00	0	1	0
09/30	12:00-13:00	24	0	5	1	0	0	8:00	0	0	1
09/30	13:00-14:00	6	0	2	1	0	0	3:00	0	1	1

Select a softkey >

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\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- **Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.

- **Messages Received** - indicates the number of AMIS messages that were received at the local site during the time interval indicated.
- **Messages Delivered** - indicates the number of AMIS messages (originating from the local site) that were delivered to other voice messaging systems during the interval indicated. This statistic is further subdivided according to the type of message.
  - **Eco** - The number of messages, tagged as economy, that were delivered to other AMIS sites during the specified interval.
  - **Std** - The number of messages, tagged as standard, that were delivered to other AMIS sites during the specified interval.
  - **Urg** - The number of messages, tagged as urgent, that were delivered to other AMIS sites during the specified interval.
  - **NDN** - (Non-delivery Notification) The number of NDN messages sent by the system during the specified interval.
  - **Failed** - The number of unsent messages. These messages experienced a series of failures and could not be sent before the timeout period.
- **Connect Time** - This number indicates the total amount of time (in minutes) used by AMIS networking calls during the time interval indicated.
- **Failures** - The number of AMIS messages that were not successfully delivered to other AMIS sites due to specific resource problems. This statistic is further subdivided into the types of problems that may prevent messages from being delivered:
  - **No Res** - or *no resources*, means that a modem or voice port could not be accessed to send these messages to another AMIS site.
  - **Not Reach** - or *not reachable*, means that the remote AMIS site could not be accessed.
  - **Prot Error** - or *protocol error*, means that the connection was made to the remote AMIS site, but message delivery was prevented by a protocol error.

### Report Analysis

This report provides a detailed breakdown of the AMIS Networking usage on the system. While viewing the reports, consider the following:

- If the number of NDNs delivered or the number of “Failed to Send” messages is high, there may be a problem with your networking setup. See the *Networking Installation* guide for details on the proper setup of the networking feature.

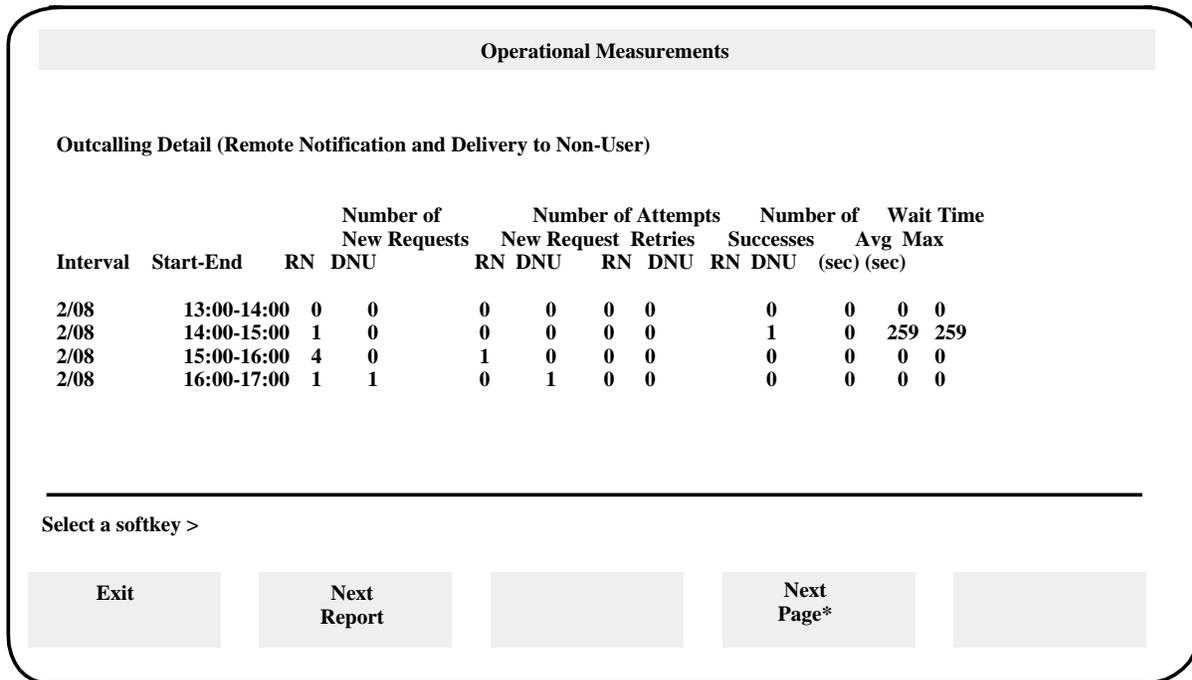
- If the number of urgent networking messages sent is high compared to the number of standard or economy messages, the networking feature may be tying up channels. If this is a problem, you may want to change the networking parameters. See the *Networking Services Administration Guide* for details on changing networking parameters.
- The number of “Failed to Send” messages should be the same as the number of NDNs delivered. If the number of “Failed to Send” messages is higher than the number of NDNs delivered, then the system may not be always informing users that their messages were not delivered. If this happens, there may be a problem with your system.

For a proper analysis of this report, have a diagram of the network in front of you to refer to.

### Outcalling Detail

The Outcalling Detail report details outcalling activity for the remote notification and delivery to non-users services (Figure 10-9).

**Figure 10-9xxx**  
**The Outcalling Detail report**



\* The “Next Page” softkey appears when the information fills more than one screen.

The report displays the following fields:

- **Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.  
For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.
- **Number of New Requests** - The total number of new requests that were made for outcalling services during the interval.
  - **RN** - The number of new requests for the remote notification service.
  - **DNU** - The number of new requests for the delivery to non-user service.
- **Number of Attempts** - The total number of remote notification and delivery to non-user attempts made during the interval.
  - **New Requests** - This number represents the number of attempts that have been made to answer the new requests for RN and DNU. If the number of attempts does not equal the Number of New Requests (see the previous field), the system is not keeping up with outcalling requests and more channels may need to be allocated to outcalling.
  - **Number of Retries** - This number represents the number of times that the remote notification and delivery to non-users services have retried calls because one of the following occurred at the destination number:
    - the number was busy (RN and DNU)
    - there was no answer (RN and DNU)
    - the phone or pager was answered but no messages were retrieved (RN)
    - the required DTMF confirmation was not given (DNU)
- **Number of Successes** - The number of successful remote notifications and messages successfully delivered to non-users that have occurred during the interval.

RN successes are measured in terms of user login. In other words, an RN call is considered successful if the user logs on to his or her mailbox when the notification is received (on the same call as the notification). If the user receives the notification, hangs up and then logs into his or her mailbox, this is not counted as a success since the user terminated the notification call without logging in.

**Note:** For remote notification to a pager, RN calls are never counted as successful in reports because the paging service cannot log on to the mailbox. A better measure of the effectiveness of RNs to pagers is to compare the number of RN retries to RN attempts. However, bear in mind that an RN retry does not necessarily mean the RN attempt to the paging service failed, it only signifies that the user did not log on within the retry interval.

A DNU call is considered successful if the called party answers the call (and DTMF confirmation is given if required).

- **Wait Time** - These values are an indication of how long it takes for the outcalling agent to acquire a channel to outcall to the specified DN.
  - **Avg (sec)** - This is the average amount of time, based on all outcalling attempts made during the interval, that it took the outcalling agent to acquire the resources necessary to make the outcall.
  - **Max (sec)** - This number represents the outcalling attempt that took the longest amount of time to acquire the resources necessary to make the outcall.

### Report Analysis

In the sample report, there is minimal use of the outcalling features. There could be several reasons for this, including:

- The users do not know how to use the service. If so, train all outcalling users on how to use the service.
- The users are unaware that the service exists. If so, inform the users of the service and provide training if necessary.
- The users don't need to use the service. Consult the users to determine if they really do not need the service. Delete the service from the mailbox of those users who confirm that they do not need the outcalling service.
- There's a technical problem with the service. Have the problem investigated and fixed.

If the number of retries is high, the reason may be one of the following:

- the destination number was busy
- there was no answer at the destination

- the user at the destination answered the call but did not retrieve the message

If users are consistently not retrieving messages, the users may not be aware of how to properly use the outcalling service; or there could be a technical problem preventing users from retrieving the messages. Consult the users to find out if the problem is with the system, or with the users.

The number of new attempts should equal the number of new requests. If the number of new requests is greater than the number of new attempts, then the system is not keeping up with the demand for outcalling RN or DNU. The system may need more channels.

If the wait time is high, this also indicates a need for more channels. The wait time indicates how long the outcalling agent has to wait for a free channel.

The number of successes should equal the number of attempts. If the numbers are not equal, then:

- There may be a problem with the destination phone/pager.
- Although DMS VoiceMail may not have any outcalling restrictions, the switch might. For example, long distance dialing may be restricted.
- The outcalling feature may have been set up incorrectly by either the administrator or the user.
- If the channels were busy or tied up for a long time, the retry timeouts may have expired. If the wait times are high, then this is probably what happened. You may need to dedicate channels to outcalling (or increase the number of channels dedicated to outcalling).

## Disk Usage Detail Report

The Disk Usage report provides information on disk space usage on the voice storage volumes (Figure 10-10).

**Figure 10-10xxx**  
The Disk Usage Detail Report

Operational Measurements					
Disk Usage Detail					
Interval Start-End	Volume Name	Volume Size (hh:mm)	Voice Volume Used (%)	Voice Space Used (%)	Text Space
09/30 10:00-11:00	VS1	1:51	33	47	
	VS202		33:15	33	17
	VS203		25:45	10	30
	VS204		25:45	10	30
09/30 11:00-12:00	VS1	1:51	33	47	
	VS202		33:15	33	17
	VS203		25:45	10	30
	VS204		25:45	10	30
09/30 12:00-13:00	VS1	1:51	33	47	

Select a softkey >

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\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.
- Volume Name** - The name of the user volume (e.g., VS2, VS202, VS203, etc). Volumes are sections on DMS VoiceMail disks.
- Voice Volume Size** - The amount of disk space that has been used. This is displayed in hours and minutes. One hour of voice storage is equivalent to 8.5 megabytes.

- **Space Used** - The percentage of disk space used at the end of the interval.

**Note:** The screen shows the Voice Storage and not the Data Storage used. The Data Storage must also be watched. See the section “Volume Administration (tape backups)” in the chapter “General Administration”.

### Report Analysis

The voice space used will fluctuate, especially if your system has an automatic read-message deletion feature enabled. However, if the voice space used percentage is consistently over 60%, then steps should be taken to reduce the amount of voice space used.

As the system administrator, you can reduce the voice space used by deleting unnecessary mailboxes and ensuring that distribution lists are up to date. If these unnecessary or unused mailboxes are on distribution lists, they may be storing messages sent using outdated distribution lists. With no one logging on to delete the messages, the messages continue to accumulate and use up more disk space. You can also encourage users to delete their messages more frequently, or even reduce the allowable maximum message length (see the “Voice Administration” chapter).

To lower voice space used, you can also review all voice menus, voice forms, and voice announcements to see if their size can be reduced. For example, unused menu items can be removed.

If voice space used is high on some volumes but low on others, you may need to move high-usage subscribers to low usage volumes in order to balance system resources. If the voice space used on all volumes is high, you may need to expand your system.

**Note:** If the system generates a SEER 1103, print this Disk Usage Report immediately. This SEER indicates that your system has reached physical or virtual capacity. Check that the nightly audit is functioning. Remove files on the volume in question. If the operation involved VS1, remove directory entries or OM files. The effect of corrective actions may be delayed until the night audit is run. Consider redistribution of users on multi-node, turning on automatic message deletion, or buying a storage upgrade.

Text space used should not fluctuate greatly day-to-day, although it will vary over time. Any large fluctuations or significant steady increases in the text space used should be reported to your technical support organization.

## T1 Link Handler Detail

This report gives the number of errors encountered on the T1 links during a given reporting interval.

**Figure 10-11xxx**  
The T1 Link Handler Detail report

Operational Measurements							
T1 Link Handler Detail							
Interval Start-End	T1 Link	Bipolar Violatns	ErrorsSF	Out of FrameExtended Errors Count	Slip Count	BackwardSlip	ForwardSlip
9/30 10:00-11:00	13-1-1	0	0	0	0	0	0
9/30 10:00-11:00	13-1-2	0	0	0	0	0	0
9/30 10:00-11:00	14-3-1	0	0	0	0	0	0
9/30 10:00-11:00	14-3-2	0	0	0	0	0	0

Select a softkey >

Exit	Next Report		Next Page*	
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\* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed on this screen:

- Interval Start-End** - Data is divided into intervals. The length of the interval depends on the entry made in the *Traffic: Commit Interval* field in the Operational Measurement Options screen. The number of intervals displayed depends on the entries made in the *Traffic Period Start* and *Traffic Period End* fields in the Operational Measurement Options screen.

For example, if data is collected 24 hours a day (from 01:00 to 01:00), and the commit interval is one hour, the report will divide the data into 24 intervals for each day included in the report. The amount of data displayed in this report depends on the *Report Start* and *Report End* entries that were made in the Traffic Reports screen. If no report start and end dates and times were given, all data currently stored on disk are displayed.
- T1 Link** - The T1 link for which the reported statistics apply. The link is identified by the <node number>-<link number>.

