Meridian Mail

Message Services Module
System Administration Guide for Multi-Customer Systems

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About this document

This document describes the administration procedures to be completed by the Message Services Module (MSM) system administrator. If you are administering an MSM system, use this guide along with the MSM *Customer Administration Guide* (NTP 557-7001-301).

How the MSM library is organized

This document is part of the MSM documentation that supports the Nortel line of MSM products. MSM documentation is a subset of the Meridian Mail library.

The Meridian Mail Message Services Module (MSM) library is structured in numbered layers, and each layer is associated with a Nortel product. To understand MSM products, you need documents from the following layers:

- Meridian Mail MSM basic documents in the 557-1001 layer
- MSM documents in the 557-7001 layer

MSM documents and other documents that contain related information are listed in "Finding MSM information" in the MSM *Product Guide* (NTP 557-7001-010).

Documents referenced

The following documents are referred to in this document:

Number	Title
557-7001-010	*Meridian Mail MSM Product Guide*
557-7001-100	*Meridian Mail MSM Planning and Engineering Guide*
557-7001-301	*Meridian Mail MSM Customer Administration Guide*
557-7001-305	*Meridian Mail MSM System Administration Tools*
557-7001-310	*Meridian Mail MSM Translation Guide*
555-7001-323	*Meridian Mail Outcalling Application Guide for Multi-Customer systems*
555-7001-325	*Meridian Mail Voice Menus Application Guide*
555-7001-326	*Meridian Mail Voice Forms Application Guide*
555-7001-327	*Meridian Mail Fax on Demand Application Guide*
555-7001-335	*Meridian Mail Networking Services Administration Guide*
557-7001-340	*Meridian Mail AdminPlus on the MSM System Administration Guide*
557-7001-501	*Meridian Mail MSM Routine Maintenance Procedures*
557-7001-503	*Meridian Mail MSM Trouble-locating and Alarm-clearing Procedures*
557-7001-504	*Meridian Mail MSM System Installation and Modification Guide*
297-7001-001	*Family Guide to Northern Telecom Publications*
——	*Meridian Mail Voice Messaging Quick Reference Card*
——	*Meridian Voice Forms Implementation Guide*
——	*Meridian Mail Voice Forms Transcriber User Guide*
——	*Meridian Mail Call Answering User Guide*
——	*Meridian Mail Voice Messaging (VMUIF) User Guide*

Using this document

This manual describes the basic administration tasks that you will carry out on your MSM system. It assumes that all the hardware, including the administrator's terminal and printer, is in place. 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 Tools Guide* (NTP 557-7001-305).

This guide covers the following groups of administration tasks:

- administrative role and responsibilities

  Your role and responsibilities as administrator are covered in Chapter 2, "An overview of administration".

- procedures for setting up and administering the system

  If you are setting up Meridian Mail on the MSM, read Chapter 5 "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. The "Setting up the system" chapter explains this order and points out those parameters that *must* be configured.

  Other maintenance procedures that should be performed on an ongoing basis are described throughout the rest of this guide. These include backing up the system, voice services, and procedures for administering classes of service.

  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 content in chapters

The organization 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 that you interact with to complete the tasks. Each screen and subscreen in the administrative facility is described using the following structure:

- Introduction

  This section includes a brief description of the menu, and any concepts or rules necessary to use the menu.

- Menu

  The menu section provides an illustration of the menu and its softkeys.

- Screen

  The screen section provides an illustration of the screen and its softkeys.

- Field descriptions

  The field descriptions section includes 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

  The choice of actions section includes a description of available softkeys and their actions.

- Task-oriented procedures

  The task-oriented procedures section includes a step-by-step description of the administrative task associated with the administrative function being described.

  — Starting point

    The starting point in the procedure tells you where in the menu hierarchy the procedure begins.

  — Body of procedure

    The body of the procedure is a numbered list of the required steps and any additional information you require to complete a task.

The meaning of the precautionary messages in this document

Danger 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, or death
CAUTION	Possibility of equipment damage, loss of data, or service interruption

Examples of the precautionary messages follow.

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

> **CAUTION**
> **Risk of damage to backplane connector pins**
> 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.

Typographic conventions

The following conventions are used throughout this guide:

Text item	Typographic convention	Examples
Softkeys	Softkeys are displayed on the various administration menus and screens and indicate which keyboard function keys carry out specific MSM 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.	[Exit] [OK to Delete] [Save]
Keyboard keys	Keyboard keys (or hardkeys) are referred to by indicating the label of the key, delimited by angle brackets.	<1> <2> <Return>
Text input	Where you are required to type in specific text, the characters are presented in bold instead of using angle brackets.	**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.	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.	1 The default is "Yes". 2 Select "Custom" to create a set of restriction/permission codes unique to this thrudialer.

Text item	Typographic convention	Examples
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.	An appropriate prompt would be *"Please wait on the line, an attendant will be with you shortly"*.
References	References to section headings and chapter titles are placed in double quotation marks. References to book titles are shown in italics.	See "Time-of-Day Controls" in the "Voice Administration" chapter. See the *Translations Guide* (NTP 557-7001-310) for details.

Chapter 1: About Meridian Mail and the Message Services Module

This chapter includes a description of the capabilities and operation of Meridian Mail on the Message Services Module (MSM) system, the relationship of this system to the telephone network, and the optional features that you can purchase for your Meridian Mail telephone system.

Throughout this guide, *system administrator* refers to the person who logs on with the system administration password and chooses to perform System Administration. *Customer administrator* refers to the person who logs on to perform Customer Administration. You can also perform customer administration functions by logging on with the system administration password and choosing Customer Administration from the Main Menu. For more information about the two different kinds of administrators, refer to the section "An overview of administration".

What is Meridian Mail and the Message Services Module?

The Message Services Module (MSM) is a voice processing hardware platform designed for large enterprise customers. The MSM can be installed in the following environments:

- In connection with a Meridian SL-100 Private Branch Exchange (PBX)

    Note: If you have the Meridian Connections feature and a VoiceBridge unit, an AT&T or ROLM PBX can be substituted for the SL-100.

- In connection with certain Central Office (CO) switches providing Centrex services. This is referred to as a Customer Premises Equipment (CPE) Centrex.

Meridian Mail is the voice processing software that operates on the MSM to provide call answering and voice processing services to the customer. Optional feature packages available for Meridian Mail operating on the MSM include: AMIS Networking, Meridian Networking, Voice Forms, ACCESS, and AdminPlus.

Throughout this document, the terms Meridian Mail, Message Services Module, and MSM will be used interchangeably to represent the complete voice processing system: Meridian Mail software operating on the MSM hardware platform.

Administering MSM

The MSM can be administered from a local or remote administration terminal. All provisioning, administration and maintenance is performed from the administration terminal. System events are recorded in a log file and reports are printed on a locally attached printer.

The system can be administered remotely via modem. However, the system cannot be administered both locally and remotely at the same time. For security, remote administration access must be activated from the local system administration terminal.

System capacity

The mailbox capacity of a Meridian Mail MSM 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 Message Services Module is provisioned by selecting the appropriate number of voice ports and hours of storage. The MSM's system 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.

Table 1-1 shows current maximum capacities for a 192 port MSM. Some of these capacities may not be applicable to certain configurations.

Table 1-1
MSM system capacities

Item	Maximum
Voice messaging channels	192
Voice storage hours	1200
Storage hours for voice services and personal verifications (spoken name)	100**
Levels per voice menu	20
System greeting (seconds)	25
Personal verification (seconds)	12
Internal and external greeting (minutes)	7
—continued—	

Item	Maximum
Fax selections for each Fax on Demand session	25
Pages in each fax	99
Languages per system	4
Customer groups per system	2000
Registered mailboxes per system	42,328
Messages per mailbox	999
Recording time per mailbox	99*
Minutes per mailbox	360
Entries per organization distribution list	120
Personal distribution list (PDL) per mailbox	9
Entries per personal distribution lists (PDL)	99
Organization directory entries per system	50,000
Network nodes per system	50
Administrative positions:	
Multiple Administration Terminals (MAT)	3
Combination system console/MAT	1
System printers	2
Remote maintenance ports per system	2
Meridian (proprietary) Networking ports per system	20
SMDI links:	
Redundant ports or	8
Nonredundant ports	16

Notes:

* A 99 minute message can have a maximum of 290 addresses. If more addresses are added, then the maximum message length is reduced; with 450 addresses, the maximum message length is one minute. Broadcast and customer distribution lists are equivalent to one address, unless the message is sent via Networking. Networked messages are copied to volume VS1 before being sent, and the maximum message length of the message may be limited by the space available on the VS1 volume.

** 100 hours of Voice service definitions are stored on the System Volume (VS1) where they share space with personal verifications and work queues. If a user volume (e.g., VS203) is defined as the voice service volume, there may be up to 150 hours of voice service definitions on the user volume in addition to 100 hours of personal verifications on VS1.

—end—

Performance standards

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.

System and user data storage

Each voice node in the Meridian Mail MSM 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.

Users are not automatically distributed or balanced among the user volumes. When initially setting up Meridian Mail, you must distribute Meridian Mail users on the volumes by assigning a given volume number to each user entered in the Add Local Voice User screen. This is described in the section "Distributing users over volumes" in the chapter "User Administration" in the *Customer Administration Guide*.

The section "Volume naming conventions" and "Types of information contained on the volumes" in Chapter 8 "General Administration" describes the conventions used for naming volumes and the type of information stored on each volume for the different configurations. Table 8-1 on page 8-4 specifies the storage capacities for each volume.

Disk shadowing

The MSM is designed to provide fully redundant, shadowed, disk storage for both system and user data. This allows the MSM to recover from a single disk failure without the loss of any stored data.

The disk shadowing functionality requires that disks be added 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.

Multi-Customer MSM systems

The Multi-Customer feature allows you to partition your system to support the needs of different groups, known as *customer groups*. This gives you the ability to selectively configure features and collect billing data for each group of users. In an MSM system, up to 2,000 customer groups are supported. On a just-installed Multi-customer system, one customer group (Customer Number 1) is automatically created.

Note: Only users within the same customer group are considered internal callers. Other users on the same system, but in other customer groups, are considered external. By default, users in one customer group, therefore, cannot send messages to users in another customer group.

Restrictions for Multi-Customer systems

The following restrictions apply to multi-customer systems:

- Meridian (proprietary) networking can only be enabled for one customer group. (AMIS networking can be enabled for all customer groups.)
- Multiple languages always apply to the system.

  Installed languages cannot be selectively enabled for particular customer groups.
- Once the multi-customer feature is installed, it should not be removed from the system.

  Attempts to do so may result in undesirable loss of user information, such as mailboxes, messages, and so on.

Voice messaging interfaces

Meridian Mail allows users to interact with the MSM using one of three interfaces. Each interface allows the user to perform the various activities associated with sending and receiving messages and logging into the mailbox.

The three interfaces that Meridian Mail on the MSM supports are

- Meridian Mail User Interface (MMUI)
- Voice Messaging User Interface Forum (VMUIF)
- VMUIF-compatible dial pulse support

The system is installed with either the VMUIF or the MMUI interface. Only one of these two interfaces can be supported on a system at a time. The dial pulse interface is a subset of the VMUIF interface.

Note: Some features are interface-dependent.

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

MMUI

Meridian Mail User Interface (MMUI) is Nortel's fully-featured proprietary voice mail interface. The following features are specific to the MMUI interface and are *not* available in the VMUIF 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)
- Integrated AMIS networking (AMIS virtual node)

- 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
- customizable customer greeting and customer attendant
- custom operator revert
- user-changeable remote notification schedules through the telephone set
- express messaging
- bilingual prompting (if more than one language is installed)
- record, playback, and message tagging during call answering.

VMUIF

Meridian VMUIF is an interface for users with dual tone multi-frequency (DTMF) telephone sets. The Meridian VMUIF interface meets the industry standard as it follows the Voice Messaging User Interface Forum (VMUIF) specification. VMUIF is also well-suited for large campus environments with shared accommodations such as university dorms or hospital wards.