- ***Bipolar Violatns*** - The number of bipolar violations that have occurred in the specified interval.

An excessive number of violations indicates one of the following:

- The quality of the line is poor.
- The line code between the SPM and the switch does not match.  
Check the line code in the SPM and switch.

- ***Out of Frame Errors*** - The number of out of frame errors that have occurred in the specified interval.

An excessive number of violations indicates one of the following:

- The quality of the line is poor.
- The clocking reference between the SPM and the switch or channel bank/terminating equipment is poor or is not set up properly.

If the SPM is configured to provide the timing reference (free-run mode), make sure that the channel banks/terminating equipment derive the timing reference from the SPM.

If the switch or terminating equipment is configured to provide the timing reference, make sure that you have nominated one or more T1 spans as candidates for clock referencing and that one of the nominated spans is active. For information about nominating T1 spans as candidates for clock referencing see “Modifying the T1 link setup” in the “Hardware Administration” chapter. A candidate is made the active reference in the T1 Link Status screen (described in the “System Status and Maintenance” chapter).

- ***Extended SF Errors*** - Not applicable.
- ***Backward Slip Count*** - The number of backward slips that have occurred in the specified interval. See the description for Out of Frame Errors.
- ***Forward Slip Count*** - The number of forward slips that have occurred in the specified interval. See the description for Out of Frame Errors.

### Report Analysis

The sample T1 Link Handler Detail report analysis (Figure 10-11) shows a substantial number of error have occurred on a T1 link during the time intervals shown. These errors are occurring continuously, which indicates a problem that is not going away.

If these errors were to occur and then disappear, it would indicate that the reason for the problem has disappeared because it was related to something else on the system that has been fixed or adjusted, or that something is starting to fail. In this case, it would be advisable to monitor the T1 Link Handler Detail report over the next few days to ensure that the problem has really disappeared.

To correct a problem with a T1 link handler:

- 1 Check the quality of the line.
- 2 Check the line code in DMS VoiceMail and the switch.
- 3 If the SPM is configured to provide the timing reference (free-run mode), make sure that the channel banks/terminating equipment derive the timing reference from the SPM.
- 4 If the switch or terminating equipment is configured to provide the timing reference, make sure that you have nominated one or more T1 spans as candidates for clock referencing and that one of the nominated spans is active. For information about nominating T1 spans as candidates for clock referencing see “Modifying the T1 link setup” in the “Hardware Administration” chapter. A candidate is made from the active reference in the T1 Link Status screen shown in Figure 9-11 on page 9-22.

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# AMIS Networking

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## Overview

This chapter describes the AMIS (Audio Messaging Interchange Specification) networking protocol and its administration in DMS VoiceMail.

The AMIS protocol is an industry standard which allows users of different vendors' voice messaging products to exchange voice messages. DMS VoiceMail users can send voice messages to users of other voice messaging systems (as long as they support the AMIS protocol), receive messages from other AMIS sites and reply to these messages using standard DMS VoiceMail functionality. The AMIS open access design allows anyone who has access to AMIS to send messages without the need for pre-arranged passwords, site definitions or specialized hardware.

Most AMIS parameters are configured at the system administration level. The only parameters configured at the customer level are:

- the AMIS compose prefix
- disabling/enabling incoming and outgoing AMIS messages
- the local number in the System Access Number

These parameters are configured in the View/Modify AMIS Networking Information screen at the customer administration level and are described in the *Customer Administration Guide*.

## Supported features

Because the AMIS protocol supports a wide variety of architectures, from the simplest systems to high-end multi-function systems, only the most basic or commonly used features are supported. Therefore, many of the more advanced and sophisticated DMS VoiceMail features cannot be used when communicating AMIS messages.

The following DMS VoiceMail functions are supported by AMIS:

- DMS VoiceMail users can compose voice messages to AMIS recipients. This requires a System Access DN (described later).

- Users can receive messages from other AMIS sites and can use the Reply To feature to respond to these messages immediately.
- Users can forward AMIS messages to other DMS VoiceMail or AMIS users. When a forwarded message is received, the message is preceded with the spoken announcement “attached message”. If the message was forwarded several times, this announcement will be played before each attachment.
- Users can tag messages going to AMIS recipients as urgent, standard or economy.
- Acknowledgment tags are supported for AMIS messages but function differently than for non-AMIS messages. For non-AMIS recipients, an acknowledgement indicates that the message has been listened to whereas for AMIS recipients, it indicates that the message was delivered to the remote system.
- Timed delivery is supported.
- AMIS recipients can be mixed with other recipients (local voice users, private network users, distribution lists, non-users) during message composition.
- When messages are not successfully delivered to AMIS recipients, DMS VoiceMail users will receive a non-delivery notification (NDN).
- Retry scenarios for (holding times and stale times) for urgent, standard, and economy messages can be defined by the system administrator.
- Billing records, indicating call length, originator, recipient, and message length will be generated after each AMIS message session. A set of Operational Measurement reports will be provided.

The following DMS VoiceMail features are not supported by the AMIS protocol:

- Private Message tags have no effect on AMIS messages. Messages tagged as private are not sent to any AMIS address in the message envelope, but will be returned to the originator with an NDN. (The message will be delivered as a private message to all other recipients in the envelope). This is done because there is no way to prevent private messages from being forwarded and therefore violating the originator’s intent.
- Personal and System Distribution Lists
- Name Addressing
- Personal Verification and Call Sender for call answering messages
- Personal Verification, Call Sender and Reply To for voice messages

## Billing

When a subscriber sends an AMIS message or replies to a message received from another AMIS site, the call is charged to the customer's Billing DN (configured in the Voice Messaging Options screen). If a Billing DN has not been configured, the call is charged to the sender.

If the system cannot deliver an AMIS message and generates an NDN (non-delivery notification) message to notify the originator. AMIS NDNs are charged to the AMIS system access number of the recipient of the original message (the called DN in the original AMIS message).

## Configuring the AMIS service in DMS VoiceMail

As administrator, you are responsible for the configuration and specification of the operational characteristics of the AMIS Networking service.

The following sections detail the steps necessary to configure the AMIS service.

### Enable AMIS networking in the appropriate Classes of Service

Even though AMIS networking is installed on the system, you have to enable it within at least some of the system Classes of Service (COSs). When you add a user that requires AMIS networking, be sure to assign him or her to a COS that has AMIS enabled. See the "Class of Service Administration" chapter.

Restriction and permission codes are applied to the AMIS messages that local users send. If you want users to be able to send AMIS messages to sites that are long distance, verify that the long distance dialing prefix ("91" for example) is not defined as a restriction code. Remember also that these codes are intended to prevent abuse of the system. The restriction codes should specify the numbers to which users are not qualified to send AMIS messages.

By default, the "Local" set of restriction/permission codes are applied to AMIS networking messages. Ensure that you know which restriction/permission code set you want to apply to outgoing AMIS messages and then make sure that set is selected in the COS.

To enable AMIS networking in a Class of Service:

- 1 Select Voice Administration from the Main Menu.
- 2 Check the restriction/permission codes that are defined in the Voice Security Options screen. Determine which set of codes you want to apply to outbound AMIS messages. If necessary, modify one of the existing sets.

See the section "Voice Security Options" in the "Voice Administration" chapter for more information.

- 3 Return to the Main Menu.
- 4 Select Class of Service Administration.
- 5 Press the [Add] softkey to create a new COS, or [View/Modify] to modify an existing COS.
- 6 In the Add (or View/Modify) Class of Service screen.
  - a. Set *Receive AMIS Messages* to “Yes”.
  - b. Set *Compose/Send AMIS Messages* to “Yes” (unless you only want users to be able to receive AMIS messages).
  - c. Select the AMIS restriction/permission codes that are to apply to outbound AMIS networking messages.

For more information, see the “Class of Service Administration” chapter.

### **Identify which service will accept AMIS calls**

Incoming AMIS networking calls must terminate on one of the following types of service DNs:

- a special DN defined for AMIS in the VSDN table,
- a voice menu DN that is defined in the VSDN table, or
- a thru-dialer DN that is defined in the VSDN table.

Both voice menus and thru-dial services can accept inbound AMIS Networking calls. The only requirement is that the voice menu or thru-dialer be provisioned with DID access (i.e., must be directly dialable). Otherwise, you will have to create a line DN specifically for the AMIS service. You need only enter the voice menu or thru-dial DN in the VSDN table.

When an inbound AMIS call terminates on a voice menu or thru-dialer, it is recognized as an AMIS call and an AMIS Networking session is initiated. (Note that for this to work, the field *Act on AMIS Initiation Tone* in the Voice Services Profile screen must be set to “Yes”. This is described in the following sections. This is done at the customer administration level.)

### **Using a voice menu to accept inbound AMIS calls**

If you are going to use a voice menu to accept AMIS calls, carry out the following steps. (If the voice menu already exists, begin at step 5.)

#### **On the DMS**

- 1 If there are no available line DNs on the switch to support another service, configure one. See the section “Configuring DMS VoiceMail services” in the “Voice Administration” chapter for details.

## In DMS VoiceMail

- 2 Log on as customer administrator.
- 3 Select the customer group for which you need to create a voice menu.  
For each customer group that requires AMIS networking:
  - 4 Build the voice menu. Voice menus can only be created at the customer administration level since they are associated with a particular customer group. For information about creating voice menus, see the *Voice Menus Application Guide* (NTP 297-7001-307).
  - 5 In the Voice Menu Definition, set the Initial No Response action as RP (for Repeat Menu Choices). This is necessary to ensure that a call will remain connected to the voice menu for at least 10 seconds, otherwise the call may be prematurely disconnected. It takes about 10 seconds for the voice menu to get a signal from AMIS and then transfer the call to the AMIS service. By the time the menu choices are repeated a second time, 10 seconds will have passed and the call will have been transferred. Voice Menus are described in the *Voice Menus Application Guide* (NTP 297-7001-307).
  - 6 In the Voice Services Profile (at the customer administration level), set the field *Act on AMIS Initiator Tone* to “Yes”, otherwise AMIS calls that are placed to the voice menu will not be transferred to the AMIS service. See the *Voice Menus Applications Guide* (NTP 297-7001-307) for details.
  - 7 Enter the voice menu DN in the VSDN table (at the customer administration level).

## Using a thru-dialer to accept inbound AMIS calls

If you are going to use a thru-dialer to accept AMIS calls, carry out the following steps. (If the thru-dialer already exists, begin at step 3.)

- 1 If there are no available line DNs on the switch, create one for the thru-dialer you are about to create. See the section “Configuring services” in the “Voice Administration” chapter for details.
- 2 Build the thru-dialer application. Thru-dialers can only be created at the customer administration level since they are associated with a particular customer group. For information about creating thru-dialers, see the *Voice Menus Application Guide* (NTP 297-7001-307).
- 3 In the Voice Services Profile (at the customer administration level), set the *Short Disconnect* field to a value of at least 10 seconds. This field determines how long the system will wait for an initial response (keypad entry) before disconnecting the call. Since it takes 10 seconds for an AMIS call to be transferred from a thru-dialer to the AMIS service, AMIS calls will be prematurely disconnected if this field is set to a value less than 10.

- 4 In the Voice Services Profile (at the customer administration level), set the field *Act on AMIS Initiator Tone* to “Yes”, otherwise AMIS calls that are placed to the thru-dialer will not be transferred to the AMIS service.
- 5 Enter the thru-dialer DN in the VSDN table. See the “Voice Administration” chapter in the *Customer Administration Guide* for details.

### **Creating a special AMIS service DN**

If you will not be using a voice menu or thru-dialer to accept AMIS calls, you will have to create a special DN for the AMIS service.

### **On the DMS**

- 1 If there are no available line DNs to support another service, configure one. See the section “Configuring services” in the “Voice Administration” chapter for details.

### **In DMS VoiceMail**

- 2 Add the DN for the AMIS service to the VSDN table (at the customer administration level).

## **Configure AMIS networking information**

You are now ready to configure the parameters specific to the AMIS networking service. The following parameters are configured in the View/Modify AMIS Networking Information screen (Figure 11-3).

In this screen you will have to specify the following.

### **AMIS compose prefix**

This is the number that is used by users at the local site to send AMIS messages to remote sites. It is entered during message composition to indicate that the address the user is entering is an AMIS address. You will have to inform the users at the local site of this prefix.

This prefix can be different for each customer group and is, therefore, configured in the View/Modify AMIS Networking screen at the customer administration level. See the “AMIS Networking” chapter in the *Customer Administration Guide*.

### **System access number**

This DN identifies the customer group at the local site within an AMIS network. This is the DN to which messages will be addressed by users at remote AMIS sites. Publish this number as the customer group’s AMIS number. The system access number identifies the local site within an AMIS network. This is the DN to which messages will be addressed by users at remote AMIS sites. It is also the number that is inserted into the message header by the originating site so that users at the receiving site can use the reply to feature if desired.

The system access number includes the following elements:

- the country code of the local site, up to 4 digits in length;
- the area code of the local site, up to 4 digits in length;
- the local number of the customer group at the local site.

The local number must terminate on the DN that has been defined in the VSDN table - the DN of the voice menu, thru-dialer or AMIS service that will be used to accept incoming AMIS calls.

The country and area code are configured at the system administration level, whereas the local number is configured at the customer administration level.

### **Message priorities and thresholds**

A user can assign one of three priorities to an AMIS message: Economy, Standard, and Urgent. Economy priority messages are sent at a specified time each day. This is referred to as the *initiation time*. For Standard and Urgent messages, you can specify a *holding time* - the length of time that messages are retained before they are sent to remote sites. Urgent messages are assigned shorter holding times, and are therefore sent more often than Standard messages.

The timing of message delivery is determined by a series of thresholds that are assigned specific values. The following sections describe the operation of thresholds.

### **Holding Time Threshold**

The AMIS Networking service does not set up a delivery connection every time a message destined for a remote site is sent by a local user. Instead it waits until the holding time threshold is reached. This threshold is the time difference between the time the message enters the queue and the current time. It is only once this threshold is exceeded that AMIS networking sets up a connection to deliver messages. This allows a number of messages to accumulate in the queue before a connection is made in order to reduce costs. This threshold applies only to Urgent and Standard priority messages, not Economy messages.

When the system *wakes up* (see the section “Wakeup Interval”), it checks for AMIS messages waiting to be sent. If there are any AMIS messages, the system then checks the batch threshold. If this threshold has been reached (i.e., if this number is set to 10 and there are 11 messages they will immediately be sent). If the batch threshold has not been reached the messages are placed in a send queue. When either the standard or urgent holding time has been reached, all standard and urgent messages are sent.

For example, a user submits a standard message at 1:00 p.m. The standard holding time is 1 hour. The message is retained until 2:00 p.m. awaiting further messages destined to the same site. At 1:15 p.m. a user sends an urgent message and the urgent holding time is 15 minutes. At 1:30 p.m. the urgent message is eligible for delivery. The next time the system wakes up, it will place both messages in a send queue (if the batch threshold has not been reached). At 1:30, the urgent holding time, a network connection is established to each site to which a message is destined. Since a connection now exists, the standard message is transferred along with the urgent message.

Economy messages, on the other hand, are always delivered at a specific time (for example, 6:00 p.m. every evening) and are therefore unaffected by the holding time threshold. Economy messages will not be delivered until the absolute time, regardless of whether or not other urgent or standard messages are ready to be delivered. This preserves the overnight delivery nature of economy messages.

### **Stale Time Threshold**

To prevent the AMIS Networking service from retaining messages that cannot be delivered because of local or remote site problems, a *stale time* is defined for each message priority. If a message is still undelivered after the specified stale time interval, the sender of the message receives a non-delivery notification (NDN) indicating that the message has not been transferred within the time limit specified for its priority. This is known as *stale dating* and prevents the AMIS Networking service from becoming congested with undeliverable messages (if, for example, the site has been disabled for maintenance). Messages that are undelivered must be recomposed and the user must send them again.

### **Wakeup Interval**

The AMIS Networking service wakes up at periodic intervals to check if there are messages to be sent (the standard and urgent holding times and the batch threshold are checked). You can set this interval according to the system's specific needs. For lightly loaded systems with many remote sites requiring long distance calls, the intervals should be longer, for example, 15 to 30 minutes. For heavy traffic systems, such as those needing only local calls to reach remote sites, the interval may be shorter, for example, 2 to 10 minutes.

### **Restrictions**

There are several types of restrictions that you can place on the operation of AMIS Networking.

## Time restrictions

You can create two time windows, one for weekdays and one for weekends, that define the hours during which AMIS messages are allowed to be delivered. You will have to check with the regional legislation regarding computer-generated phone calls to establish when you are prohibited from sending electronic messages.

## Temporary feature disable

*Note:* This can be done at the system administration level to disable/enable AMIS networking for all customer groups, or at the customer administration level to selectively disable/enable AMIS networking for particular customer groups.

You can temporarily restrict users from accessing the AMIS Networking service. This may be necessary to prevent system abuse or to clear the system of messages that cannot be delivered and are tying up resources. Check the Networking Status screen to see if a large number of AMIS messages remain queued for an extended period of time. This indicates that DMS VoiceMail is unable to send messages due to a local or remote problem. If this is the case, you may have to disable AMIS until the problem has been resolved. AMIS can be disabled at both the system level and the customer level. If AMIS is enabled for a particular customer, yet disabled at the system level, the system setting will override the customer setting.

## Networking call maximum

Determine the maximum number of outgoing networking calls that can be made simultaneously. If too many calls are allowed, you may severely limit the resources that are available for other DMS VoiceMail services.

## Dialing prefix for long distance calls within your area

This is the prefix that is required to make long distance calls to DNs sharing the same area code as the local DN. For example, “1” or “1 416”.

## Addressing AMIS messages

When a user composes a message that is destined for an AMIS site, he or she begins by entering the AMIS Compose Prefix. This informs the system that the address that is about to be entered is that of an AMIS site.

The prefix is followed by the access code that is required to dial out of the DMS VoiceMail system. This will either be an international access code (such as “9011”, if the recipient is in another country), a long distance access code such as “91” (if the recipient is in the same country but a different area code), or a local access code such as “9” (if the recipient is in the same country and area code).

The user then enters the System Access DN. This DN identifies the AMIS site to which the message will be delivered. This number includes the following elements:

- the country code of the remote site, up to 4 digits in length, if the user is sending a message to a site outside the country;
- the area code of the remote site, up to 4 digits in length, if the user is sending a message outside of his or her area code;
- the local number of the remote site

After entering the local number, the user enters “#” (number sign). In summary, the number needed to address an AMIS site is entered in the following format:

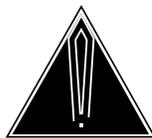
<AMIS compose prefix><access code><System Access DN>#

After pressing “#” the user is prompted to enter the mailbox number. The following recording is played: *“Enter the mailbox number for this Open Network user followed by number sign”*.

**Note:** Before an AMIS message is played to a recipient, the sending system plays the following prompt: *“Open Access computer message, press 1 to cancel”*. This enables someone who has answered a call to a wrong number to disable further calls. If a recipient cancels message delivery in this manner, all messages currently queued to that number will be returned to their respective senders and further deliveries to the same access DN will be prevented for 24 hours.

## The Network Administration Menu

Network Administration allows you to perform administrative and maintenance tasks for the AMIS networking service. The Network Administration menu is displayed when the Network Administration item is selected from the Main Menu.

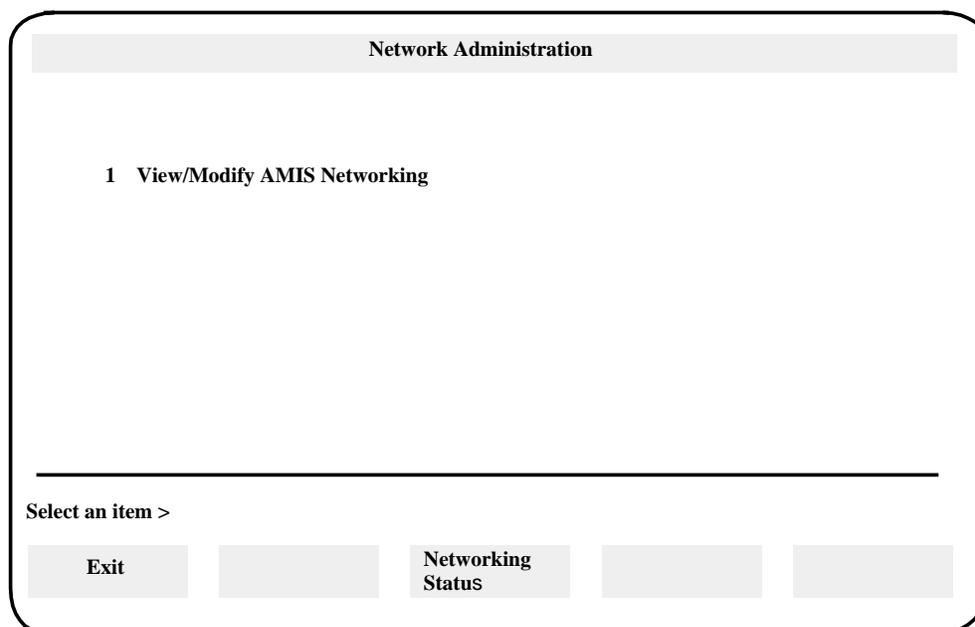


### **CAUTION**

#### **Overnight system audits**

You should not leave the administrative terminal in any Network Administration menu overnight or important system audits may fail due to a lack of available memory.

**Figure 11-1xxx**  
**The Network Administration menu**



**Procedure 11-1xxx**  
**Using the Network Administration menu**

**Starting point:** The Main Menu.

- 1 Select Network Administration.  
*The Network Administration menu is displayed.*
- 2 Select [Networking Status] to view the number of AMIS messages that are queued for transmission.  
*The AMIS Networking Status screen is displayed (Figure 11-2). See the following section for more information.*
- 3 If you want to view or modify AMIS networking information, select View/Modify AMIS Networking.
- 4 Select [Exit] when you are ready to exit Network Administration.  
*The Main Menu is displayed.*

**Viewing the Networking Status**

The [Networking Status] softkey allows you to view the AMIS Networking Status screen (Figure 11-2). This screen displays the activity status for AMIS networking and the number of economy, standard and urgent messages that are currently queued for transmission. To update the screen while viewing it, use the [Update] softkey.



**Procedure 11-2xxx**  
**Viewing the networking status**

**Starting point:** The Main Menu.

- 1 Select Network Administration.  
*The Network Administration menu is displayed.*
- 2 Select [Networking Status] to view the number of AMIS messages that are queued for transmission.  
*The AMIS Networking Status screen is displayed (Figure 11-2).*
- 3 To update the screen, go to step 3a. To exit the screen, go to step 3b.
  - a. Select [Update].  
*The screen is updated with the current networking status.*
  - b. Select [Exit].  
*The Network Administration menu is displayed.*

## Modifying AMIS Networking Information

Parameters that control the AMIS networking service are configured in the View/Modify AMIS Networking Information screen (Figure 11-3). Several parameters are configured at the customer level. These include the AMIS Compose Prefix and the Local Number portion of the System Access DN. It is also possible to disable incoming and outgoing messages at the customer level. The system administrator can configure these parameters by logging on as customer administrator or may have assigned the task to delegates that are responsible for particular customer groups. (See the *Customer Administration Guide*).

**Figure 11-3xxx**  
The View/Modify AMIS Networking Information screen

Network Administration

**View/Modify AMIS Networking Information**

Outgoing Messages      Disabled      [Enabled]  
 Incoming Messages      Disabled      [Enabled]

System Access Number  
 Country Code                      \_\_\_\_\_  
 Area/City Code                      \_\_\_\_\_

Outgoing Messages allowed on weekdays from (hh:mm) \_ to (hh:mm) \_  
 Outgoing Messages allowed on weekends from (hh:mm) \_ to (hh:mm) \_  
 Wakeup Interval (minutes) \_\_\_\_\_  
 Batch Threshold                      \_\_\_\_\_  
 Networking Call Maximum                      \_\_\_\_\_  
 Economy Class Initiation Time (hh:mm)      \_\_\_\_\_  
 Economy Class Stale Time (hh:mm)                      \_\_\_\_\_  
 Standard Class Holding Time (hh:mm)                      \_\_\_\_\_  
 Standard Class Stale Time (hh:mm)                      \_\_\_\_\_  
 Urgent Class Holding Time (hh:mm)                      \_\_\_\_\_  
 Urgent Class Stale Time (hh:mm)                      \_\_\_\_\_

Prefixes for dialing out of this Site  
 Public Dialing                      \_\_\_\_\_  
 Long Distance Dialing                      \_\_\_\_\_  
 International Dialing                      \_\_\_\_\_

Co-resident Office Codes required:      No      Yes  
 Dialing Prefix for Long Distance Calls within your Area:      \_\_\_\_\_

---

Select an item >

Save

Cancel

Co-resident Pre-  
fixes#

# This softkey is displayed only if the Co-resident Office Codes required field is set to "Yes".

**Note:** The AMIS Compose Prefix which is used to access the AMIS networking service is configured separately for each customer. You (or a delegate) must log on as customer administrator to access the View/Modify AMIS Networking Information screen for customers. See the *Customer Administration Guide*.

The following fields are displayed:

- **Outgoing Messages** - This field allows you to temporarily prohibit DMS VoiceMail users from sending AMIS messages. The default is “Enabled”. Users who originate messages while transmission is prohibited will immediately receive a non-delivery notification.
- **Incoming Messages** - This field allows you to temporarily prohibit incoming AMIS messages from being delivered at this site. The default is “Enabled”.

**Note:** Outgoing and incoming messages can also be prohibited at the customer level. If AMIS is temporarily disabled at the system level, the prohibition will apply to all customers regardless of how these fields are configured at the customer level.

- **System Access Number** - This number identifies your system to other AMIS sites. It is sent along with messages originated at your site and is used when a message is replied to (with an equivalent of the Reply feature) by the recipient. This is also the number that will be used when AMIS messages are addressed to your site. The number consists of the following elements:
  - **Country Code** - This is the local site’s country code. This number will be a maximum of 4 digits in length.
  - **Area/City Code** - This is the local site’s area code. This number will be a maximum of 4 digits in length.

**Note:** The local number is configured on a customer basis. See the description of the View/Modify AMIS Networking Information screen in the chapter “AMIS Networking” in the *Customer Administration Guide*.