Users enter a password to log into a mailbox. While in their mailbox, they can play, delete and skip voice messages. Users can request context-sensitive help at any time. Also, compose and send capability can be enabled (although it is disabled by default) 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

However, VMUIF compose and send does not support the following features which are available in the MMUI interface:

- message tagging (urgent, private)
- timed delivery
- appending to a recorded message (pressing the record key erases the previous message)
- saving copies of the message

Submailboxes

Submailboxes only apply to the VMUIF interface. A mailbox can be partitioned into a main mailbox, plus up to 8 submailboxes. Submailboxes

are enabled in the Meridian Mail class of service (COS) assigned to the user by setting the *Maximum Number of Submailboxes* field to a value other than zero. The remainder of the setup activities are the responsibility of the owner of the main mailbox. (The system administrator cannot determine how many submailboxes a main mailbox owner has activated.) For more information about classes of service, refer to Chapter 14 "Class of Service Administration".

Although a main mailbox may have the ability to be divided up into a number of submailboxes, this is done by the user of the main mailbox only. For example, if a user has the submailbox feature enabled with up to 8 submailboxes, these submailboxes will not automatically be set up. It is up to the owner of the main mailbox, not the administrator, to create and administer the submailboxes.

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

When a caller reaches a mailbox with submailboxes, a menu of users is played. For example, a caller 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 different passwords. As a result, there is no auto login feature because the password is required to determine the correct submailbox.

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 when a mailbox/submailbox owner dials the system 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."*

VMUIF-compatible dial pulse support

This interface is intended for users with dial pulse or rotary phone sets. Instead of using a password, the user is automatically logged into the mailbox after dialing the access DN from their phone. The user can also access voice messages from a remote DTMF phone.

Common VMUIF and MMUI features

The following features are common to MMUI and VMUIF:

- user-changeable personal verification
- handling of forwarded calls
- personalized greetings
- MWI support
- remote notification (user-changeable remote notification schedules from the telephone set are only available in the MMUI interface)
- password-protected mailboxes
- 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 mailboxes

VMUIF features not available with MMUI

The following features are specific to VMUIF and are not available with the MMUI 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)

- family mailboxes (up to 8 submailboxes administrated from the user's telephone set)
- "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)

Using the Meridian Connections feature to communicate with the switch

The Meridian Connections feature allows the MSM to provide voice processing functionality to the following:

- AT&T PBX
- ROLM PBX
- Meridian 1 PBX

For more information about the switches that are supported, refer to the *System Installation and Modification Guide*, NTP 557-7001-504.

A device called the VoiceBridge II is used to integrate the different types of switches into one compatible network. Through protocol conversion, the VoiceBridge II enables the PBX (private switch) to communicate with the MSM using the SMDI protocol. This allows users to access the same voice processing features that users on a Meridian SL-100 PBX can access.

Figure 1-1 shows the configuration of a system that uses the Meridian Connections feature.

Figure 1-1
Multiple VoiceBridges with distribution - MSM
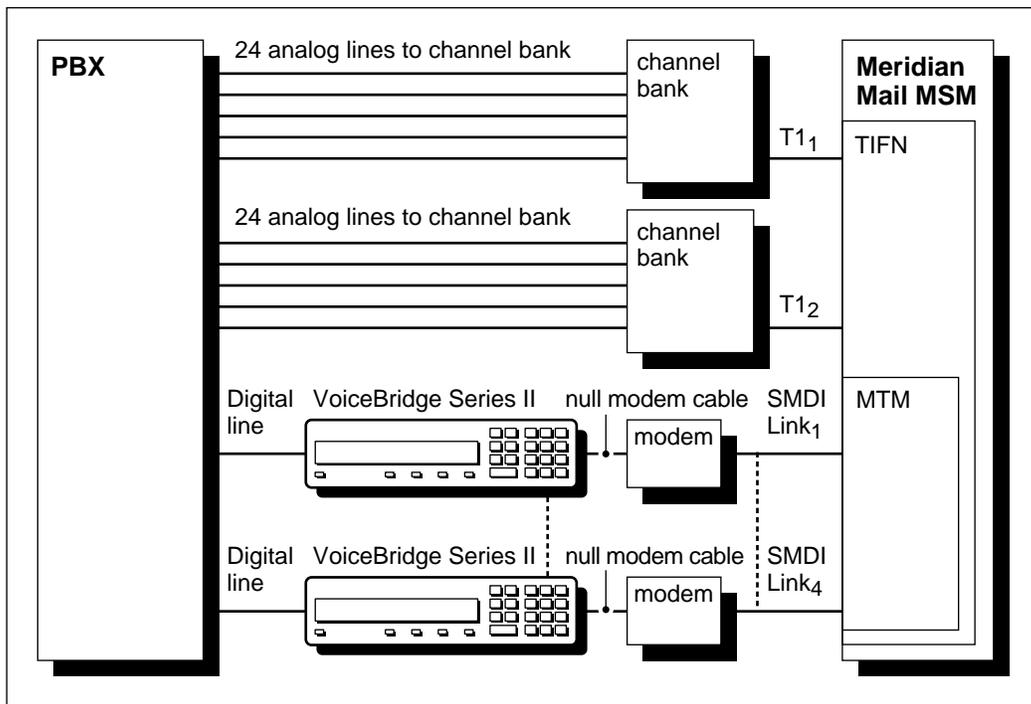
Chapter 2: An overview of administration

As administrator, your duties include setting up the initial system configuration (normally a one-time operation) and performing routine procedures needed for effective operation of the system. The setup procedures are described in Chapter 5, "Setting up the system".

When you are setting up your system, you may also have to retrieve data related to the performance and use of the Meridian Mail Message Services Module (MSM) system. In your role as administrator, you may also be required to review and analyze system data to identify early indications of resource shortages. This data is used in system provisioning calculations. In addition, you may be required to collect and analyze data for detecting and correcting equipment faults.

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

Figure 2-1 illustrates a conceptual view of the administration tasks and Figures 2-2 and 2-3 illustrate the hierarchy of menus available at the administration terminal.

Figure 2-1
Administration overview
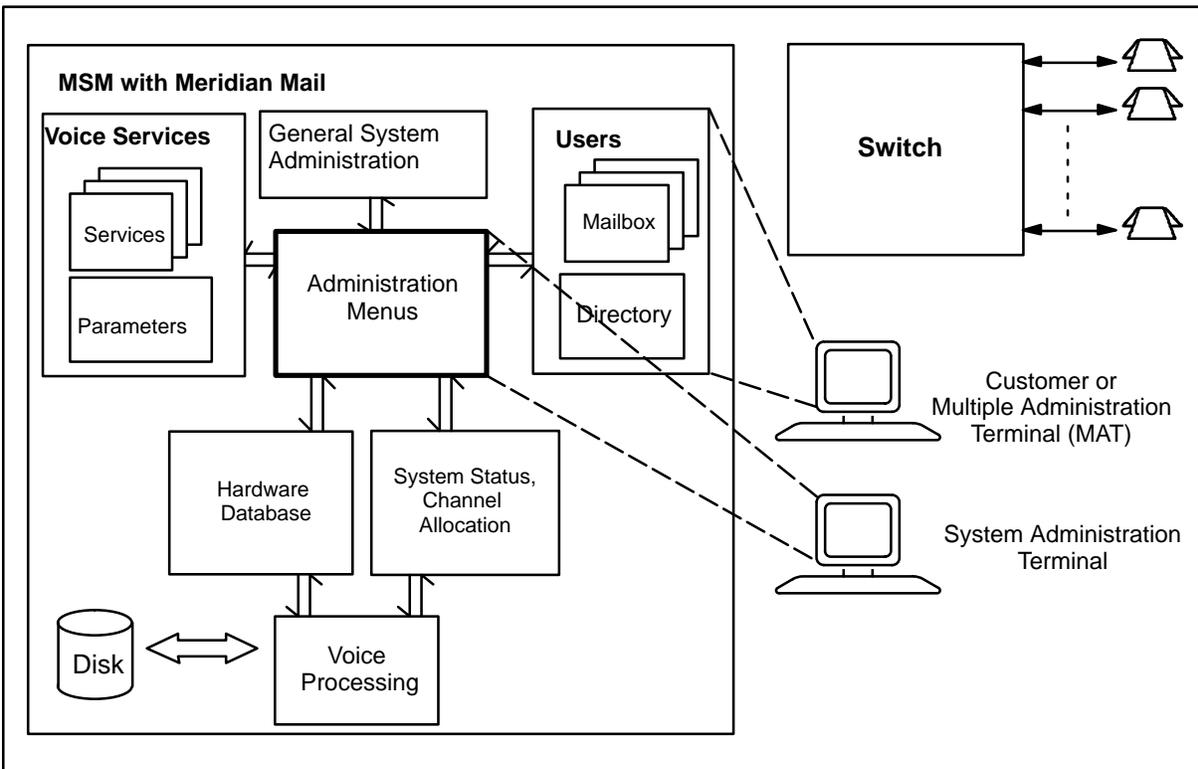
Levels of administration

There are two levels of administration for multi-customer systems:

- system administration
- customer administration

This publication describes the system administration tasks. The customer administration tasks are described in more detail in the *Customer Administration Guide*.

System administration

The system administration level is for performing administrative tasks such as:

- system backups
- setting restriction and permission codes for various features
- configuring the Channel Allocation Table
- checking system status and performing system maintenance.

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 access all of the functionality required to perform system administration or customer administration.

To perform customer administration when logged on as the system administrator, 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 system or need to perform customer administration tasks, you will also require the *Customer Administration Guide* since tasks are split between the two administrative levels. System configuration is described in Chapter 4 "Configuring Meridian Mail MSM services" and system setup is described in Chapter 5 "Setting up the system."

System administration menu hierarchies

Figure 2-2 shows the hierarchy of menus and screens that are available for the administrator that logs on as system administrator.

Figure 2-2
System administration menu hierarchy

The following items appear in the diagram:

Top row boxes: T1 Link Status · DSP Port Status · Logon/Status Screen · System Status · Silence Alarms

Log on (using System Administrator Password)

Logoff

Log on (using Tools Password)

Logoff

Tools and Utilities (NTP 555-7001-305)

Main Menu

General Administration
1 General Options
2 Volume Administration
3 Change Password
4 Change System Time
5 Dialing Translation*

Fax Administration*

Hardware Administration
1 Node Configuration
2 T1 Link Configuration
3 Data Port Configuration
4 Print Node Information
5 Print Data Port Information

Voice Administration
1 Voice Security Options
2 Voice Services Administration
3 Outcalling Administration

Operational Measurements
1 OM Options
2 Traffic Reports
3 Outcalling Audit Trail Report
4 Fax Audit Trail Report*

System Status and Maintenance
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 MSM Cross Reference Table
10 Disk Maintenance#
11 System Event and Error Reports

Network Administration*
1 **Meridian Mail Networking** *
Local Site maintenance
Remote Site maintenance
Networking Scheduling Parameters
Networking Verification Test
2 **AMIS Networking** *
View/Modify AMIS Networking

Class of Service Administration

Customer Administration

* Available only if the necessary feature is enabled.

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Tasks of the system administrator

System administration can be broken down into the following tasks:

- *General Administration*

  General administration involves configuring General Options for the system; backing up the system from the hard disk onto tape; changing the system and/or customer administrator password; changing the system time; and setting up dialing translations (if Fax on Demand or AMIS Networking is enabled on your system).

- *Voice Administration*

  Voice administration involves defining restriction and permission codes (Voice Security Options), maintaining DN information and voice services (voice menus, announcements, thru-dialers, and Time-of-Day Controllers) once they have been created at the customer administration level, and setting Outcalling options (such as how many days of audit data should be stored and the maximum number of outcalling channels). (Voice Forms can only be created and maintained at the customer administration level. Service DNs and voice menu applications can only be created at the customer administration level, but can be viewed and modified while you are logged on as system administrator.)

- *Fax Administration*

  Fax administration involves configuring parameters which affect all fax services configured on the system. These parameters include the maximum number of fax delivery channels, and the maximum number of call attempts to handle per channel acquisition.

  Note: The Fax on Demand feature is described in detail in the *Fax on Demand Application Guide* (555-7001-327).