- **Outgoing Messages allowed on weekdays** - Users are allowed to send messages during the time specified here. Enter the start and end time of the allowed weekday period in the format hh:mm. This may be necessary to comply with regional legislation regarding delivery of electronic messages. You may enter a value from 00:00 to 23:59. The default is 00:00. Users should be notified of restricted hours.
- **Outgoing Messages allowed on weekends** - Users are allowed to send messages during the time specified here. Enter the start and end time of the allowed weekend period in the format hh:mm. You may enter a value from 00:00 to 23:59. The default is 00:00. This may be necessary to comply with regional legislation regarding delivery of electronic messages. Users should be notified of restricted hours.

- **Wakeup Interval** - The value entered in this field determines how often the system checks for queued messages and sets up the connections required to send those messages. Enter a value in the format mm. The default is 3 minutes. You may enter a value in the range 1 to 99.
- **Batch Threshold** - The value entered in this field specifies the total number of standard and urgent messages that can accumulate before delivery commences. The maximum is 99 and the default is "20".
- **Networking Call Maximum** - The value entered here specifies the maximum number of simultaneous outgoing networking calls permitted. If this maximum is reached, no new outgoing sessions will be attempted. This prevents AMIS from using too many resources and interfering with the effective functioning of other DMS VoiceMail services. The default is "4". The maximum allowable value is "999".
- **Economy Class Initiation Time** - This field determines the time at which AMIS messages tagged as economy are delivered. Enter the time in hours and minutes in the range 00:00 to 23:59.
- **Economy Class Stale Time** - The value entered in this field determines the maximum retention time for AMIS messages tagged as economy. When this threshold is reached, a non-delivery notice is sent to the originator and the message has to be composed and sent again. Enter the time in hours and minutes in the range 03:00 to 99:59. The default is "06:00".
- **Standard Class Holding Time** - The value entered in this field specifies the minimum retention time for AMIS messages tagged as standard. This determines the length of time that a standard message is retained before the system attempts to send it. A message may be transferred before this holding time expires if a connection is established for another reason, such as delivering Urgent messages. Enter the time in hours and minutes in the range 00:00 to 33:20. The default is "03:00".
- **Standard Class Stale Time** - The value entered in this field specifies the maximum retention time for AMIS messages tagged as standard. If a message is not delivered before this time, a non-delivery notice is sent to the originator. These messages have to be composed and sent again. The time is entered in hours and minutes and must be in the range 00:00 to 99:59. This value must be at least three times the standard class holding time. The default is "09:00".
- **Urgent Class Holding Time** - The value entered in this field determines the minimum retention time for AMIS messages tagged as urgent. This determines the length of time that an urgent message is retained before the system attempts to send it. The time is entered in hours and minutes and must be in the range 00:00 to 33:20. The default is "00:30".

- ***Urgent Class Stale Time*** - The value entered in this field is the maximum retention time for AMIS messages tagged as urgent. If a message is not delivered before this time, a non-delivery notice is sent to the originator. These messages have to be composed and sent again. The time is entered in hours and minutes and must be at least three times the urgent class holding time. The valid range for this field is from 00:00 to 99:59. The default is “01:30”.
- ***Prefixes for dialing out of this Site*** - In the following fields, enter the dialing codes that are required to place external calls.
  - ***Public Dialing*** - This is the number required to make local external calls. For example, a commonly used dialing code is “9”.
  - ***Long Distance Dialing*** - This is the number required to make long distance calls. For example, “91”.
  - ***International Dialing*** - This is the number required to make international calls. For example, “9011”.
- ***Co-resident Office Codes required*** - This field should be enabled if there are office code prefixes in your region that share the same area code as your DN yet require the long distance access code for dialing. For example, 766xxxx, 598xxxx, and 602xxxx may all be in the area code 416, but must be dialed using the xxxxxxxxxxxx (i.e., 91416xxxxxxxx) format.  
 When this field is set to “Yes” the [Co-resident Prefixes] softkey is displayed. When this softkey is pressed, the Co-Resident Prefixes screen in which these codes are entered is displayed (Figure 11-4 on the following page). The default is “No”.
- ***Dialing Prefix for Long Distance Calls within your Area*** - This is the prefix that is required to make long distance calls to DNs sharing the same area code as the local DN. For example, “91” or “91 416”.

#### **Procedure 11-3xxx**

#### **Configuring AMIS networking information**

**Starting point:** The Main Menu.

- 1 Select Network Administration.  
*The Network Administration menu is displayed.*
- 2 Select View/Modify AMIS Networking.  
*The View/Modify AMIS Networking Information screen is displayed (Figure 11-3).*
- 3 Modify the necessary fields.
- 4 Press [Co-Resident Prefixes] if *Co-Resident office codes* is set to “Yes”.  
*The Co-Resident prefixes screen is displayed (Figure 11-4). See the following section for more information.*

- 5 To save the configuration, go to step 5a. To exit the screen without saving your changes, go to step 5b.
  - a. Press [Save].

*The data entered in the screen, provided all mandatory fields have been filled in, is saved. The Network Administration menu is displayed.*
  - b. Press [Cancel].

*Any changes that you have made are not saved and the Network Administration menu is displayed.*

## Co-resident prefixes

In the Co-Resident Prefixes screen (Figure 11-4), enter the office codes in your region that share your area code yet are considered long-distance. These codes can be up to 4 digits in length. When you fill up a row with office codes, press [More Fields] to get another row of fields.

**Figure 11-4xxx**  
**The Co-Resident Prefixes screen**

The screenshot shows a screen titled "Network Administration" with a sub-section "Co-Resident Prefixes". Below the title, it says "Enter Co-Resident Office Codes within the same Area/City". There is a row of input fields with the first two containing "766" and "602", followed by four empty fields. At the bottom, there are five buttons: "Save", "Cancel", and "More Fields" (which is highlighted), and two unlabeled buttons.

### Procedure 11-4xxx

#### Configuring AMIS networking information

**Starting point:** The Main Menu.

- 1 Select Network Administration.

*The Network Administration menu is displayed.*

- 2 Select View/Modify AMIS Networking.  
*The View/Modify AMIS Networking Information screen is displayed (Figure 11-3).*
- 3 Press [Co-Resident Prefixes].  
*The Co-Resident prefixes screen is displayed (Figure 11-4).*
- 4 Enter the necessary co-resident prefixes.  
*If you require more fields to enter additional codes, press the [More Fields] softkey.*
- 5 To save the prefixes, go to step 5a. To exit the screen without saving your changes, go to step 5b.
  - a. Press [Save].  
*The prefixes are saved. The View/Modify AMIS Networking Information screen is displayed.*
  - b. Press [Cancel].  
*Any changes that you have made are not saved and the View/Modify AMIS Networking Information screen is displayed.*



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# Customer Administration

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This chapter describes how to access the Customer Administration screens. Customer administration screens and tasks are documented in another NTP, the *Customer Administration Guide* (297-7001-301).

To perform customer administration, you can either:

- 1 log on with the customer administrator password from the DMS VoiceMail logon screen, or
- 2 log on with the system administrator password and then select Customer Administration from the Main Menu.

If you will be doing both system administration and customer administration during a single administration session, it is recommended that you log on with the system administrator password. When you are ready to switch between system and customer administration, simply return to the Main Menu. (You will not be required to log off and log back on again with a different password.)

If you are only going to perform customer administration, you can either log on with the customer administration password or the system administration password.

The first logon method is described in the chapter “Administrator logon” in the *Customer Administration Guide*.

To select Customer Administration after having logged on as the system administrator, follow Procedure 12-1.

## **Procedure 12-1xxx**

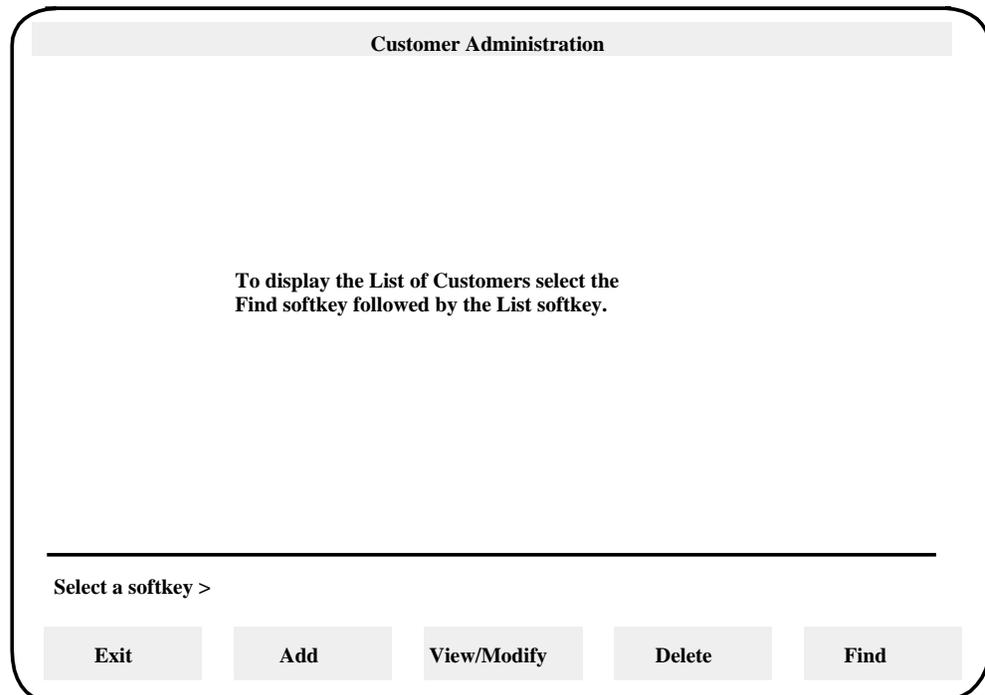
### **Logging on to perform customer administration**

**Starting Point:** The logon screen.

- 1 Logon with the system administrator password.
- 2 From the Main Menu, select Customer Administration.

*The Customer Administration screen is displayed (see Figure 12-1). From this screen you can add a new customer group, or modify or delete an existing one.*

**Figure 12-1xxx**  
**The Customer Administration screen**



- 3 To add a customer group, go to step 3a. If you are not sure of the customer number yet need to retrieve a particular customer group in order to view, modify or delete it, go to step 3b. If you need to modify an existing customer group and you know the customer number, go to step 3c. If you need to delete an existing customer group and you know the customer number, go to step 3d. To exit this screen, go to step 3e.
  - a. Press the [Add] softkey. See the section “Adding customer groups” in the “Administrator logon” chapter in the *Customer Administration Guide* for details. (Main administration terminal only.)
  - b. Press the [Find] softkey. See the section “Finding a customer group” in the “Administrator logon” chapter in the *Customer Administration Guide* for details.
  - c. Press the [View/Modify] softkey to view or modify an existing customer group. See the section “Modifying a customer group” in the “Administrator logon” chapter in the *Customer Administration Guide* for details.
  - d. Press the [Delete] softkey to delete an existing customer group. Note that this action is only possible if more than one customer group exists on the system. See the section “Deleting customer groups” in the “Administrator logon” chapter in the *Customer Administration Guide* for details. (Main administration terminal only.)
  - e. Press the [Exit] softkey to exit this screen and return to the Logon/Status screen.

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# Class of Service Administration

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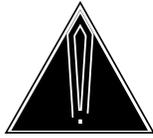
## Overview

A Class of Service (COS) is a template that contains information about the capabilities that a subscriber has and the values that are assigned to specific parameters. It is essentially a method of classifying subscribers according to their needs. When you add a subscriber to a customer group, you must specify the Class of Service to which he or she belongs.

Before adding subscribers to the system, you should therefore carefully consider the subscriber types which you need to represent with COSs. The following examples will give you an idea of the kinds of COSs you can create. For example, for a centrex customer, you might need to create one COS for secretaries, one for executives, and a standard one for all other employees. If employees in certain departments are found to have different needs, you could create one for Accounting, Engineering, Administration and so on. For your residential customer groups you might need a Standard COS with only basic call answering features enabled, a Deluxe COS that provides additional chargeable features or a larger mailbox (in terms of storage space), a Family COS that provides subscribers with the Family Mailbox feature, and a DialPulse COS for those subscribers that do not have touch-tone phones. The COSs that you end up creating will depend entirely on the types of subscribers that you will be adding to the system.

If, once you have created your COSs and added subscribers, you realize that you need to give a particular group of subscribers some additional capabilities, you only need to change the values in the COS and all of the subscribers that belong to that COS will automatically have their user profiles updated. You don't have to change each individual user profile.

If, at some point in the future, a subscriber requests additional functionality (or even reduced functionality) or greater mailbox storage capacity, you can do one of two things: reassign the subscriber to another COS that meets his or her needs, or create a personal COS for that subscriber (if no existing COSs are adequate). Personal COSs are described in more detail in the following section.



**CAUTION**

**Do not perform class of service administration during nightly DR audit**

At 3:30 a.m. every day, an audit of the DR directory is performed. Do not perform any class of service administration during this audit. Depending on how unbalanced the system is, this audit can take anywhere from 10 minutes (if the system has not been modified since the last audit) to 3 hours (if there have been many changes, such as a lot of users or services being added or modified).

## **COS types**

There are two different types of COS: the system COS and the personal COS.

### **The system COS**

System COSs are defined at the system administration level. Up to 127 COSs can be defined for the entire system. For each customer group, you can assign up to 15 of the 127 COSs that are defined at the system level.

A multi-customer system can potentially have up to 2000 customer groups. As a result, some, if not all, of the 127 system COSs will be shared among some of these customer groups. Because system COSs can be shared by customer groups, they are not modifiable at the customer administration level. Customizing a COS to suit the needs of one customer group may adversely affect the subscribers of another customer group. System COSs are, therefore, modifiable by the system administrator only and the Class of Service Administration screens at the customer administration level are read-only.

### **The personal COS**

The personal COS is a special class. This class allows you to deal with those subscribers whose required capabilities do not fit in with any existing COS. These subscribers require a special COS that is unique to their needs.

In addition to the 15 COSs assignable to each customer group, the personal COS will always be available to a subscriber.

Keep in mind, however, that as the number of personal COSs increases, the task of maintaining your classes of service and subscriber profiles will become more difficult since all system COSs and personal COSs will have to be maintained.

## Administrator responsibility

All new systems are installed without any COSs defined. It is, therefore, up to the system administrator to define the COSs initially. The task of defining COSs can be done before or after the addition of customer groups. It is, however, recommended that this be done before any customers are added to the system since the process of adding customers involves the addition of subscribers whose profiles depend on the assignment of existing classes of service.

Once you have defined your COSs and added customer groups to the system, you are ready to assign (up to 15) of the defined COSs for each customer group. This is done in the General Options screen at the customer administration level. Once you have assigned COSs to each customer group, you are ready to add subscribers.

The following are the general steps you will take to define and use COSs. More detailed procedures are provided throughout the rest of this chapter.

- 1 Log on as system administrator.
- 2 Select Class of Service Administration from the Main Menu.
- 3 Define the system COSs as described in this chapter.
- 4 Return to the Main Menu and select Customer Administration.
- 5 Add customer groups to the system (if they have not yet been added). This is described in the chapter “Administrator logon” in the *Customer Administration Guide*.
- 6 Return to the Customer Administration Menu and select General Administration, General Options. This is described in the chapter “General Administration” in the *Customer Administration Guide*.
- 7 Assign up to 15 COSs for each customer group.
- 8 Return to the Customer Administration Menu and select User Administration to add subscribers to customer groups. Each subscriber must be assigned to one of the system COSs (or a personal COS can be created). This is described in the chapter “User Administration” in the *Customer Administration Guide*.

## Defining classes of service

Class of Service Administration appears as the last item on the Main Menu. When selected, you will encounter a series of screens that you will use to define, modify and delete COSs.

**Note:** If you are logged on at a Multiple Administration Terminal (MAT), the screens that are depicted in this chapter are read-only. Some are not available at all (such as Add Class of Service or Delete Class of Service). Class of Service Administration is provided on MATs (and for the customer administrator) as a reference tool only, to assist you when adding subscribers.

### 13-4 Class of Service Administration

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When Class of Service Administration is selected from the Main Menu, the following softkeys are displayed:

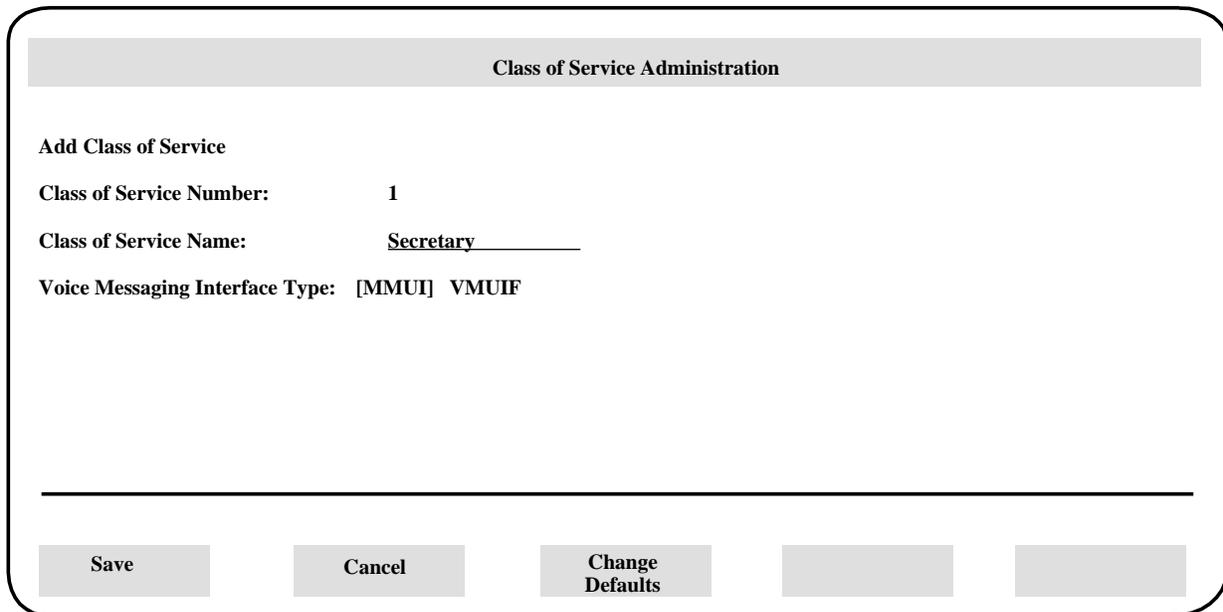


To add a Class of Service, press the [Add] softkey. You are prompted to enter the COS number.



After a valid COS number is entered (a number between 1 and 127), the Add Class of Service screen (shown in Figure 13-1) is displayed.

**Figure 13-1xxx**  
**The Add Class of Service screen**



The following fields are displayed:

- **Class of Service Number** - This is a read-only field which is prefilled with the value that you entered after pressing the [Add] softkey. This can be a number between 1 and 127. This number is used to uniquely identify this class of service and distinguish it from all others.
- **Class of Service Name** - The name of the class of service. This field is mandatory. The COS definition cannot be saved if this field is blank. The COS name can be up to 30 characters in length. Do not use the following characters when entering a name: “+”, “\_”, or “?”.
- **Voice Messaging Interface Type** - The interface type to be used by the subscribers belonging to this COS. Your choices are MMUI and VMUIF. It is therefore suggested that you keep a list of the COSs that you create and the interface type so that when it comes to assigning COSs to customer groups, you will not try to assign a COS with one interface type to a customer group with another.

**Note:** MMUI classes of service can only be assigned to MMUI customer groups and VMUIF classes of service can only be assigned to VMUIF customer groups. The interface type of the customer group is determined when you add the customer group and can be checked in the Voice Messaging Options screen at the customer administration level.

#### **Procedure 13-1xxx**

##### **Adding a class of service**

**Starting point:** The Main Menu

- 1 Select Class of Service Administration.  
*The [Add], [View/Modify], [Delete], and [Find] softkeys are displayed.*
- 2 Press the [Add] softkey.  
*You are prompted for the class of service number.*
- 3 Enter a number between 1 and 127.  
*The Add Class of Service screen is displayed.*
- 4 Give the class of service a name.
- 5 Choose the voice messaging interface type (MMUI or VMUIF).
- 6 To save the definition at this point, go to step 6a. To discard the definition, go to step 6b. To continue defining the class of service, go to step 6c.
  - a. Press [Save].  
*The information entered so far is saved and the Main Menu is displayed.*
  - b. Press [Cancel].  
*Any information entered in the Add Class of Service screen is discarded and the class of service softkeys are displayed.*
  - c. Press [Change Defaults].  
*The remainder of the Class of Service screen is displayed. (See Figure 13-2 if the interface type is MMUI or Figure 13-3 if the interface is VMUIF).*

**Figure 13-2xxx**  
**The Add Class of Service screen (MMUI)**

**Class of Service Administration**

Add Class of Service

Class of Service Number: 1

Class of Service Name: Secretary

Voice Messaging Interface Type: **MMUI** VMUIF

Personal Verification Changeable by User: [No] Yes

Voice Storage Limit (minutes): 3

Maximum Message Length (mm:ss): 03:00

Delayed Prompts: No [Yes]

\*Dual Language Prompting: No [Yes]

Auto Logon: [No] Yes

Administrator Capability: [No] Yes

Auto Play: [No] Yes

Callers Notified of Busy Line: No [Yes]

Maximum Call Answering Message Length (mm:ss): 01:00

Receive Composed Messages: No [Yes]

Receive External Messages: No [Yes]

Message Waiting Indicating Options: None [Any] Urgent

External Call-Sender Restriction Permission Codes: None On\_Switch [Local] Long\_Distance\_1 Long\_Distance\_2

Read Message Retention (days): 10  
 ("0" implies that read messages are retained until the user deletes them manually.)

MORE BE-LOW

Save

Cancel

\* This field is displayed only on multi-lingual systems.

**Figure 13-2xxx continued**  
**The Add Class of Service screen (MMUI)**

		Class of Service Administration		MORE ABOVE	
Add Class of Service					
Broadcast Capability:		[No]	Yes		
Send Messages to External Users:		[No]	Yes		
Retain Copy of Sent Messages:		[No]	Yes		
& Delivery to Non-Users Capability:		[No]	Yes		
&*Delivery to Non-User Restriction/Permission Codes:		None	On_Switch [Local]	Long_Distance_1	Long_Distance_2
&* Send Message via DNU if Mailbox Not Found:		[No]	Yes		
&* DNU DTMF Confirmation Required:		[No]	Yes		
& Remote Notification Capability:		[No]	Yes		
&**Remote Notification Restriction/Permission Codes:		None	On_Switch [Local]	Long_Distance_1	Long_Distance_2
&**Remote Notification Keypad Interface:	No	[Yes]			
&**Remote Notification Retry Limits and Frequency:					
Busy	Retry Limit: <u>3</u>		Retry Interval (hh:mm): <u>00:05</u>		
No Answer	Retry Limit: <u>10</u>		Retry Interval (hh:mm): <u>00:15</u>		
Answered	Retry Limit: <u>1</u>		Retry Interval (hh:mm): <u>00:05</u>		
&**RN Business Days:	Sunday	[No]	Yes		
	Monday	No	[Yes]		
	Tuesday	No	[Yes]		
	Wednesday	No	[Yes]		
	Thursday	No	[Yes]		
	Friday	No	[Yes]		
	Saturday	[No]	Yes		
# Receive AMIS messages:		[No]	Yes		
# Compose/send AMIS messages:		[No]	Yes		
#!AMIS Restriction/Permission Codes:		None	On_Switch [Local]	Long_Distance_1	Long_Distance_2
Extension Dialing Restriction/Permission Codes:		None	On_Switch [Local]	Long_Distance_1	Long_Distance_2
Custom Revert Restriction/Permission Codes:		None	On_Switch [Local]	Long_Distance_1	Long_Distance_2

Save
Cancel

- & These fields are displayed only if Outcalling is installed.
- \* These fields are displayed only if Delivery to Non-Users is Capability is Yes.
- \*\* These fields are displayed only if Remote Notification Capability is Yes.
- # These fields are displayed only if AMIS Networking is installed.
- ! This field is displayed only if Compose/Send AMIS messages is Yes.

**Figure 13-3xxx**  
**The Add Class of Service screen (VMUIF)**

**Class of Service Administration**

Add Class of Service

Class of Service Number: 50

Class of Service Name: DTMF

Voice Messaging Interface Type: MMUI **VMUIF**

Maximum Number of SubMailboxes: 0

Voice Storage Limit (minutes): 3

Maximum Message Length (mm:ss): 03:00

Maximum Personal Greeting Length (mm:ss): 01:00

Delayed Prompts: No [Yes]

Dial Pulse Support: [No] Yes

Auto Logon: [No] Yes

Login from Call Answering: None [Owner] Group

Lockout Duration (hh:mm): 00:00  
(00:00 implies no mailbox reset)

Callers Notified of Busy Line: No [Yes]

Receive Messages for Call Answering: No [Yes]

Maximum Call Answering Message Length (mm:ss): 01:00

Receive Composed Messages: No [Yes]

Receive External Messages: No [Yes]

Message Waiting Indication Options: None [Any] Urgent

Skip to First New Message: [No] Yes

Announce Caller: [No] Yes

Replay Header with Message: No [Yes]

Call Sender: [No] Yes

External Call Sender Restriction/Permission Codes: None On\_Switch [Local] Long\_Distance\_1 Long\_Distance\_2

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**MORE BE-LOW**

Save

Cancel

**Figure 13-3xxx continued**  
**The Add Class of Service screen (VMUIF)**

Class of Service Administration		MORE ABOVE
Add Class of Service		
Read Message Retention (days): (“0” implies that read messages are retained until the user deletes them manually.)	<u>10</u>	
Broadcast Capability:	[No]	Yes
Compose Capability:	No	[Yes]
Send Messages to External Users:	[No]	Yes
Treatment for Unsent Messages if the User Disconnects during Compose:	Send	[Delete]
& Delivery to Non-Users Capability:	[No]	Yes
&*Delivery to Non-User Restriction/Permission Codes:	None	On_Switch [Local] Long_Distance_1 Long_Distance_2
&* Send Message via DNU if Mailbox Not Found:	[No]	Yes
&* DNU DTMF Confirmation Required:	[No]	Yes
& Remote Notification Capability:	[No]	Yes
&**Remote Notification Restriction/Permission Codes:	None	On_Switch [Local] Long_Distance_1 Long_Distance_2
&**Remote Notification Retry Limits and Frequency:		
Busy	Retry Limit: <u>3</u>	Retry Interval (hh:mm): <u>00:05</u>
No Answer	Retry Limit: <u>10</u>	Retry Interval (hh:mm): <u>00:15</u>
Answered	Retry Limit: <u>1</u>	Retry Interval (hh:mm): <u>00:05</u>
&**RN Business Days:	Sunday	[No] Yes
	Monday	No [Yes]
	Tuesday	No [Yes]
	Wednesday	No [Yes]
	Thursday	No [Yes]
	Friday	No [Yes]
	Saturday	[No] Yes
# Receive AMIS messages:	[No]	Yes
# Compose/send AMIS messages:	[No]	Yes
#!AMIS Restriction/Permission Codes:	None	On_Switch [Local] Long_Distance_1 Long_Distance_2
Custom Revert Restriction/Permission Codes:	None	On_Switch [Local] Long_Distance_1 Long_Distance_2

Save
Cancel

- & These fields are displayed only if Outcalling is installed.
- \* These fields are displayed only if Delivery to Non-Users is Capability is Yes.
- \*\* These fields are displayed only if Remote Notification Capability is Yes.
- # These fields are displayed only if AMIS Networking is installed.
- ! This field is displayed only if Compose/Send AMIS messages is Yes.