- *Hardware Administration*

  Hardware administration involves viewing the contents of the hardware database of the system. Hardware Administration will provide details of the number of nodes in the system, and the type of cards and ports that have been configured for those nodes. This information can be printed from the Hardware Administration menu. Hardware Administration does not, however, involve modification of the hardware database. The database is modified using the System Administration Tools described in the *System Administration Tools Guide* (NTP 557-7001-305).

- *System Status and Maintenance*

  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*

  Operational measurements involve 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, Meridian Networking, AMIS Networking and Outcalling), disk usage reports, DSP port usage reports, and fax delivery reports.

- *Network Administration*

  Network administration involves the administration of AMIS and/or Meridian Networking. Meridian Networking allows one Meridian Mail system to communicate with other Meridian Mail systems. AMIS Networking allows users to send messages to and receive messages from users of other voice messaging systems subscribing to the AMIS protocol (which may include other vendors voice mail systems).

  Note: Only one customer can have Meridian Mail Networking enabled. All customer groups can have access to AMIS Networking.

- *Class of Service Administration*

  Class of service administration involves creating and maintaining system classes of service. Classes of service in Meridian Mail determine the feature capabilities of one or more mailboxes. The administrator creates classes of service and then assigns mailboxes to them, based on users' needs and requirements. If the administrator modifies a class of service, the change is propagated to all users who belong to that class of service. (The only exception is personal classes of service which are unique to an individual user mailbox.)

  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 limits for maximum greeting length, number of days read messages are retained, etc.).

  Note 1: Classes of service must be defined before you add users to the system.

  Note 2: Classes of service are new to Meridian Mail Release 9 and replace user models which were found on earlier releases.

Customer administration

The customer administration level is for the configuration of parameters that affect a single customer group only, such as:

- adding users to particular customer groups in the system
- creating voice menu applications and voice forms (if enabled)
- setting voice messaging options

Note: Only users within the same customer group are considered internal callers. Other users on the same Meridian Mail system, but in other customer groups, are considered external.

Customer administration menu hierarchies

Figure 2-3 shows the hierarchy of menus and screens that are available for the customer administrator.

Figure 2-3
Customer Administration menu hierarchy
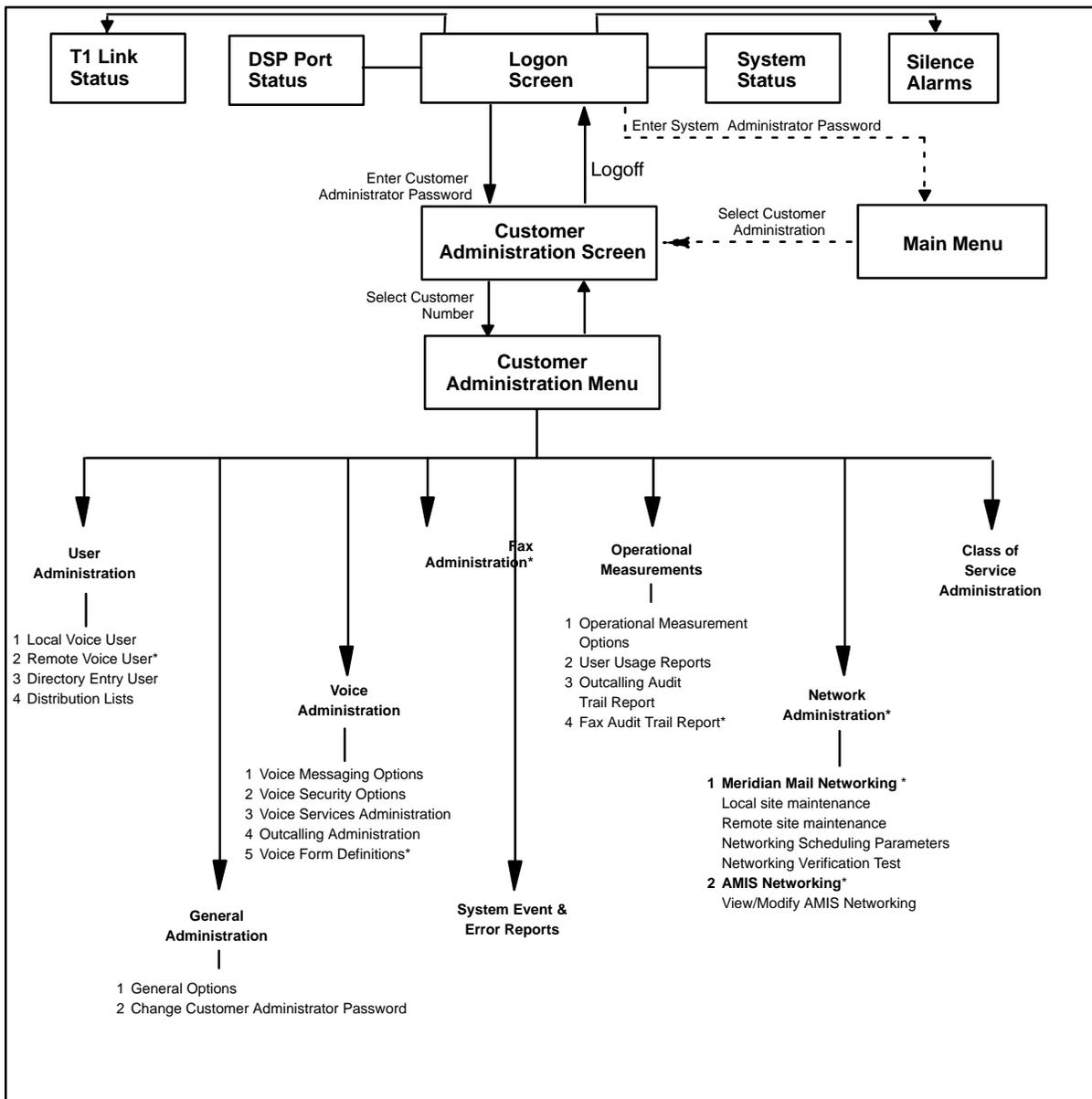
* Available only if the necessary feature is enabled

Tasks of the customer administrator

Customer administration can be broken down into the following tasks:

- *User Administration*

  User administration involves adding new users and maintaining an up-to-date database of users and customer distribution lists as well as carrying out other user-related functions such as recording personal verifications for users.

- *General Administration*

  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*

  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, and Voice Forms) and Outcalling (Remote Notification and Message Delivery to Non-users).

- *Fax Administration*

  Fax administration involves configuring parameters that affect all fax services configured on the system. These parameters include the maximum resolution of fax reception (normal or fine), the maximum number of pages allowed per fax item, fax delivery retries, allowed times for delivery of fax items on weekdays and weekends, and the delivery time limit.

  Note: The Fax on Demand feature is described in detail in the *Fax on Demand Application Guide* (NTP 555-7001-327).

- *System Event and Error Reports*

  System event and error reports display continual information about errors and events occurring in the system. This information is used as a log of events that occurred on the system, and for troubleshooting problems that may arise.

- *Operational Measurements*

  Operational measurements involve collecting statistical data on users' use of the system. This includes local usage, and AMIS Networking and Meridian Networking usage.

- *Network Administration*

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.

Note: Only one customer group can have Meridian Networking enabled. All customer groups can have access to AMIS Networking.

- *Class of Service Administration*

 Class of service administration involves viewing class of service definitions, if necessary, before assigning them to a customer group. Classes of service are created, modified, and deleted by the system administrator only. However, as customer administrator, you may need to check these definitions from time to time.

 Meridian Mail classes of service are essentially mailbox classes of service since each mailbox on the system is assigned to a particular class of service. The class of service determines which features are available to the user as well as certain minimum and maximum operating parameters. Certain parameters are common to both the VMUIF and MMUI interfaces, whereas others are specific to a particular interface.

At the administration terminal

The setup and operation of your system involves work at the administration terminal. 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. Some of the administration tasks that you can access are described in more detail in separate user guides. A general description of these tasks is provided in this document for consistency along with a reference to the appropriate user guide.

Multiple administration terminals

Note: In previous releases of Meridian Mail MSM, MATs were referred to as UATs.

Secondary terminals can also be connected to the MSM and used to access a subset of the customer administration functionality. All administration terminals connected to the MSM are referred to as multiple administration terminals (MATs). Up to four multiple administration terminals are supported: one main administration terminal and up to three secondary terminals.

From the MATs, you can

- perform user administration
- perform voice services administration (such as creating or modifying voice services)
- view class of service definitions

If more than one administrator accesses a user, customer distribution list, or voice service at the same time, the administrator who first gained access to the entry is the only one who can modify the information. The information displayed on the other terminals will be read-only, and the [Exit] softkey will be available instead of the [Save] and [Cancel] softkeys.

For information about configuring multiple administration terminals, see the "Configure MATs" chapter in *System Administration Tools* (NTP 557-7001-305).

At the telephone

To create the various voice recordings required for your system, you must use a telephone as well as an administration terminal. The basic procedures for creating voice recordings are described in detail in Chapter 7, "Making recordings." You may create the following types of voice recordings:

- personal verification recordings
- customized customer greeting (MMUI only)
- introductory tutorial greeting (VMUIF only)
- broadcast mailbox personal verification

You can also perform Voice Prompt Maintenance from the telephone.

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 using their telephone sets.

Verifications can also be recorded for Meridian Mail network sites. If no verification is recorded, a recording of the site number is played when callers are connected to a remote user's mailbox to leave a message. This is used to identify the site. If a personal verification has been recorded, the site name is played instead, making identification easier.

Customized call answering customer greeting

This greeting is played to external callers who reach an MMUI call answering service and is simply a recording of the customer group name (for example, the company's name). It is played before any personal greetings.

Introductory tutorial greeting

This greeting is played to users belonging to VMUIF customer groups only, 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.

Broadcast mailbox personal verification

A broadcast message is deposited in the mailboxes of all Meridian Mail users in a customer group.

Voice Prompt Maintenance

This is the routine recording of prompts, announcements, and greetings used in various voice services.

Nightly system audits

During the night, several background utilities run to reclaim system resources and improve the performance of the system. These utilities are

- DR (organizational directory) audit
- Volume server audit
- Garbage daemon
- Operational Measurements collector

> **CAUTION**
> **Risk of administration tasks being unsuccessful during an audit**
> You should not try to perform any administration tasks during an audit. These tasks may be unsuccessful and could cause problems.

DR audits

The *organization directory*, or DR, contains information about users, voice services, and customer groups. A DR audit is performed if the DR has changed during the day due to administrative modifications (such as adding or deleting users and/or services), or if the previous evening's audit did not finish. The purpose of the audit is to rebalance (clean up) the system by removing obsolete data, reorganizing internal directories and so on.

The DR changes whenever you do any of the following:

- *User Administration*

  This includes adding, modifying, or deleting users

- *Voice Services Administration*

  This includes adding, modifying, deleting Directory Numbers (DN) in the Voice Services Directory Number (VSDN) table, as well as adding, modifying or deleting voice and fax service definitions (announcements, thru-dial services, Time-of-Day Controllers, voice menus, and fax items).

- *Adding customer groups*

If performed, the nightly audit begins at 3:30 a.m. (by default) and can take anywhere from a few minutes to *three hours*. Three hours is the maximum duration of the audit. 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. You will know when the audit starts and ends because a SEER is generated at the start and the end.

> **CAUTION**
> **Risk of operations failure**
> If an audit is in progress, do not perform any User Administration, or Voice Services Administration. These operations will fail if attempted during the audit, and a number of SEERs, including 3135, will also be generated.

Volume server audits

The volume server audits are always done on every volume in the system each night. This audit reclaims disk space by reorganizing the file system. It also rebuilds system information. The audit begins at 1:30 a.m. and will continue until it is finished. The length of the audit depends on how many files have to be reorganized. You will know when the audit starts and ends because a SEER is generated.

Garbage daemon

The garbage daemon is started by the volume server audit to delete messages that users have read and that have passed their maximum read message retention limit. The garbage daemon runs until it is finished and all of the old messages have been deleted. The *Maximum Read Message Retention* field is configured in the Voice Messaging Options screen. For more information about the Voice Messaging Options screen, refer to Chapter 9, "Voice Administration."

The length of time that the garbage daemon runs depends on how many messages have to be deleted. You will know when the garbage daemon starts and ends because a SEER is generated.

Operational Measurements collector

The Operational Measurements collector starts at 4:30 a.m. and does three things:

- summarizes the billing data that has been collected for each day
- creates a user usage report that totals the billing data for each user on the system
- deletes the old billing information (that is, information that is older than the date entered in the *Number of Days of User Usage Data Stored* field in the Operational Measurements Options screen)

System Administration screens: menus and screens

System Administration screens and menus conform to the general layout shown in Figure 2-4. 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 from which you can select. Some fields may already be filled in with default values. Usually, this default value can be changed as needed.

Figure 2-4
General screen layout

a) Layout for a menu

title — **Sample Menu**

Components of
the menu

```
1 First item

2 Second item

3 Third item
```

Message line — Text of a message or prompt appears on this line
Response line — Text of a response/error message appears on this line

Softkey area — Label 1   Label 2   Label 3   Label 4   Label 5

b) Layout for a screen

title — **Sample screen**   MORE ABOVE

Components of
the screen

```
Free-form data field:  _____

Selectable data field: [No]  *Yes
```

MORE BELOW

Message line — Text of a message or prompt appears on this line....
Response line — Text of a response/error message appears on this line ....

Softkey area — Label 1   Label 2   Label 3   Label 4   Label 5

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

Softkeys

Softkeys appear on the bottom two lines of menus and screens and are
displayed in reverse video (dark characters on a light background). The
softkeys that appear 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 2-5.

Keypad functions

Figure 2-5 also shows the other functions that are available on the keypad by pressing the keys shown.

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

Note: The functions shown in Figure 2-5 are only available if the application 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 setup function; for details, consult the documentation for your terminal.

Figure 2-5
Numeric keypad function keys

F1	F2	F3	F4		F1 - Softkey 1
					F2 - Softkey 2
					F3 - Softkey 3
7	8	9	_		F4 - Softkey 4
					1 - Previous word in field
					2 - Next word in field
4	5	6	,		4 - Previous field
					5 - Next field
					7 - Previous page
1	2	3			8 - Next page
					— - Delete field contents
					. - HELP
0		.	ENTER		ENTER - Softkey 5

Note: Shading indicates that the key has no function.

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 you are working in. If you require help with a screen, press the <Help> key. Alternatively, you can press the period (.) on your application keypad (Figure 2-5). The system will display a screen showing explanations of all the fields on the menu or screen you are working in. When you are done, press [Exit] on the Help screen to return to the menu or screen you were working in. Figure 2-6 shows an example of the Help screen for the Main Menu.

2-16 An overview of administration

Figure 2-6
MSM Help example

```
                          MSM Help

  Main Menu
  The Main Menu provides access to all administrative functions
  Softkey Available:
  Logoff          Logs you off the system.
  Description of Menu Items:


  General         To maintain general system options and perform
                  administration tasks.



  _____


  ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐
  │  Exit   │ │ Using   │ │         │ │         │ │ Keypad  │
  │         │ │  Help   │ │         │ │         │ │  Help   │
  └─────────┘ └─────────┘ └─────────┘ └─────────┘ └─────────┘
```
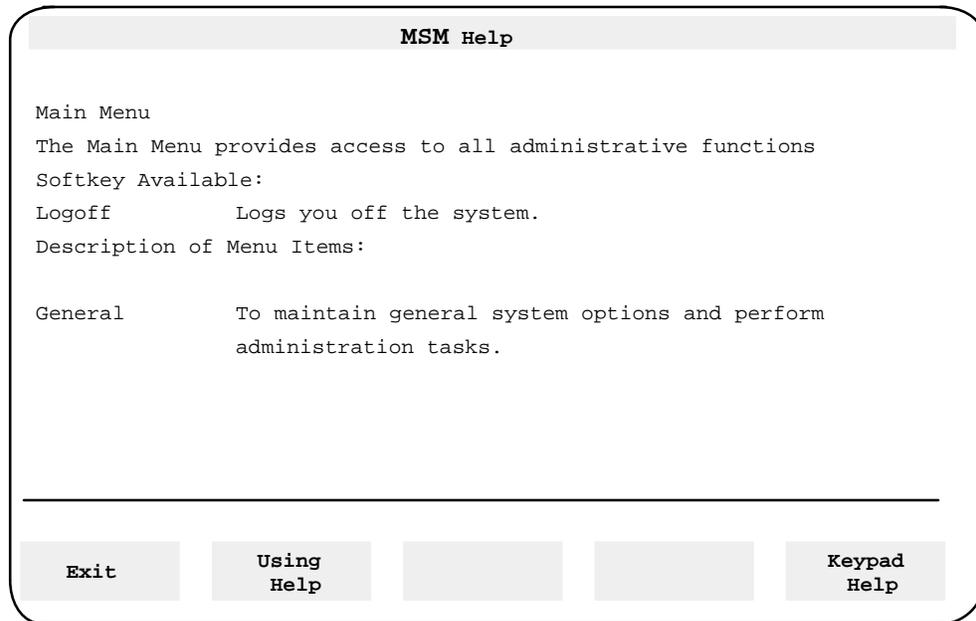
Multipage screens

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 the <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 BE-LOW" 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 text beyond it. To view any text that may appear at the very end of a screen, use the <Next Scrn> hardkey.

- *Paging*

  Press the [Next Page] softkey if it is displayed.

Selecting a numbered item in a menu

In a menu (Figure 2-7), 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 <Return>. The number you enter appears

next to the "Select an item >" prompt. When you press <Return>, the system displays a submenu or screen corresponding to the selected item.

Figure 2-7
Selecting a numbered item in a menu

```
                              Sample Menu


            1   First item
            2   Second item
            3   Third item








    _____

    Select an item >

      Softkey 1        Softkey 2        Softkey 3        Softkey 4        Softkey 5
```
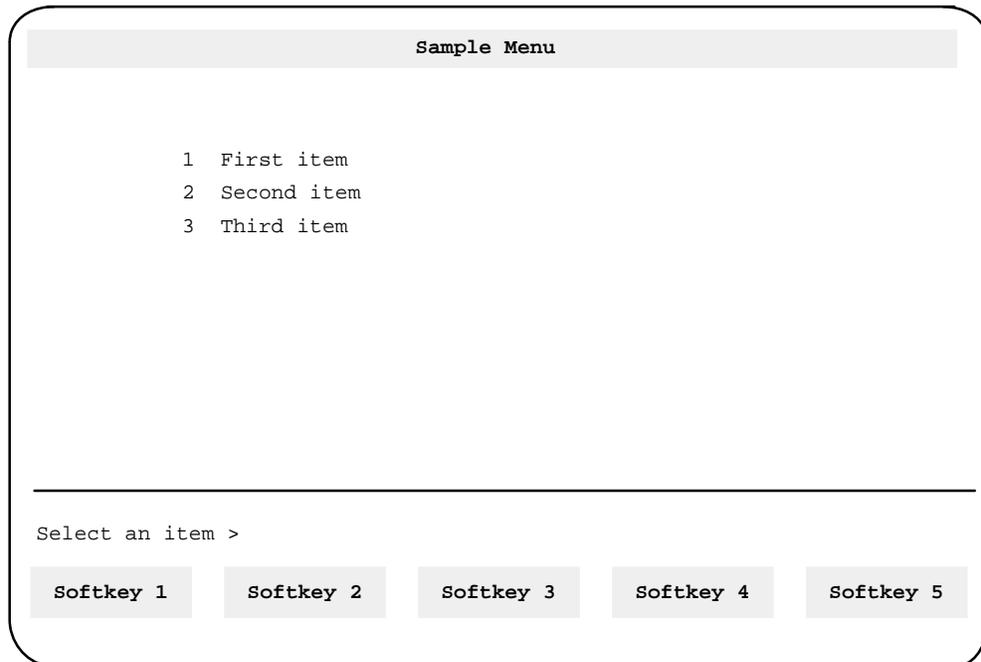
Entering information in a screen

There are two types of modifiable fields in the administration screens. (See Figure 2-8.) *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 2-8
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 BELOW

   Softkey 1        Softkey 2        Softkey 3        Softkey 4        Softkey 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 (shown
in Figure 2-5), 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.
- $<\uparrow>$, the up-arrow key, moves the cursor to the previous field or the
  field above.
- $<\downarrow>$, the down-arrow key, moves the cursor to the next field or the
  field below.

- $< \leftarrow > < \rightarrow >$, 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 content 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 2-1
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.

    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 by pressing 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 2-2
Changing the contents of a selectable field

1   If the field you want to change is below the current cursor position, press one of the following keys to move the cursor to the appropriate field: <Tab>, <Return>, or down-arrow key.

    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 Voice Services DN-Table screen, you must select a number from a list of DNs to indicate which DN 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 such as "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 System Event and Error Reports, SEERS. SEERs are described in detail in Chapter 11 "System Status and Maintenance.") The messages remain on the screen until the user types in more 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.**

On-line help

As described earlier in the "The Help key" section, on-line help is available for most of the menus and administration screens. The <Help> key on the keyboard can be used to display information on whatever screen you are working in. 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 you are working in. When you are done, press [Exit] on the Help screen to return to the screen you are working in.

Screen redraw

If a printer is not activated on the MSM, reports and SEER messages will print to the administrative screen, overwriting the contents of the screen. To redraw the screen and clean up any interfering information, press <Control><r>. You can use this key combination at any time to redraw the screen.

Chapter 3: System security

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 the MSM (such as a user who is logged on to a mailbox or an external caller who has connected to Meridian Mail 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 Meridian Mail administrator to help minimize this risk. These features include:

- Controlling dialing through restriction/permission classes
- Controlling external caller dialing and fax delivery
  — call answering/express messaging thru-dial
  — voice menu thru-dial services
  — fax on demand callback delivery
- Controlling how users use mailbox features
  — mailbox thru-dial (extension dialing)
  — outcalling
  — operator revert
  — call sender
  — AMIS networking
- Controlling access to mailboxes
- Secured messaging option
- Controlling unauthorized access to the administration terminal
- Protecting sensitive information
- Additional precautions for Fax on Demand applications

Controlling dialing through restriction/permission classes

Restriction/permission classes are groups or sets of dialing codes. Each restriction/permission class 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. A dialing code can be an extension number (on the switch) or any telephone number prefix that is used for dialing out of the switch (such as "9" for local calls or "91" for long distance calls, "6" for ESN calls, and so on).

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 class that allows on-switch dialing and local dialing, but not long distance dialing (except to two specific area codes which are allowed). In this example, all mailbox numbers begin with either 2 or 3 and all long distance dialing codes begin with "91". Below is an example of this type of restriction/permission class.

Restriction Codes: 1   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" is. 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 restriction of numbers beginning with "91".

You can define up to four different restriction/permission classes. This is done in the Voice Security Options screen at the system administration level. The default classes 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 class to allow dialing to extensions on the switch 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. Remember that these are only suggestions. You will be responsible for developing a policy for restricting outdialing that is suitable to your organization's needs.

Restriction/permission codes are described in more detail in the section "Voice Security Options" in the chapter "Voice Administration".

Once you have defined the restriction/permission classes in the Voice Security Options screen, you can apply a particular restriction/permission class to each of the following features shown in Table 3-1. This table also indicates the screens you use to apply restrictions to these features.

Table 3-1
Location of features to which restrictions can be applied

Screen	Features
Voice Security Options	Call answering/express messaging thru-dial
Add (or View/Modify) Class of Service	Extension dialing (mailbox thru-dial)
	Custom operator revert
	Remote notification
	Delivery to Non-User
	Call sender
	AMIS networking
Add (or View/Modify) Thru-Dial Definition	Thru-dial services
Session profile (accessed from the VSDN table; necessary only if Fax on Demand is installed)	Fax Information service
	Fax Item Maintenance service
	Voice Menus (that activate fax services)
	Time of-Day Controllers (that activate fax services)

For example, you could apply the "Local" class to extension dialing, but apply the "On Switch" class to custom operator revert.

Note: You can only apply one restriction class to a feature.

Some of these features apply to external callers, some apply to Meridian Mail users, and some apply to both. They are discussed in greater detail in the sections, "Controlling external caller dialing and fax delivery" on page 3-4 and "Controlling user use of mailbox features" on page 3-6.