### Defining the basic class of service fields

Fields that are specific to either MMUI or VMUIF are indicated as such.

- ***Class of Service Number*** - This field is prefilled with the COS number you were prompted for after pressing the [Add] softkey (see Figure 13-1). You cannot modify this number in this screen.
- ***Class of Service Name*** - This field defaults to the name entered in the first Add Class of Service screen. This field is mandatory. The COS definition cannot be saved if this field is blank. The COS name can be up to 30 characters in length. Do not use the following characters when entering a name: “+”, “\_”, or “?”.
- ***Voice Messaging Interface Type*** - This field defaults to the selection made in the first Add Class of Service screen. This field is read-only.
- ***Personal Verification Changeable by User*** - (MMUI only.) If this field is set to “No”, only the administrator is allowed to record personal verifications for subscribers belonging to the COS. If this field is set to “Yes”, subscribers can record their own personal verifications from their telephone sets. The latter option is generally desirable since callers prefer to hear the voice of the person they are calling. The default is “No”.
- ***Maximum Number of SubMailboxes*** - (VMUIF only.) A non-zero value in this field means that Family Mailbox capability is enabled for this COS. Family mailboxes allow each member of a household to have their own personal mailbox, all of which are accessible from a single DN. “0” implies that Family Mailbox is disabled. If enabled, between 1 and 8 submailboxes are permitted.

If a subscriber requests additional submailboxes (and the total exceeds the maximum number configured here), you will have to reassign the subscriber to another COS that has a sufficient number of submailboxes.

**Note:** Once you have entered a value in this field and assigned subscribers to this COS, this field becomes read-only and you cannot change this value. This is because submailboxes are chargeable by Northern Telecom. When you have used up all of your allotted submailboxes, contact your sales representative.

- ***Voice Storage Limit (minutes)*** - The maximum amount of storage available to the subscriber. You may enter a value from 1 to 360 (minutes). This limit applies to voice messages left in the user’s mailbox, those composed and sent by the user (but not deleted) and personal greetings. The default is 3 minutes.

**Note:** If Family Mailbox is enabled for this COS, all submailboxes contend for the same storage space.

If a subscriber surpasses this limit his calls are not cut off. The subscriber hears a message indicating that his mailbox is full and he is restricted in what he can do. For example, he can only read and delete messages and is not allowed to record a personal greeting, compose, send or forward messages. Once the subscriber has deleted some of his messages, he won't be able to reply to messages until he has logged off DMS VoiceMail and logged back on.

**Note:** Subscribers with more than 40 messages in their mailbox may experience a slight delay when attempting to play the first new message.

- **Maximum Message Length** - This value determines the longest possible composed message that a subscriber belonging to this COS is allowed to record. You may enter a value between 00:30 and 99:00 in 10 second increments. The default is "03:00".

For VMUIF classes of service, the next field, *Maximum Personal Greeting Length*, controls the maximum length for a user's personal greeting.

For MMUI classes of service, a user's internal and external greeting *combined* cannot exceed 5 minutes (05:00). If the internal greeting plus the external greeting together total more than 5 minutes, the last recorded greeting may not be saved.

**Note:** This value cannot be greater than the Voice Storage Limit.

- **Maximum Personal Greeting Length** - (VMUIF only.) This value determines the longest possible personal greeting that a subscriber belonging to this COS is allowed to record. You may enter a value between 00:30 and 05:00. The default is "01:00".

**Note:** This value cannot be greater than the Voice Storage Limit.

- **Delayed Prompts** - When this field is set to "Yes", the system will prompt subscribers for an action if the subscriber does not initiate any action for 3.5 seconds. It is recommended that this field be set to "Yes" (especially for new subscribers). Once the subscribers belonging to the COS are familiar with the interface, you may get requests to turn delayed prompting off. However, if new users are continually being added to this COS, this field should remain set to "Yes". The default is "Yes".
- **Dual Language Prompting** - (MMUI only.) This field is displayed on multilingual systems only. The selection made here affects the prompts played to callers during call answering sessions. (It does not apply to the prompts played to subscribers while logged into their own mailboxes.) The language in which prompts are played to subscribers while logged on to DMS VoiceMail is determined by the field *Preferred Language*, in the user's profile. See the section "Adding local voice users" in the "User Administration" chapter in the *Customer Administration Guide*.

If this field is set to “Yes” and the *Default Language Overrides User's Preferred Language* in the Voice Messaging Options screen is set to “No”, callers hear prompts in the subscriber's preferred language (as specified in the user's profile), followed by the primary default language. If the primary default language is the same as the subscriber's preferred language, prompts are first played in the preferred language followed by the secondary default language. Both the primary default language and the secondary default language are specified in the Voice Messaging Options screen for the customer group.

If this field is set to “No”, prompts are played only in the subscriber's preferred language.

- **Dial Pulse Support** - (VMUIF only.) Set this field to “Yes” to create a class of service that supports subscribers with rotary or dial pulse phone sets. This option allows the subscriber to log on to his or her mailbox without having to enter a mailbox number, password or any other key presses. The default is “No”.

**Note:** If this field is set to “Yes”, Auto Logon (the next field) must also be set to “Yes”.

- **Auto Logon** - When this field is set to “Yes”, the subscriber does not need to enter a mailbox number or password to gain access to DMS VoiceMail. When set to “No” the subscriber must enter a mailbox number and password. Therefore, for reasons of mailbox security, this field should typically be set to “No”. The default is “No”. There are, however, several exceptions. Set this field to “Yes” if:
  - Dial Pulse Support is enabled (in which case, auto logon *must* be enabled).
  - The subscribers that will be added to this COS have requested auto logon and their phones are in a secure location.

To create completely “handsfree” message retrieval, use auto logon in conjunction with auto play.

- **Administrator Capability** - (MMUI only.) If this field is set to “Yes”, subscribers belonging to this COS will be allowed to record a custom call answering greeting and personal verifications for all other subscribers in the customer group. You can set this field to “Yes” to create a special COS if there are any administrative assistants at the customer site that need to be able to perform these limited administrative tasks. For all other types of subscribers, this field should be set to “No”. The default is “No”.
- **Auto Play** - (MMUI only.) When this field is set to “Yes”, the messages in the subscriber's mailbox are automatically played when the subscriber logs on. Playback begins with the first new message. Once all new messages are played, old (read) messages are then played back (if there are any), starting with the oldest read message.

When this field is set to “No”, the subscriber must explicitly request that each message be played by pressing “2” on the telephone keypad. Auto Play can be used in combination with Auto Logon to allow totally “handsfree” message retrieval (if Dial Pulse is supported). This field should usually be set to “No” for the reasons mentioned previously (see the description of Auto Logon). The default is “No”.

- **Login from Call Answering** - (VMUIF only.) This field determines whether or not subscribers can log into their mailbox during or after a call answering session. When this feature is enabled, subscribers have an alternative method of logging in which does not require that they dial a special access DN. Subscribers can access their mailbox from a phone other than their “home phone” by dialing their telephone number and then pressing \*.

When this field is set to “Owner”, subscribers are allowed to log into their mailbox only if the destination mailbox is their own. After pressing \*, the subscriber is prompted to enter his or her password.

When this field is set to “Group”, the subscriber will be allowed to log in to his or her mailbox if it belongs to the same customer group as the destination mailbox. After pressing \*, the subscriber is prompted to enter the mailbox number followed by the password. For example, a subscriber who is away from home can call a friend who is a subscriber in the same customer group, leave a message and then log on to their own mailbox.

When this field is set to “None”, the subscriber will not be allowed to log in from call answering.

The default is “Owner”.

- **Lockout Duration (hh:mm)** - (VMUIF only.) When a subscriber’s mailbox is disabled (as shown by the Logon Status in the user’s profile) due to password violation, this field determines how long the subscriber is locked out before he can log on again. You may enter a value from 00:00 to 23:59. If you enter a value of 00:00, this means that the subscriber will be locked out until you decide to re-enable the mailbox. The default is “00:00”.
- **Callers Notified of Busy Line** - When this field is set to “Yes”, a special prompt is played when the called line is busy informing them that the subscriber is on the phone. After the prompt is played, the caller is connected to DMS VoiceMail to leave a message. If the field is set to “No”, the caller is simply connected to DMS VoiceMail and given the chance to leave a message. The default is “Yes”.

**Note:** If the subscriber’s mailbox is associated with two (or three) DNs, they must all be busy for this prompt to be played.

- **Receive Messages for Call Answering** - (VMUIF only.) If this field is set to “No”, subscribers’ mailboxes will not take call answering messages but can still be used to send messages. The default is “Yes”.  
For example, in a private customer group, you might set this field to “No” for a telephone that is located in a conference room and does not belong to a particular subscriber. The phone can still be used to send voice messages by people using the room, but voice messages cannot be deposited in the mailbox.

For VMUIF customer groups, you might want to set this field to “No” when a subscriber drops the service. You can allow some time to pass so that the subscriber can log in and retrieve existing messages. However, from the time that the service is disabled, new messages will not be accepted.

- **Maximum Call Answering Message Length (mm:ss)** - This value determines the longest possible call answering message that a caller can record and leave in a subscriber’s mailbox. You may enter a value between 00:30 and 99:00 in 10 second increments. The default is “01:00”.

**Note:** This value cannot be greater than the Voice Storage Limit.

- **Receive Composed Messages** - If this field is set to “No”, subscribers’ mailboxes will not accept composed messages. The default is “Yes”. Setting this field to “No” automatically sets the the following fields to “No”:
  - Receive External Messages
  - Receive AMIS Messages
- **Receive External Messages** - If this field is set to “Yes”, a subscriber can receive composed messages from subscribers outside the customer group to which the subscriber belongs. To set this field to “Yes”, the *Receive Composed Messages* field must be set to “Yes”. If this field is set to “No”, the subscriber will only be able to receive messages from subscribers belonging to the same customer group. The default is “Yes”.
- **Message Waiting Indication Options** - The chosen setting determines the type of messages that will cause a message waiting indication (a flashing light or an interrupted dial tone) on the subscriber’s telephone set. Set this field to “Any” to notify subscribers belonging to this COS of all new messages, “Urgent” to notify subscribers of only those messages tagged as urgent, or “None” if subscribers are not to be notified at all (if, for example, mailboxes do not have telephone sets associated with them). The default is “Any”.

- **Skip to First New Message** - (VMUIF only.) This field determines what happens when subscribers log on to listen to new messages. If this field is set to “Yes”, the first new message is automatically played when a subscriber successfully logs on. If this field is set to “No”, subscribers must use the Play command to listen to new messages. The default is “No”.
- **Announce Caller** - (VMUIF only.) If this field is set to “Yes”, the prompt “From <caller>” will be announced in the header/envelope for call answering messages left by callers. The default is “No”.
- **Replay Header with Message** - (VMUIF only.) If “Yes” is selected, the header will be played whenever a subscriber selects the Play command to listen to messages that have been left in the mailbox. The header includes information such as the time at which the message was sent, the caller’s name, etc. The default is “Yes”.
- **Call Sender** - (VMUIF only.) After listening to a message, subscribers can dial the originator of the message automatically if this field is set to “Yes”. After listening to a message, the subscriber presses “42” to dial the caller’s number. Do not enable this field if *Dial Pulse Support* is enabled. The default is “No”.

**Note:** This feature is blocked if the subscriber has logged on through remote notification.

- **External Call Sender Restriction/Permission Codes** - Apply one of the four restriction/permission sets to restrict the DNs to which external calls can be placed using the call sender feature. The actual restriction/permission codes are defined in the Voice Security Options screen. The default is the third option (“Local”, if the default names have not been modified).
- **Read Message Retention** - This field specifies the number of days that messages are kept in subscribers’ mailboxes after they have been read. The value in this field is limited by the value set in the *Max Read Message Retention* field in the Voice Messaging Options screen. (See “Voice Messaging Options” in the chapter “Voice Administration”.)  
Once the lesser of these two values is reached, read messages are automatically deleted. If “0” is entered in both fields, read messages are not automatically deleted by the system, but can only be deleted by the subscriber. You can enter a value from 0 to 99. The default is “0”.