Settings for new systems

For new systems, (that is, systems that have not been upgraded from a previous release of Meridian Mail), all four of the restriction/permission classes are defined as follows:

Restriction codes: 0   1   2   3   4   5   6   7   8   9
Permission codes: none

The Local class 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 classes. Otherwise, features that outdial (as listed in Table 3-1) will not work.

Settings for converted systems

If you have converted to Release 9 from a previous release in which restriction/permission classes are implemented, the restriction and permission codes remain as they were defined in the previous release. Existing restriction/permission codes are not overwritten with the default settings for new systems (see "Settings for new systems" in this chapter). However, you will have to ensure that the appropriate restriction/permission class is applied to any new features (such as Fax on Demand for Release 9 of Meridian Mail). 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.

Controlling external caller dialing and fax delivery

If Fax on Demand is installed, you will need to determine the restrictions that need to be applied to external callers who request that faxes be delivered using callback delivery where callers can specify the number to which a fax should be delivered.

External callers who gain access to the Meridian Mail system can potentially use thru-dial capabilities to make unauthorized calls if the system does not protect against this.

You will have to decide if you want faxes to be delivered to all numbers, only to local numbers, all long distance numbers, only certain area codes, and so on.

Call Answering/Express Messaging Thru-Dial

During a call answering session, an external 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.)

Thru-dial capabilities are also available to external callers and internal users during express messaging.

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

Thru-Dial services

All thru-dial services you create using the Voice Menus feature must be adequately protected with an adequate restriction/permission class. For thru-dial services, the restriction/permission class is selected in the Add or View/Modify a Thru-Dial Definition screen. You can choose from one of the four classes defined in Voice Security Options screen or you can customize the restriction/permission class 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 Meridian Mail users by applying more rigorous standards when applying restriction codes. For more information about Thru-Dial services, refer to the *Voice Menus Application Guide* (NTP 555-7001-325).

Fax on Demand

If Fax on Demand is installed, determine the restrictions that are to be placed on the callback delivery of faxes.

Fax items can be accessed directly or indirectly through a voice menu or time-of-day controller. When adding the VSDN of the service through which the fax item will be made accessible, you must specify a session profile. In this session profile, you choose the fax delivery method. If it is set to either "Call Back" or "Caller Choice" you will have to specify a restriction/permission class (also in the session profile).

When the delivery mode is "Call Back", external callers will always be prompted to enter the number to which they want the fax item(s) delivered. If "Caller Choice" is selected, callers have the option of choosing callback delivery. The selected restriction/permission class places restrictions on the numbers to which fax items are allowed to be delivered.

You can choose one of the four restriction/permission classes defined in the Voice Security Options screen, or you can create a custom set of restriction/permission codes in each session profile.

For more information about session profiles, see the chapter "Voice Administration".

For more information about Fax on Demand, see the *Fax on Demand Application Guide* (NTP 555-7001-327).

Controlling user use of mailbox features

Restriction/permission classes can be applied to the following features in order to restrict user dialing.

Mailbox Thru-Dial (extension dialing)

Users also have access to thru-dial capabilities while they are logged into Meridian Mail. To restrict users from dialing certain numbers using thru-dial capabilities while logged into Meridian Mail, make sure an appropriate restriction/permission class is applied to extension dialing in the classes of service to which users are assigned. You must choose one of the four restriction/permission classes that are defined in the Voice Security Options screen.

Outcalling

There are two outcalling services: Remote Notification and Delivery to Non-User. Both of these features place calls outside of the system and, therefore, require that you consider which numbers are to be restricted. You must choose one of the four restriction/permission classes that are defined in the Voice Security Options screen.

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. To restrict the target DNs to which users try to send remote notifications, you must assign a restriction/permission class to the Remote Notification feature in the classes of service you set up.

Delivery to Non-User

Delivery to Non-User (DNU) allows a Meridian Mail user to compose and send a voice message to someone who is not a Meridian Mail user. To restrict the numbers to which users are allowed to send voice messages, assign an appropriate restriction/permission class to the Delivery to Non-User feature in the classes of service you set up.

For more information about setting up classes of service, see Chapter 14 "Class of Service Administration".

For more information about outcalling, see the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

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. A restriction/permission class is assigned to the Custom Operator Revert feature in the classes of service you set up.

Call Sender

This feature allows a Meridian Mail user to immediately call back the sender of a message that has just been listened to, by pressing "9". This applies to messages that have been left from a valid DN known by Meridian Mail.

Again, to restrict the numbers which a user can call back, you must apply a restriction/permission class to the Call Sender feature in the classes of service you set up.

AMIS Networking

When a user composes a voice message and tries to send it to an AMIS site (that is not defined as a virtual node), Meridian Mail checks the restriction/permission class that is assigned to AMIS networking to see if it is restricted. The restriction/permission class is assigned to AMIS networking in classes of service. (In the case of Integrated AMIS, where the local site also has Meridian Networking, these restrictions will not apply to remote AMIS sites that are defined as virtual nodes in the local network database.)

Defining and applying restriction/permission classes

To define and apply restriction/permission classes, follow Procedure 3-1.

Procedure 3-1
Defining and applying restriction/permission classes

1   Define restriction/permission classes in the Voice Security Options screen. The Voice Security Options screen is accessed from the Voice Administration menu at the system administration level.

    See page 9-14 in the "Voice Administration" chapter for more information about defining restriction/permission classes in the Voice Security Options screen.

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

    – extension dialing

    – Custom Revert

    – External Call Sender

    – AMIS networking

– Outcalling features (Remote Notification and Delivery to Non-User)

See Chapter 14 "Class of Service Administration" for more information about configuring classes of service.

3   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 class 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 class is assigned to call sender, restricting all long distance dialing. In Class of Service 15, the Long Distance 1 restriction/permission class 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.

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

See the Voice Menus Applications Guide (NTP 555-7001-325) for details.

5   Apply an appropriate restriction/permission class to any directly accessible fax item, voice menu with fax items, or Time-of-Day Controller that activates the fax information service. This is done in the session profile of the VSDN through which the fax item is accessed.

See the section "Defining the custom session profile values for new or existing DNs" in the chapter "Voice Administration", or see the Fax on Demand Application Guide (NTP 555-7001-327) for details.

Controlling access to mailboxes

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

Password prefix

When a new mailbox is created, the default password (for MMUI users) is the user's extension. This means an increased risk of security breaches until the user changes his or her password. The password prefix provides another level of security by adding a short prefix to the (obvious) default password. For example, if a user's extension is 2339, and the password prefix is 34, the user's default password will be 342339.

When the user changes his or her password, the prefix is no longer necessary. This field is blank by default. You must, therefore, enter a value for each customer group for this prefix to take effect. The prefix does not apply to existing mailboxes since it is added to the password only when a mailbox is first created.

Password change

The mailbox password is changeable by both the administrator and the mailbox user. It can be altered as often as desired. To force 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*.

Password length

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 for MMUI customers. (The default is 4.)

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 fields that 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 reenabled by the administrator.

Secured messaging option (external logon)

External logon is enabled by default, allowing users to log on to their mailboxes from phones that are external to the switch. If security is of the highest priority, Meridian Mail provides a facility allowing the system to restrict access to a mailbox from an off site location. This option (SW7007) 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 reenabled.

Controlling unauthorized access to the administration terminal

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

Administration password

The administration terminal is password protected. When Meridian Mail is first installed, there is a default password. The first time you log on to the Meridian Mail 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 breech the system's security.

See Chapter 6 "Administrator logon" for more information.

To protect your system, always log off before you leave the administration terminal, even if you leave it for only 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).

- A SEER indicates a failed administrative logon attempt.

Remote access restriction

MSM systems have an internal modem which is enabled using the <Ctrl><w><m> key sequence. When a remote access session is in progress, local access is prohibited.

Remote access should not be enabled unless required (for example, for remote support personnel to work on your system.)

See the section "Using a remote terminal" in Chapter 6 "Administrator logon".

If the system is equipped with AdminPlus and is configured for a remote console, be sure that remote access from a remote AdminPlus console is disabled when not in use.

Protecting sensitive information

If your organization uses information-providing services such as voice menus, announcements, and fax items 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, Thru-Dial services, and fax items. 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, voice forms and fax items, 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

- Add, View/Modify a Fax Item Definition

For more information about Announcements, Voice Menus and Thru-Dial services, see the *Voice Menus Application Guide* (NTP 555-7001-325). For more information about fax items, see the *Fax on Demand Application Guide* (NTP 555-7001-327).

Additional protection for Fax on Demand applications

With the introduction of Fax on Demand in Meridian Mail Release 9, there are a few new security parameters specifically aimed at Fax on Demand applications. These include the session time limit and the maximum number of invalid selections. Both of these parameters are configured in the session profile of the VSDN through which the fax item (or fax item maintenance service) is accessed. For more information about session profiles, see the chapter "Voice Administration". For more information about Fax on Demand, see the *Fax on Demand Application Guide* (NTP 555-7001-327).

Session time limit

The session time limit is defined in the session profile for Voice Menus and Time-of-Day Controllers that activate the fax information service or the fax item maintenance service, as well as for stand-alone Fax on Demand applications. It is the maximum amount of time that a call session is allowed to last. This time does not include the time consumed by Same Call Fax Delivery. This limit can be between 1 and 99 minutes. (The default is 10 minutes.)

Maximum number of invalid selections

This parameter sets a limit on the number of invalid selections that a caller can make while connected to a voice menu that activates fax items. This prevents callers from tying a line up for long periods of time which may prevent other callers from getting through.

Chapter 4: Configuring Meridian Mail MSM services

The configuration of Meridian Mail services involves steps both in Meridian Mail and on the PBX/switch.

The switch configuration involves setting up UCD queues for Meridian Mail services. The MSM configuration involves configuring ports and allocating them to UCD queues, making sure the Channel Allocation Table is configured properly and adding DNs to the VSDN Table.

This chapter describes how to configure the Meridian SL-100 PBX. For configuration details about other PBXs or switches refer to the section "Configuring switches from other vendors" or the appropriate manufacturer's documentation. For CPE Centrex installations, request the appropriate facilities from your telephone company.

Note: When creating customer groups (at the customer administration level, it is recommended that you create a customer group for the main Voice Messaging UCD queue. The VSDN table will contain only the DN for the Voice Messaging service. No users should be assigned to this customer group. You might want to name this customer Main Queue.

What is Uniform Call Distribution (UCD)?

UCD (Uniform Call Distribution) allows a number of telephones connected to the switch (known as *agent positions*) to share equally in answering incoming calls made to one or more voice service DNs. 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, an *agent 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. For example in Figure 4-1, the call in position 1 in the call queue has been in the queue the longest. (It was received before the other calls.) The agent in position 1 in the agent queue has been idle the longest.

The MSM 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 voice service directory numbers (VSDNs) that are configured in MSM are, in effect, UCD directory numbers and/or line DNs (that are defined on the switch). Each directly dialable service (such as a Voice Menu, or Voice Messaging) has a unique VSDN.

The UCD agent positions correspond to the DSP ports through which the MSM is connected to the switch. To the switch, Meridian Mail DSP ports represent a set of "telephones" to which it can distribute calls.

Figure 4-1
A call sequence using uniform call distribution (UCD)
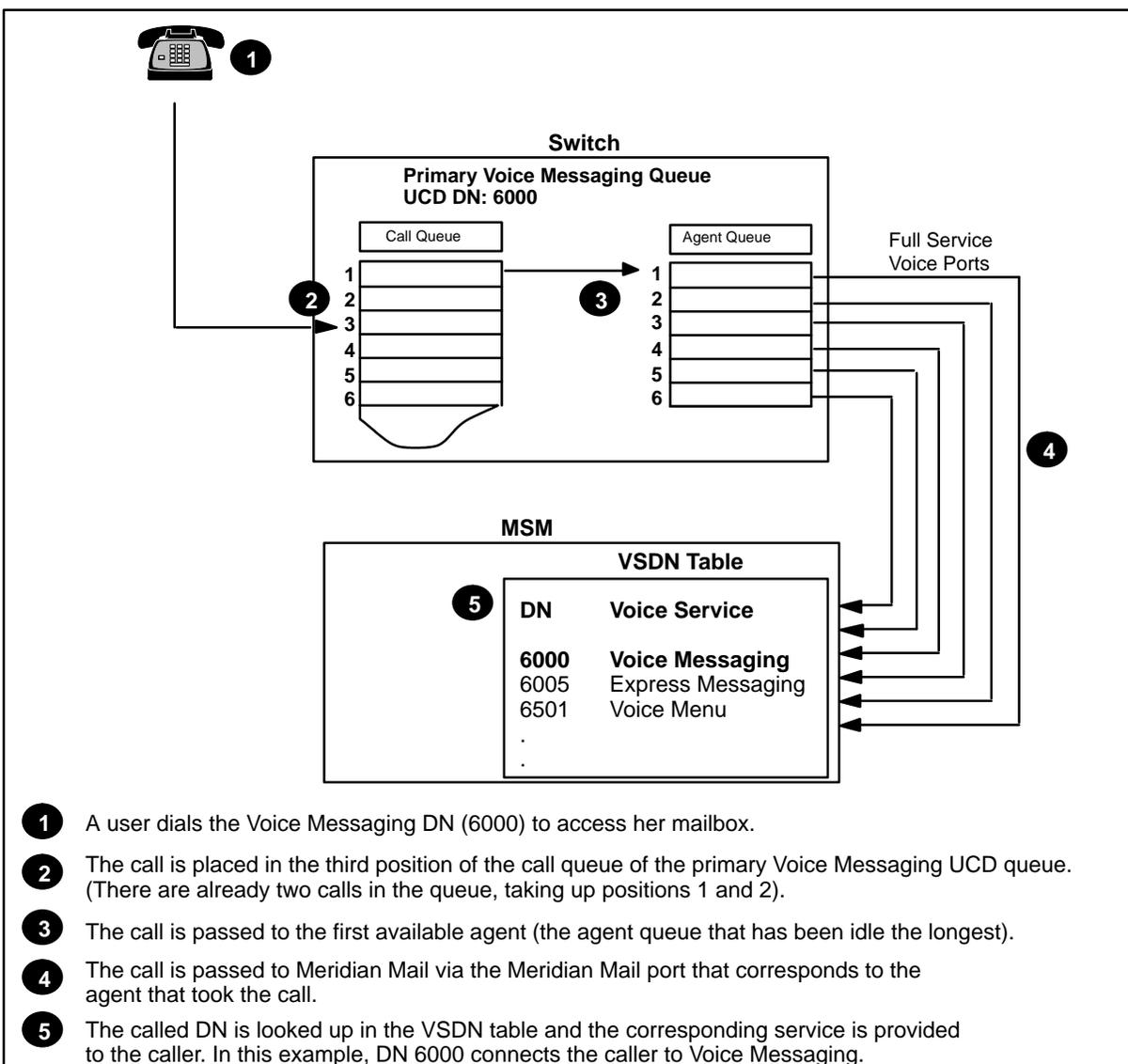
① A user dials the Voice Messaging DN (6000) to access her mailbox.

② The call is placed in the third position of the call queue of the primary Voice Messaging UCD queue. (There are already two calls in the queue, taking up positions 1 and 2).

③ The call is passed to the first available agent (the agent queue that has been idle the longest).

④ The call is passed to Meridian Mail via the Meridian Mail port that corresponds to the agent that took the call.

⑤ The called DN is looked up in the VSDN table and the corresponding service is provided to the caller. In this example, DN 6000 connects the caller to Voice Messaging.

Step 1: Configure the ports on the MSM

Because in this release of Meridian Mail you can have ports of different types and capabilities, the overall procedure for voice service configuration has changed somewhat. Rather than beginning on the switch, you will first have to ensure that ports are configured properly on the MSM, based on the desired number of each port type/capability and the location of the ports. For example, you may decide to spread full service multimedia ports across a number of nodes so that if one node goes down callers will still be able to access fax applications that require multimedia ports.

A detailed overall procedure for planning the configuration of ports is provided in the *Planning and Engineering Guide* (NTP 557-7001-100). The *System Installation and Modification Guide* (NTP 557-7001-215) describes how to configure ports. This involves specifying their type/capacity, the DN of the UCD queue they will be servicing and the corresponding routing address. Once the system has been installed, you can always check the current configuration in the Channel Allocation Table.

Step 2: Decide whether you need a dedicated or shared configuration

You will need a dedicated configuration if:

- there are different port types on your system, in which case you must create a UCD queue for each type of port.

  The reasons for this are explained in the next section "How different mixtures of port types affect configuration".

- you want to dedicate ports to a specific service (for any of the reasons provided in "Factors to consider before dedicating channels to specific services" on page 4-4).

  In this scenario, the initial UCD queues you set up for each type of MSM port will be referred to as *primary UCD queues*. Any other agent queues you create, in order to dedicate ports to particular services, will be referred to as *secondary UCD queues*.

How different mixtures of port types affect configuration

If you have a mixture of port types on your system, you will have to configure one UCD agent queue for each type of port to ensure that services terminate on the appropriate type of port. (See the section "Types and capabilities of ports and channels" on page 11-20 for a description of port types.) For example, if you have all possible types of ports on your system (basic service voice, full service voice and full service multimedia), you will need three separate agent queues. See Figure 4-2.

Figure 4-2
Three UCD agent queues
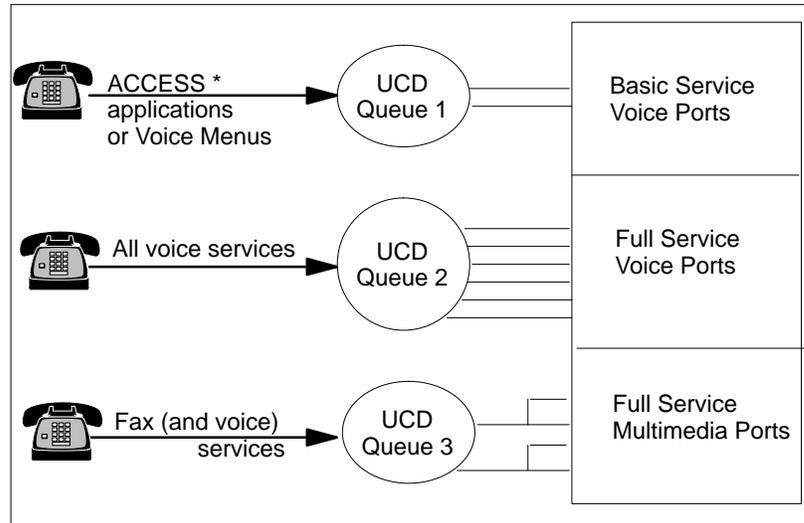
* This includes Meridian IVR applications.

If, however, you have only one type of port on your system (i.e., all ports are either basic service voice, full service voice, or full service multimedia), you will only need to create one agent queue and all other services can share the agents in that queue. This is known as a shared configuration and is illustrated in Figure 4-3.

Figure 4-3
One UCD agent queue—a shared configuration
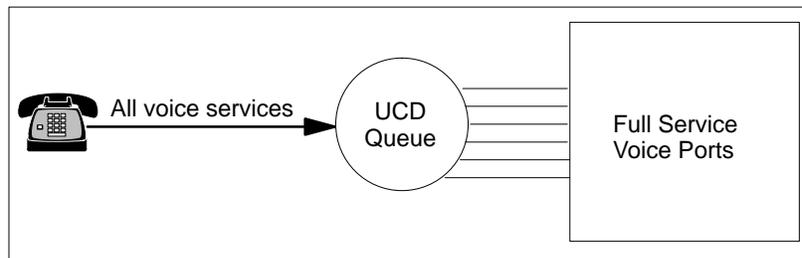
If all ports on your system are of the same type, see the section "Shared configuration". If there are ports of different capabilities and types on your system, see the section "For a dedicated configuration".

Factors to consider before dedicating channels to specific services

Use the following guidelines to help you decide whether you need to dedicate T1 channels to a service:

- It is crucial that an outbound calling service, such as Outcalling (RN and DNU), always has 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.

- Outbound Meridian ACCESS applications are crucial and it is important that an agent always be available.

- If you are only going to be using one voice service in addition to Voice Messaging, it is recommended that you dedicate T1 channels to it.

  For this small number of voice services, you can safely dedicate channels to them without degrading performance since other services will not be competing for these channels.

- Try to keep the number of dedicated ports to a minimum.

  In general, DSP ports are used more efficiently in a shared configuration because:

  — A DSP port/T1 channel that is dedicated to a particular service cannot be used by other outbound calling features (e.g., Remote Notification and Delivery to Non-Users) to place calls.

  — When a DSP port/T1 channel is dedicated to an outbound calling service, this service can only use the dedicated ports/channels to make outbound calls (i.e., it cannot use a DSP port configured for "ALL" services.)

  For example, your system has 48 T1 channels. Ten of them are shared by all services (and belong to the primary Voice Messaging queue). You dedicate two of your DSP ports to the Outcalling feature. When the networking service places a call, any of the 46 shared DSP ports can take the call. However, a emote notification call or a delivery to a non-user can only use one of the two DSP ports dedicated to Outcalling (because of the second restriction).

When a DSP port is dedicated to a service, incoming calls from the switch are still accepted on that DSP port. This is because the switch, not the MSM, is in control of incoming calls. You can, however, prohibit incoming calls on a dedicated DSP port. For example, you can prohibit other services, such as Voice Messaging and Voice Menus, from using the DSP ports dedicated to Outcalling. This is described in the section "The Channel Allocation Table" in Chapter 11 "System Status and Maintenance".

Step 3: Configure the SL-100

After you have configured all of the ports on the MSM, and you have decided whether you need to configure a dedicated or shared system, you can complete the steps in this section. If you are configuring a dedicated configuration, refer to the next section "For a dedicated configuration". If you are configuring a shared configuration, refer to the section "For a shared configuration".

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 a dedicated configuration

If you are configuring the SL-100 for a dedicated configuration, you would do this for one of two reasons:

- your system uses more than one type of port.

  This is typically done during the initial installation of your system. Up to three UCD queues may be required: one for basic service voice ports, one for full service voice ports and one for full service multimedia ports. If you have more than one type of port on your system, follow the procedure outlined in the section "When you have a mixture of port types on your system".

- In addition to your primary agent queues, you may decide to create a number of secondary agent queues in order to dedicate ports to specific services.

  Follow the steps outlined in the next section "When you want to dedicate ports to services".

When you want to dedicate ports to services

If you need to dedicate a voice service to one or more voice ports, follow the steps below:

1 Determine the number of agents required for the given voice service.

  a. Create a secondary UCD queue on the switch. See Procedure 4-3 on page 4-16.

b. Add agents to the secondary queue.

If you are using existing agents, move them from one of the primary agent queues. *Make sure you move them from the appropriate queue.* For example, if the service to which you are dedicating ports requires full service voice ports, make sure you move agents from the primary agent queue that is serviced by full service voice ports. If you are adding new agents to the system to support additional services, add them directly to the secondary UCD queue.

Procedure 4-6 on page 4-19 describes how to move agents. Procedure 4-3 on page 4-16 describes how to add new agents.

Note: For third-party PBXs (ROLM or AT&T), you will need a second VoiceBridge unit in order to dedicate lines to a particular service.

2   Procedure 4-1 on page 4-14 describes how to configure line DNs for voice services.

These line DNs must be set up so that they forward to the appropriate UCD queue.

3   If you have purchased new agents and need to add them to the system, see Procedure 4-3 on page 4-16.

4   If you have moved agents from the Voice Messaging queue to the new service queue, go to the Channel Allocation Table in the MSM.

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 the UCD queue (the UCD DN) is the directory number of the new voice service.

Enter this DN in the VSDN Table in the MSM.

Note: The following procedures assume that ports have been configured on the MSM. See the *System Installation and Modification Guide* (NTP 557-7001-215) for details.

When you have a mixture of port types on your system

If there is a mixture of port types on the system (full service voice, basic service voice and/or full service multimedia), the switch has to be configured somewhat differently. If, for example, you have all three of full service voice, basic service voice and full service multimedia ports, you will need three UCD agent queues. This is because all the ports that service a particular agent queue must be of the same capability (full service or basic service) and type (voice or multimedia).