The following table explains which value is used to determine how long the subscriber's read messages are kept.

System Retention Limit	Subscriber Retention Limit	Amount of Time Read Messages are Kept
0 (zero)	0 (zero)	Messages are kept until the user deletes them. The system will not automatically delete read messages.
0 (zero)	A non-zero value	The subscriber retention limit determines how long messages are kept.
A non-zero value	0 (zero)	The system retention limit determines how long messages are kept.
A non-zero value	A non-zero value	The lesser value is used to determine how long messages are kept.

- **Broadcast Capability** - Set this field to "Yes" if you want subscribers to be able to compose and send broadcast messages. A broadcast message is sent to all subscribers in the same customer group. The default is "No".
- **Compose Capability** - (VMUIF only.) Set this field to "Yes" to give subscribers the ability to compose and send voice messages to subscribers within the same customer group. If this value is set to "No", then the subscriber only has call answering capability. To set this field to "No", the fields *Compose/Send AMIS Messages*, *DNU Capability* and *Send Messages to External Users* must also be set to "No". The default is "No".

**Note:** Once you have assigned subscribers to the COS and put it to use, you cannot modify this field. This feature is chargeable by Northern Telecom. If you need to revoke compose capability from a particular subscriber, you will have to reassign the subscriber to another COS. Conversely, if a subscriber does not have this capability and later requests it, you will have to reassign the subscriber to a COS that has compose capability enabled.

- **Send Messages to External Users** - Set this field to "Yes" to allow subscribers to compose/send messages to subscribers outside of the subscriber's own customer group. If this is a VMUIF class of service, this field cannot be set to "Yes" unless the *Compose Capability* field is also set to "Yes". The default is "No".

- ***Treatment for Unsent Messages if the User Disconnects during Compose*** - (VMUIF only.) The selection made in this field determines what happens to an unsent message if a subscriber disconnects while composing the message. If this field is set to “Delete”, the unsent message is deleted. If this field is set to “Send”, the message is automatically sent upon hangup. The default is “Delete”.
- ***Retain Copy of Sent Messages*** - (MMUI only.) When this field is set to “Yes”, copies of sent messages are not deleted from the subscriber’s mailbox. When it is set to “No”, messages are deleted as soon as they are sent. Carefully consider how many subscribers you can allow to have this capability, since the more subscribers that have this ability, the faster your available storage space will be used up. The default is “No”.

### **Creating a class of service for subscribers with dial pulse sets**

At least one of the classes of service that you create should support residential subscribers that have dial pulse phone sets. The following fields must be configured as indicated in order to support dial pulse:

- Dial Pulse Support - “Yes”
- Auto Logon - “Yes”
- Auto Play - “Yes”
- Read Message Retention - must be a non-zero value so that read messages are automatically deleted on a regular basis (such as every 7 days)

Dial pulse subscribers can also record a personal greeting by calling a Greeting Change number. If they do not record a personal greeting, the default system greeting is played.

If a dial pulse subscriber logs in from a phone other than his or her home phone, a mailbox and password are required. (The subscriber must, therefore, call in from a phone with touch-tone support.) However, once logged on, the mailbox operates as if it was accessed from a household phone (no further commands are required). However, if the subscriber does enter a DTMF command, the call reverts to the standard DTMF interface.

### **Defining outcalling parameters (remote notification and delivery to non-users)**

The Outcalling feature includes Remote Notification (RN) and Delivery to Non-users (DNU). Remote Notification (RN) informs a subscriber via a remote telephone, pager, or paging service, that there are new messages in his or her mailbox. Delivery to Non-Users allows a subscriber to compose and send messages to non-users of DMS VoiceMail. A number of RN and DNU parameters are configured in the class of service to which the subscriber belongs.

This section describes the outcalling fields that are in the Class of Service screens. However, for more information about setting up remote notification and delivery to non-users features, see the *Outcalling Application Guide* (NTP 297-7001-308).

### Outcalling fields

The following fields pertain to the outcalling feature (remote notification and delivery to non-users).

**Figure 13-4xxx**  
**Outcalling fields**

Class of Service Administration		MORE ABOVE
Add Class of Service		
Delivery to Non-Users Capability:	[No] Yes	
Delivery to Non-User Restriction/Permission Codes:	None On_Switch [Local] Long_Distance_1 Long_Distance_2	
Send Message via DNU if Mailbox Not Found:	[No] Yes	
DNU DTMF Confirmation Required:	[No] Yes	
Remote Notification Capability:	[No] Yes	
Remote Notification Restriction/Permission Codes:	None On_Switch [Local] Long_Distance_1 Long_Distance_2	
** Remote Notification Keypad Interface:	[No] Yes	
Remote Notification Retry Limits and Frequency:		
Busy Retry Limit: <u>3</u>	Retry Interval (hh:mm): <u>00:05</u>	
No Answer Retry Limit: <u>10</u>	Retry Interval (hh:mm): <u>00:15</u>	
Answered Retry Limit: <u>1</u>	Retry Interval (hh:mm): <u>00:05</u>	
RN Business Days:	Sunday [No] Yes	
	Monday No [Yes]	
	Tuesday No [Yes]	
	Wednesday No [Yes]	
	Thursday No [Yes]	
	Friday No [Yes]	
	Saturday [No] Yes	
<input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="Save"/> <input type="button" value="Save"/> <input type="button" value="Save"/>		

\*\* This field is applicable only if the interface type is MMUI.

- ***Delivery to Non-Users Capability*** - This field determines whether or not subscribers belonging to this COS can compose and send messages to people who are not DMS VoiceMail subscribers. If this is a VMUIF class of service, this field cannot be set to “Yes” unless the *Compose Capability* field is set to “Yes”. The default is “No”.
- ***Delivery to Non-User Restriction/Permission Codes*** - This field is displayed only if *Delivery to Non-Users Capability* is set to “Yes”.  
The selected option determines which dialing codes can and cannot be dialed when a subscriber attempts to send a message to a non-user. The actual dialing codes are defined in the Voice Security Options screen, accessible through the Voice Administration menu. The default is the third restriction/permission set (“Local” if the default name has not been changed).
- ***Send Messages via DNU if Mailbox Not Found*** - This field is displayed only if *Delivery to Non-Users Capability* is set to “Yes”. This feature is primarily intended for residential markets. If this field is set to “Yes”, subscribers don’t have to know who has mailboxes and who doesn’t when composing messages. They simply enter the person’s phone number when addressing messages. If the entered number is not defined as a mailbox number, the message is sent using delivery to non-user. The default is “No”.  
**Note:** This feature will not work properly if subscribers’ mailbox numbers do not match their DNs as configured on the switch. For example, if a subscriber addresses a message to “2348050”, but the recipient’s mailbox number is defined as “8050”, the number won’t be found. Therefore, if mailbox numbers do not equal DNs, you should leave this field set to “No”.
- ***DNU DTMF Confirmation Required*** - This field is displayed only if *Delivery to Non-Users Capability* is set to “Yes”. This field indicates whether or not a recipient of a Delivery to Non-user (DNU) message is required to confirm that they want to hear the message by pressing **2**. This can help avoid messages being delivered to an answering machine or to the wrong person. When disabled, the message is played upon voice detection. If you are in an area where rotary phones are widely used, you should disable confirmation. The default is “No”.
- ***Remote Notification Capability*** - This field determines whether or not this subscriber can be notified at a remote telephone or pager of messages waiting in his or her mailbox. The default is “No”.
- ***Remote Notification Restriction/Permission Codes*** - This field is displayed only if *Remote Notification Capability* is set to “Yes”.

The selection made in this field determines the restricted/permitted dialing codes that are applied to target DN's in subscribers' remote notification schedules. The actual dialing codes are defined in the Voice Security Options screen, accessible from the Voice Administration menu. The default is the third restriction/permission set ("Local" if the default name has not been changed).

- **Remote Notification Keypad Interface** - (MMUI only.) This field is displayed only if *Remote Notification Capability* is set to "Yes". When this field is "Enabled", subscribers are able to change their schedules, periods, and target DN's from a telephone keypad. The default is "Enabled".
- **Remote Notification Retry Limits and Frequency** - The following fields are displayed only if *Remote Notification Capability* is set to "Yes". These fields are limited by the *Maximum Number of Remote Notification Retry Repeats* field in the Outcalling Administration screen.
  - **Busy Retry Limit** - The number of times notification is retried at a remote phone, pager, or paging service if the destination number is busy. You may enter a value from 0 to 10. The default is 3.
  - **Busy Retry Interval (hh:mm)** - This field determines how long DMS VoiceMail will wait before retrying remote notification if the target DN is busy. If more than one target DN is defined in the user's schedule, DMS VoiceMail will not try the next target DN if the current one is busy. Instead, the system will send the remote notification call to the same DN on the retry (after waiting the period of time specified in this field).

The valid range is from 00:00 to 23:59. The default is 00:05.
  - **No Answer Retry Limit** - The number of times notification is retried at a remote phone, pager, or paging service if the destination number is not answered. You may enter a value from 0 to 10. The default is 10.
  - **No Answer Interval (hh:mm)** - This field determines how long DMS VoiceMail will wait before retrying remote notification if the target DN is not answered. If more than one target DN is defined in the user's schedule, DMS VoiceMail will try calling the first target DN, if there is no answer, DMS VoiceMail immediately tries calling the second target DN. If there is no answer at this DN, DMS VoiceMail will call the the third target DN (if defined). If it too is not answered, the system will wait the amount of time specified in this field before retrying remote notification.

The valid range is from 00:00 to 23:59. The default is 00:15.

- **Answered Retry Limit** - The number of times DMS VoiceMail will retry a remote number when the number is answered but the subscriber does not log in (by pressing “1”) or turn off further remote notification (by pressing “3”). The valid range is from 0 to 10. The default is 1.

This number should be relatively low (the default is usually sufficient). If an answering machine answers the call, you do not want the RN service to keep calling back since RN can not be turned off. However, if DMS VoiceMail is calling a pager you would like the pager to go off periodically to remind the subscriber of calls.

- **Answered Retry Interval (hh:mm)** - This is the length of time the system will wait before retrying a remote number if the target DN is answered, but the user does not log in to listen to the message. If more than one target DN is defined in the user’s schedule, DMS VoiceMail will try the second DN if the first is answered with no user login. If the second DN is not answered or answered with no login, the third DN will be called (if defined). If it is answered with no login, DMS VoiceMail will wait this amount of time before placing another remote notification call.

The valid range is from 00:00 to 23:59. The default is 00:05.

**Note:** For a detailed description of retry limits and intervals refer to the section “Defining outcalling parameters (remote notification and delivery to non-users)” earlier in this chapter.

- **RN Business Days** - This field is displayed only if *Remote Notification Capability* is set to “Yes”. For each day of the week that is a business day, select “Yes”. Select “No” for non-business days. This information is used when creating remote notification schedules. By default, Monday to Friday are set to “Yes” and Saturday and Sunday are set to “No”.

### Enabling AMIS networking

The following fields allow you to enable or disable AMIS networking for the class of service.

**Figure 13-5xxx**  
**AMIS networking fields**

Class of Service Administration		MORE ABOVE
Add Class of Service		
Receive AMIS messages:	[No]	Yes
Compose/send AMIS messages:	[No]	Yes
<hr/>		
<input type="button" value="Save"/>	<input type="button" value="Cancel"/>	<input type="button" value="Save"/>
<input type="button" value="Cancel"/>	<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

- **Receive AMIS Messages** - This field is displayed only if AMIS is installed. Set this field to “Yes” if you want subscribers to be able to receive messages that are sent from remote AMIS sites. This field cannot be set to “Yes” unless *Receive Composed Messages* is first set to “Yes”. The default is “No”.
- **Compose/send AMIS Messages** - This field is displayed only if AMIS is installed. Set this field to “Yes” to allow subscribers belonging to this COS to compose and send messages to remote AMIS sites. If this is a VMUIF class of service, this field cannot be set to “Yes” unless the *Compose Capability* field is first set to “Yes”. The default is “No”.

**Selecting restriction/permission codes**

The following fields are used to apply restriction/permission codes to AMIS networking calls, extension dialing (also known as mailbox thru-dial) and custom revert. Note that extension dialing is only available if the interface type is MMUI.

**Figure 13-6xxx**  
**Choosing restriction/permission codes**

Class of Service Administration		MORE ABOVE
Add Class of Service		
* AMIS Restriction/Permission Codes:	None On_Switch [Local] Long_Distance_1 Long_Distance_2	
*+ Extension Dialing Restriction/Permission Codes:	None On_Switch [Local] Long_Distance_1 Long_Distance_2	
* Custom Revert Restriction/Permission Codes:	None On_Switch [Local] Long_Distance_1 Long_Distance_2	
<input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="Save"/>		

\* These fields default to the third restriction/permission set in the list.

+ This field is displayed only if the interface type is MMUI.

- **AMIS Restriction/Permission Codes** - This field is displayed only if AMIS is installed and the previous field, *Compose/send AMIS messages*, is set to “Yes”.

When a subscriber composes a message to an AMIS site, the system checks to see if the address is restricted. If it is restricted, the subscriber gets a non-delivery notification (NDN). The default is the third restriction/permission set (“Local” if the default name has not been changed).

- **Extension Dialing Restriction/Permission Codes** - (MMUI only.) This field indicates which restricted/permitted dialing codes apply when a subscriber dials a phone number while logged on to his mailbox (known as mailbox thru-dialing). For example, a subscriber may dial into her mailbox from outside the office in order to listen to messages. While listening to messages the subscriber realizes that she would like to speak to someone at the office. Instead of logging out and calling back, the subscriber can press “0” followed by the extension number.

You will have to decide which dialing codes should be restricted when mailbox thru-dial is used. For example, you may want to restrict subscribers from dialing external or long distance numbers when thru-dialing. The four choices displayed in this screen reflect the four sets of dialing codes that have been defined in the Voice Security Options screen (described in the chapter “Voice Administration”). Each set contains up to 10 permission and 10 restriction codes. The default is the third restriction/permission set (“Local” if the default name has not been changed).

- **Custom Revert Restriction/Permission Codes** - The custom revert DN is the extension to which a caller is passed when the caller presses 0 during a call answering session. Since subscribers can customize this DN from their telephone set you must determine which dialing codes you want to restrict (or explicitly permit). For example, you may want to ensure that subscribers cannot revert callers to long-distance numbers.

The actual restriction/permission tables are defined in the Voice Security Options screen (described in the “Voice Administration” chapter). Up to 10 restriction and 10 permission codes can be defined for each option. The default is the third restriction/permission set (“Local” if the default name has not been changed).

To block users from changing their own revert DN, restrict the dialing codes 0-9. When the digits 0-9 are restricted, the administrator is still able to enter a revert DN in the Add or View/Modify Local Voice User screen and this revert DN will work. However, users will be unable to change it from their telephone sets.

### **Assigning classes of service to customer groups**

Once you have created your classes of service, you are ready to assign COSs to each customer group. (If you have not added customer groups to the system, do so first.)

To assign COSs to a customer group:

- 1 Select Customer Administration from the Main Menu.
- 2 From the Customer Administration screen, use [View/Modify] to modify an existing customer group (if you know the customer number) or [Find] to retrieve the customer group using other search criteria (such as the customer name).
- 3 From the Customer Administration Menu, select General Administration, General Options. The General Options screen is described in the chapter “General Administration” in the *Customer Administration Guide*.
- 4 Go to the *Class of Service Selection* field in the General Options screen to assign up to 15 COSs to the customer group.

### **Assigning a class of service to a subscriber**

Once you have assigned COSs to each customer group, you are ready to add subscribers.

To assign a subscriber to a particular COS, specify the COS number in the *Class of Service* field in the Add Local Voice User screen. This screen is described in the “User Administration” chapter in the *Customer Administration Guide*.

## Modifying class of service definitions

To modify an existing class of service, you must be logged on as system administrator at the main administration terminal (not a Multiple Administration Terminal).

### Finding a class of service

The first step in modifying an existing class of service is retrieving it. You can use the find functionality to narrow down your search for the COS you want to modify (i.e., display a subset of COSs), or retrieve a particular COS (if you know the exact COS number or name).

When you press the [Find] softkey, the Find Class of Service screen (Figure 13-7) is displayed. This screen allows you to find:

- a specific COS by number
- a specific COS by name or a subset of COSs by name (a subset is retrieved by using wildcard character matching)
- a subset of COSs according to interface type (MMUI or VMUIF)

### The Find Class of Service screen

The Find Class of Service screen is where you specify the search criteria for retrieving a particular class of service or a subset of classes.

**Figure 13-7xxx**  
The Find Class of Service screen

The screenshot shows the 'Find Class of Service' screen within the 'Class of Service Administration' application. The screen has a title bar at the top that reads 'Class of Service Administration'. Below the title bar, the text 'Find Class of Service' is displayed. There are three input fields: 'Class of Service Number:' followed by a horizontal line, 'Class of Service Name:' followed by a horizontal line, and 'Voice Messaging Interface Type:' followed by the text 'Any [MMUI] VMUIF'. At the bottom of the screen, there is a horizontal line above a row of five buttons: 'Save', a blank button, 'List', 'Print', and another blank button.

If you do not fill in any of the fields, the resulting list will be the complete set of defined COSs.

On systems on which COSs have been defined, you can either view the list of existing COSs on screen or print it out.

**Procedure 13-2xxx**  
**Printing a list of existing COSs**

**Starting point:** The Main Menu.

- 1 Select Class of Service Administration.  
*The Find Class of Service screen is displayed.*
- 2 Specify the search criteria.  
To find and print a particular COS, enter the COS number in the *Class of Service Number* field.  
  
To find and print a subset of COSs according to name, enter the appropriate search pattern. (This pattern will consist of the letters and wildcard characters to indicate the pattern that the found COSs must match.)  
  
To find and print those COSs for a particular interface, specify either MMUI or VMUIF.
- 3 Press [Print].  
*A list of existing COSs that meet the specified search criteria is printed.*

**Procedure 13-3xxx**  
**Viewing a list of COSs**

**Starting point:** The Main Menu.

- 1 Select Class of Service Administration.  
*The Find Class of Service screen is displayed.*
- 2 Specify the search criteria.  
To find a particular COS, enter the COS number in the *Class of Service Number* field.  
  
To find a subset of COSs according to name, enter the appropriate search pattern. (This pattern will consist of the letters and wildcard characters to indicate the pattern that the found COSs must match.)  
  
To find those COSs for a particular interface, specify either MMUI or VMUIF.
- 3 Press [List].  
*The List of Classes of Service screen is displayed (Figure 13-8).*

### The List of Classes of Service screen

The List of Classes of Service screen displays a list which is the result of the search performed on the basis of the search criteria specified in the Find Class of Service screen.

**Figure 13-8xxx**  
The List of Classes of Service screen

Class of Service Administration									
List of Classes of Service									
COS Num	COS Name	VceMsg I/F	Storage (Mins.)	Retain ReadMsg	Compose Msgs	DNU /RN	AMIS Receive/Send	DualLang Prompt	
1	Standard	MMUI	3	0		N/N	No	No	No
2	Executive	MMUI	20	2		Y/Y	Yes	Yes	Yes
3	Secretary	MMUI	10	0		N/Y	Yes	No	No
10	Outcalling	MMUI	5	0		Y/Y	No	No	No
11	DNU only	MMUI	5	0		Y/N	No	No	No
12	RN only	MMUI	5	0		N/Y	No	No	No
16	VMUIF Res	VMUIF	10	0	No	N/N	No	No	
17	VMUIF Priv	VMUIF	10	0	Yes	N/N	No	No	

Exit		View/Modify	Delete	
------	--	-------------	--------	--

The List of Classes of Service screen displays the COS number and name along with a brief summary of the class of service definition. This summary includes the following information.

- the voice messaging interface (MMUI or VMUIF)
- the maximum amount of storage available
- the number of days that read messages are retained (MMUI only)
- whether or not the subscriber is able to compose messages
- whether or not DNU and/or RN are enabled
- whether or not AMIS messages are allowed to be received and/or sent
- whether or not dual language prompting is enabled

## Viewing and/or modifying a class of service

From the List of Classes of Service screen, you can select a particular COS and press the [View/Modify] softkey to bring up the entire COS definition on screen.

**Note:** If you are logged on as customer administrator at the main administration terminal or a MAT, the [View] softkey will be displayed instead. You will not be able to modify the COS.

Field descriptions are given in the section “Defining the basic class of service fields”, beginning on page 13-10.

### Procedure 13-4xxx Modifying an existing COS

**Starting point:** The Main Menu.

- 1 Select Class of Service Administration.  
*The Find Class of Service screen is displayed.*
- 2 Specify the search criteria.  
To find a particular COS, enter the COS number in the *Class of Service Number* field.  
  
To find a subset of COSs according to name, enter the appropriate search pattern. (This pattern will consist of the letters and wildcard characters to indicate the pattern that the found COSs must match.)  
  
To find those COSs for a particular interface, specify either MMUI or VMUIF.
- 3 Press [List].  
*The List of Classes of Service screen is displayed (Figure 13-8).*
- 4 Move the cursor to the definition you want to modify.
- 5 Press spacebar to select it.
- 6 Press [View/Modify].  
*The View/Modify Class of Service screen is displayed.*
- 7 Make the necessary changes to the COS definition.
- 8 To save the new COS definition, go to step 8a. To exit the screen without saving your changes, go to step 8b.
  - a. Press [Save].  
*The new COS definition is saved. All user profiles belonging to the COS are updated. The List of Classes of Service screen is displayed.*
  - b. Press [Cancel].  
*Any changes that you have made are not saved and the List of Classes of Service screen is displayed.*

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## Deleting a class of service

From the List of Classes of Service screen, you can select a particular COS and press the [Delete] softkey to bring up the entire COS definition on screen.

*Note:* Before deleting a class of service, reassign those subscribers that refer to the COS to another COS.

Field descriptions are given in the section “Defining the basic class of service fields”, beginning on page 13-10.

### Procedure 13-5xxx

#### Delete a class of service

**Starting point:** The Main Menu.

- 1 Select Class of Service Administration.  
*The Find Class of Service screen is displayed.*
- 2 Specify the search criteria.  
To find a particular COS, enter the COS number in the *Class of Service Number* field.  
  
To find a subset of COSs according to name, enter the appropriate search pattern. (This pattern will consist of the letters and wildcard characters to indicate the pattern that the found COSs must match.)  
  
To find those COSs for a particular interface, specify either MMUI or VMUIF.
- 3 Press [List].  
*The List of Classes of Service screen is displayed (Figure 13-8).*
- 4 Move the cursor to the definition you want to delete.
- 5 Press spacebar to select it.
- 6 Press [Delete].  
*The Delete Class of Service screen is displayed.*
- 7 To delete the COS, go to step 7a. To exit the screen without deleting the COS, go to step 7b.
  - a. Press [OK to Delete].  
*The COS is deleted. The List of Classes of Service screen is displayed.*
  - b. Press [Cancel].  
*The COS is not deleted and the List of Classes of Service screen is displayed.*



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## List of terms

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### 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 of accessible RAM.

## A

### Analog

Pertains to representation by means of continuously variable physical quantities.

## B

### Batch Change Supplement (BCS)

A DMS-100 Family software release.

## C

### Call

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

### 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.

**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, back-panel connector, faceplate, lock latches, and stiffeners.

**CO**

Central office

**CPE**

Customer Premises equipment.

**Customer Premises Equipment (CPE)**

Refers to equipment, such as ISDN terminals, that is located on the customer's premises.

# D

## 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* of 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".

## Dialable DN

A dialable DN (directory number) is a number that can be dialed from a telephone set (or voice service). Examples: extension 2334, 555-7711, 1-416-222-9110, ESN 6-337-0091. This number may or may not be the same as the *Network DN*.

## DID

Direct inward dialing

## 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.

## Disk drive unit

Consists of a disk drive and a power-converter card installed in an input/output equipment frame.

## DMS

Digital Multiplex System

## DMS-Supernode

A central control complex for the DMS-100. The two major components of DMS-Supernode are the computing module and the message switch. Both are compatible with the current network module, the input/output controller, and the XMS-based peripheral modules.

### **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.

#### **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**

Directory number

## **E**

### **Error**

In telephony, a detectable trouble condition that cannot be reproduced at will by the system or by external means; a transient or intermittent fault that does not yield consistent diagnostic test results. Compare with fault.

### **Error message**

An indication that an error has been detected.

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# F

## **Function**

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

# G-H

## **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.

## **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. Thirty-six CCS=1 Erlang.

# I

## **IBN**

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**

Input/output

**IOD**

Input/output device

**ISDN**

Integrated Services Digital Network

**L**

**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.

**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.

# M

## **MAT**

Multiple Administration Terminal. This is a secondary administration terminal that can be used to perform a subset of administrative tasks (namely user administration, voice services administration and class of service administration (in read-only mode)). Up to three MATs can be supported in addition to the main administration terminal.

## **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. Synonymous with data set.

## **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**

Multi-protocol controller

## **MSP**

Multi-server Processor

## **Multi-line Hunt**

A service-related telephony feature that permits calls to a busy line to 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.

## **Multi-server Processor**

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

# N

## 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

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 DN

This is the directory number (DN) that is configured on the switch. This is a unique identifier across the network. This may or may not be the same as the *Dialable DN*.

## Network module

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 (NT)**

Part of the tri-corporate structure consisting of Bell-Northern Research, Bell Canada, and Northern Telecom Ltd.

**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**

Northern Telecom

**NTP**

Northern Telecom practice

**O****Operating company**

The owner/operator of a DMS switch.

**P-Q****PBX**

Private branch exchange

**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.

**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.

**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.

**S**

**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 server used to provide voice messaging and related services for residential and business subscribers of DMS-100 or other central office switches.

**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. It 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**

Simplified message desk interface

**SPM**

Service Peripheral Module

**SPN**

Signal Processing Node

**Subscriber**

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

**T****Table**

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

**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**

Telephony Interface Node

**Transition Module (TM)**

A short circuit pack, based on the standard circuit pack. The TM carries the cable interfaces and/or local service functions such as local clock sources and bus terminations, located on the back of DMS-Supernode shelf.

**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 of the system.

**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.

# U-V

**UCD**

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, UCD positions or UCD agents. This feature is used to queue incoming calls to the message desk.

**Voice Processor-12 card**

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

**VP12**

Voice Processor-12 card



DMS-100

## **DMS VoiceMail**

System Administration Guide

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