For a system with all three possible port types you would do the following:

1   Create a UCD agent queue configured for Voice Messaging.

This queue will be serviced by all of the full service voice ports on the system. This queue is referred to as the *primary Voice Messaging queue*. Follow Procedure 4-6 on page 4-19.

2   For each additional MSM service that requires full service voice ports, create a dummy queue.

Forward the queue to the primary Voice Messaging queue. Follow Procedure 4-6 on page 4-19 and Procedure 4-7 on page 4-21.

3   For each additional MSM service that requires full service voice ports, create a line DN.

Call forward the line DN to the primary Voice Messaging queue using CFF or CFU. Follow Procedure 4-3 on page 4-16 and Procedure 4-4 on page 4-18.

4   Create a UCD agent queue that is serviced by all of the basic voice ports on the system.

This queue can be configured for a particular service (such as a Meridian ACCESS application or a voice menu). Follow Procedure 4-6 on page 4-19.

5   For any additional Meridian ACCESS applications and voice menus that require basic service ports, create a line DN that call forwards to the UCD agent queue that is serviced by the basic service ports.

Follow Procedure 4-3 on page 4-16 and Procedure 4-4 on page 4-18.

6   Create a UCD agent queue that is serviced by all of the full service multimedia ports on the system.

This queue can be configured for a particular Fax on Demand application. Follow Procedure 4-6 on page 4-19.

Note: Fax on Demand applications only require full service multimedia ports, if the *Channel Capability Required* field in the Session Profile screen is set to "Full_Multimedia". For more information about session profiles, refer to the section "Defining the custom session profile values for new or modified DNs" on page 9-42.

7   For any additional Fax on Demand applications (or voice menus that invoke fax items) that require full service multimedia ports, create a line DN that call forwards to the UCD agent queue that is serviced by the full service multimedia ports.

Follow Procedure 4-3 on page 4-16 and Procedure 4-4 on page 4-18.

Example of a dedicated configuration
Figure 4-4 illustrates the following dedicated configuration:

- There is a mixture of full service voice, full service multimedia, and basic service ports on the system.

- The primary Voice Messaging queue (UCD Queue 1) is serviced by all of the full service voice ports on the system.

  The UCD DN is 3650.

- A line DN has been configured for Express Messaging.

  The line DN is 3651. The queue forwards calls to DN 3650.

- An agent queue (UCD Queue 2) has been configured to be serviced by all of the basic service ports on the system.

  This queue is directly accessed by Meridian ACCESS Application 1. The UCD DN is 3655.

- A line DN has been configured for Voice Menu 1.

  This menu does not invoke any fax services that require multimedia ports or voice services that require voice ports. The line DN is 3659. It call forwards to DN 3655.

- An agent queue (UCD Queue 3) has been configured to be serviced by all of the full service multimedia ports on the system.

  It is directly accessed by the Fax Item Maintenance service. The UCD DN is 3652.

- A line DN has been configured for Voice Menu 2 which invokes several fax items.

  The line DN is 3660. It night call forwards to DN 3652.

Figure 4-4
Sample dedicated configuration
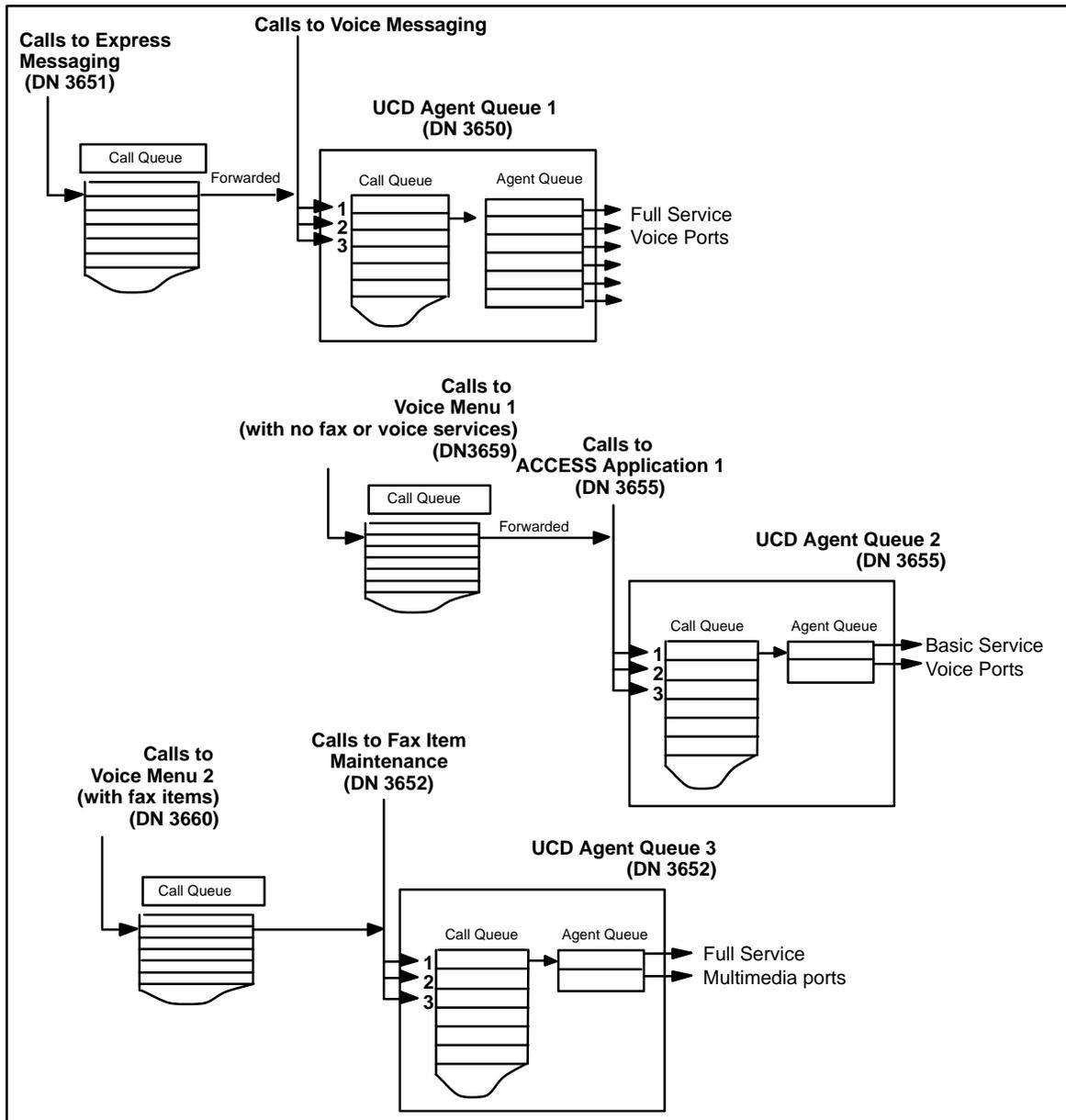
For a shared configuration

If you are using the shared configuration (as shown in Figure 4-5), the following procedures are relevant to you. Steps 1, 2 and 4 must be followed for all systems. Step 3 is necessary only if you are adding new agents.

1   Configure the primary UCD queue.

You can use this queue to support the Voice Messaging feature, or you can choose not to support a particular service with this queue, but instead forward the Voice Messaging line DN and all other services to this main queue. This step is described in the *Installation Guide*.

2 For each service that it is to be directly dialable, create a line DN on the switch.

See Procedure 4-1 on page 4-13.

3 Call forward the line DN (using CFF or CFU) to the primary UCD queue.

This is described in Procedure 4-2 on page 4-15.

4 Configure the VSDN table on the MSM.

You will use the line DNs you have configured on the switch as VSDN entries. This is described in "Define the VSDNs" on page 4-21.

Note: For third-party PBXs (ROLM or AT&T), configure a line DN for each voice service. Forward the line DN to the DN of the VoiceBridge.

Example of the most common shared configuration

If Fax on Demand is not enabled on your system and all of the ports in your system are of one type (either all basic service voice or full service voice), the most common switch configuration is as follows:

• One UCD agent queue.

This queue is configured for Voice Messaging and is referred to as the *primary Voice Messaging queue*. This queue will contain all of the agents/ports on the system.

• For each additional MSM service that is required, create a DN. Call forward the DN to the primary UCD queue using CFF or CFU.

Note: Even though all of the ports on your system may be of the same type, you may want to dedicate ports to particular services for other reasons. These reasons are explained in the section "When you want to dedicate ports to services" on page 4-6.

In Figure 4-5, the Express Messaging service and the Voice Menu service are configured as DNs on the switch that forward to the primary Voice Messaging queue. These three services share the agents in the primary Voice Messaging queue. Figure 4-5 illustrates the following shared configuration:

• The primary Voice Messaging queue contains all of the agents.

The UCD DN is 6000.

• All MSM ports on the system are full service voice.

• A line DN has been configured for the Express Messaging service.

The UCD DN is 6001. This queue night call forwards to the primary Voice Messaging queue.

- A line DN has been configured for the Voice Menu service.

  The UCD DN is 6002. This queue forwards calls to the primary Voice Messaging queue.

Figure 4-5
Sample shared configuration
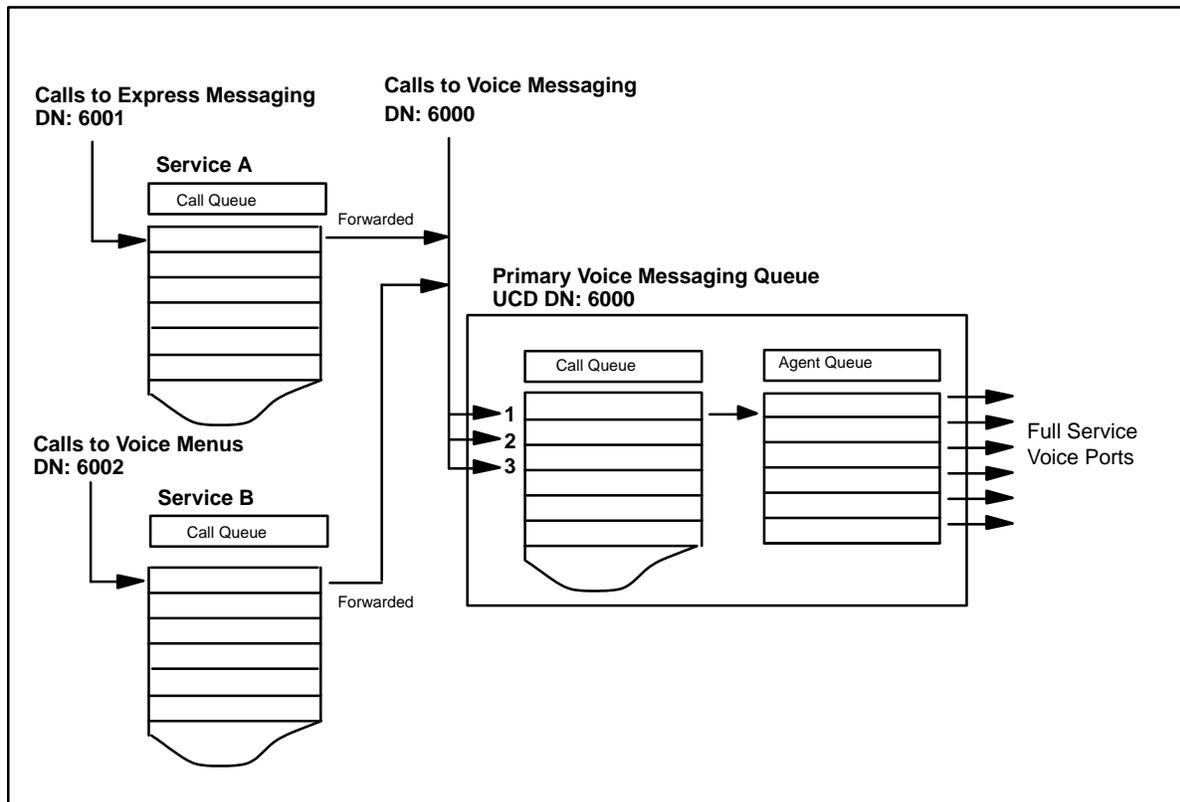
Detailed configuration procedures

If the UCD queue for the Voice Messaging service has not been created on the switch, you will have to do this before you carry on with any of the following procedures. On the Meridian SL-100 PBX, the UCD queue is configured using the UCDGRP table, and the DNROUTE (BCS 32 or up) or WRDN table (BCS 31 and earlier) is used to define the DN for this UCD queue. See the *Translations Guide* (NTP 557-7001-310) for details.

The following sections provide detailed procedures for configuring the Meridian SL-100 PBX. For configuration details for other PBXs or switches, see the appropriate manufacturers documentation. For CPE Centrex installations, request the appropriate facilities from your telephone company.

Configuring line DNs for MSM services

Use the following procedure to configure line DNs on the Meridian SL-100 PBX. Line DNs are not serviced by agents. Instead they call forward to a primary agent queue using CFF (Call Forward Fixed) or CFU (Call Forward Universal). Make sure that you enter the appropriate DN as the CFFDN or CFUDN. The CFFDN/CFUDN must be the DN of the UCD queue that is serviced by a port type that is appropriate to the service that this line DN will support.

Use the procedures in this section as follows:

- Follow Procedure 4-1 to configure a line DN on a Meridian SL-100 PBX that call forwards to the primary UCD queue.

- If you will also be adding new agents to the Voice Messaging UCD queue, see Procedure 4-3.

Procedure 4-1
Configuring line DNs

Switch Configuration (From the MAP terminal)

1   From the CI level, enter **servord** followed by <Return>. Respond to the prompts as indicated in Table 4-1.

   Note: Use either the CFF (Call Forward Fixed) option or the CFU (Call Forward Universal) option to forward the DN to the Voice Messaging queue. CFF is recommended since it is much easier to implement. The CFFDN or CFUDN must be set to the UCD DN of the UCD queue to which the line DN is being forwarded.

Table 4-1
Defining a DN for a voice service

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

** *Choose one of CFF or CFU. Regardless of which option you choose, make sure this is the DN of the appropriate UCD queue (i.e., make sure you forward this line DN to the UCD queue that is serviced by the appropriate port type).*

Prompt	Input	Comments
SO:	NEW	
SONUMBER:	<Return>	Accepts system date and time
DN: *	_____	Directory Number of the line. This is the DN you will enter in the VSDN table on the MSM. For example, 232603.
LCC:	IBN	Line class code of service
GROUP:	_____	Name of the IBN customer group to which the line belongs. For example, covm.
SUBGRP:	_____	Subgroup number. For example, 0.
NCOS:	_____	Network class of service. For example, 1.
SNPA:	_____	Serving NPA (area code) of the DN. For example, 416.
LATANAME:	_____	Local Area Transport Access name. For example, nillata.
LEN_OR_LTID:	_____	Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION:	cfb	Call Forward Busy
CFBCNTL:	N	(Normal assignment for CFB)
CFBDN:	xxxxxxx	The Primary UCD DN. For example, 2326020.
OPTION:	CFF **	Call Forward Fixed
CFFDN:	xxxxxxx	The Primary UCD DN. For example, 2326020.
OPTION:	CFU **	Call Forward Universal
OVRDACR:	N	
OPTION:	$ (All of the data you have entered is displayed. Type Y to confirm.)	

Note: If you are using CFU, additional configuration is necessary. Go to Procedure 4-2 now.

2 Repeat this procedure for each line DN that you require.

If you have configured all of the necessary UCD queues and line DNs, you are ready to configure the MSM. Refer to "Step 4: Configure the MSM" on page 4-20.

If you need to add agents, see Procedure 4-8.

Procedure 4-2
Configuring the CFU (Call Forward Universal) option

Switch Configuration (At the MAP Terminal)

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

1 Use **table cfx** to define the CFU DN. This is the UCD DN of the primary UCD queue to which the voice service DN will forward. Respond to the prompts as indicated in Table 4-2.

Table 4-2
Defining the Call Forward Universal 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 4-1 (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 UCD queue

At a telephone set

2 Connect a phone butt to the line.

3 Go off hook.

4 Call forward the line to the primary 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 IBNXLA first. Check the entry for CFWP. If there is no entry, configure a code. This table is described in the *Installation Guide.*

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

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

Adding new agents to the primary UCD queue

On the Meridian SL-100 PBX, new UCD agents are added using a service
order (servord). Before adding MSM ports, identify which UCD queue they
will be servicing. However, before you can add agents, you will have to
change the maximum number of agents allowed (MAXPOS) in the
UCDGRP table for the primary UCD queue.

When you are ready to add ports to the MSM system, see the *System
Installation and Modification Guide* (NTP 557-7001-215) for instructions.
When you add ports, you will be prompted to designate the Primary DN
which they will service and their port type. This information will be
reflected in the Channel Allocation Table. After adding ports, you should
check the Channel Allocation Table to make sure the *Outbound* field is
configured properly.

Procedure 4-3
Adding new UCD agents to the primary UCD queue

Switch 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 you are going to add
   will be greater than the MAXPOS value, increase MAXPOS to support the new
   agents.

2 From the CI level, enter **servord** followed by <Return>. For each new UCD
   agent, respond to the prompts as indicated in Table 4-3.

Table 4-3
Adding new UCD agents

Prompt	Input	Comments
SO:	NEW	
SONUMBER:	<Return>	Accepts system date and time
DN: *	_____	Directory Number of the line. This is the DN you will enter in the VSDN table on the MSM. For example, 232603.
LCC:	IBN	Line class code of service
GROUP:	_____	Name of the IBN customer group to which the line belongs. For example, covm.
SUBGRP:	_____	Subgroup number. For example, 0.
—continued—		

Table 4-3
Adding new UCD agents (continued)

Prompt	Input	Comments
NCOS:	_____	Network class of service. For example, 1.
SNPA:	_____	Serving NPA (area code) of the DN. For example, 416.
LATANAME:	_____	Local Area Transport Access name. For example, nillata.
LEN_OR_LTID:	_____	Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION:	COD	Cut-off on Disconnect
OPTION:	UCD	Uniform Call Distribution
OPTION:	DGT	Digitone
OPTION:	CNF	Conferencing option.
CNF_TYPE:	C06	6-party conferencing.
OPTION:	SMDI	Simplified Message Desk Interface
LINENO:	_____ _	Line number position in the UCD SMDI group. This corresponds to the Agent ID (AI) on the MSM which must match the number configured here. The AI is configured in Hardware Modification at the Tools level.
UCDGRP:	_____ _	The name of Voice Messaging UCD queue (UCDNAME from the UCDGRP table). For example, c2m5.
AUTO_LOG:	Y	Autologon capability required
OPTION:	$ (All of the data you have entered is displayed. Type Y to confirm.)	
—end—		

Configuring UCD queues

The following procedure applies to both primary agent queues and secondary agent queues.

Procedure 4-4
Creating UCD queues on the Meridian SL-100 PBX

1 At the MAP terminal, enter **table ucdgrp** followed by <Return> to configure a UCD queue. Respond to the prompts as indicated in the *Translations Guide* (NTP 557-7001-310). For the MAXPOS prompt, indicate the number of agents that will be added to this queue.

2 Use **table dnroute** (BCS 32 and up) or **table 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 557-7001-310).

Procedure 4-5
Configuring the CFU (Call Forward Universal) option

Switch Configuration (At the MAP Terminal)

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

1 Use **table cfx** to define the CFU DN. This is the UCD DN of the primary UCD queue to which the voice service DN will forward. Respond to the prompts as indicated in Table 4-4.

Table 4-4
Defining the Call Forward Universal 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 9-1 (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 UCD queue

At a telephone set

2 Connect a phone butt to the line.

3 Go off hook.

4 Call forward the line to the primary 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 IBNXLA first. Check the entry for CFWP. If there is no entry, configure a code. This table is described in the *Translations Guide* (NTP 557-7001-310).

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

Important: If the switch is rebooted, steps 2 to 4 will have to be repeated for each service that CFUs to the primary UCD queue.

If you have configured all necessary UCD queues and line DNs, you are ready to configure the MSM. Refer to the section "Step 3: Configure the MSM" on page 4-20.

Moving UCD agents

Follow this procedure only if you are creating secondary agent queues and need to move agents to them from the primary agent queues.

Procedure 4-6
Moving UCD agents

Switch Configuration

To move UCD agents from the primary UCD queue to the new UCD queue:

1 From the CI level, enter **servord** followed by <Return>. Make sure you move agents from a queue that is serviced by the type of port that is appropriate to the service to which you are dedicating ports. Respond to the prompts as indicated in Table 4-5.

Table 4-5
Moving a UCD agent

Prompt	Input	Comments
SO:	ADO	
SONUMBER:	<Return>	Accepts system date and time
DN_OR_LEN:	_____	DN or Line equipment number of the UCD agent. For example, 2326449.
OPTION:	SMDI	Simplified Message Desk Interface.
LINE_NO:	_____	Line number position in the UCD SMDI group. This corresponds to the Agent ID (AI) in MSM which must match the number configured here. The AI is configured in Hardware Modification at the Tools level. For example, 1.
—continued—		

Prompt	Input	Comments
UCDGRP:	_____	Name of the new service UCD queue to which the agent belongs (UCD-NAME from table UCDGRP). For example, c2m5.
AUTOLOG:	Y	Autologon capability required.
OPTION:	$ (All of the data you have entered is displayed. Type Y to confirm.)	
—end—		

Step 4: Configure the MSM

For the DNs or UCD queues that you create or move, you will also have to create voice service DNs (VSDNs). This is described in "Define the VSDNs" on page 4-21. Only if you have also moved UCD agents will you have to modify the Channel Allocation Table. This is described in the next section "Update the Channel Allocation Table".

Update the Channel Allocation Table

This section describes the information you need to add to the Channel Allocation Table (CAT). For more information about how to use the administration screens that allow you to update the Channel Allocation Table, see Chapter 11 "System Status and Maintenance".

What information does the CAT require?

On the switch you have a number of agents. Each agent corresponds to a T1 channel on the MSM. When the MSM is installed, you define the T1 channel that corresponds to each agent. This information is reflected in the Channel Allocation Table (CAT) on the MSM. (The CAT is accessed from the System Status and Maintenance menu.) The CAT lists each agent that resides on the switch.

For each agent on the switch, the following is specified:

- the corresponding T1 channel on the MSM
- the UCD queue to which the agent belongs
- the agent DN and the service to which the agent/T1 channel is dedicated. (This can be "ALL" for agents that are shared by all services, or a particular service can be specified.)

Procedure 4-7 describes how to update the CAT, is you have moved any agents from one queue to another.

Procedure 4-7
Updating the CAT for agents that have been moved

The following steps are necessary only if you have moved agents from one queue to another.

Starting Point: The Main Menu.

1   Select System Status and Maintenance.

2   Select T1 Channel Status.

3   Disable the ports/channels that you have moved. (See page 11-15 for more information.)

4   Press [Exit] to return to the System Status and Maintenance Menu.

5   Select Channel Allocation Table.

   a.   Select the Link ID that identifies the location of the port/channel that you disabled.

   b.   Press [View/Modify].

      The modifiable Channel Allocation Table appears.

   c.   Modify the *Primary DN* field for each agent that was moved. Enter the *Primary DN* of the queue to which it was moved.

      Note: For AT&T or ROLM configurations, enter the DN of the VoiceBridge.

   d.   Modify the *Channel DN* field for each agent that was moved.

   e.   Ensure that the appropriate port capability is assigned to each agent (full or basic).

   f.   For each agent that was moved to a different service queue, enter the specific service to which it is now dedicated in the *Outbound* field.

   The Channel Allocation Table is described in Chapter 11 "System Status and Maintenance".

6   Reboot the MSM for the changes made to the CAT table to take effect.

Define the VSDNs

For each DN (or UCD queue) that you defined on the switch, you will have to define a corresponding voice service DN (VSDN) on the MSM. This is the number that users dial to access the service. 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. The line DN or UCD DN that is configured on the switch becomes the *Access DN* or *Service DN* of the voice service in MSM. Procedure 4-8 on page 4-23 describes how to define the VSDNs on the MSM.

By configuring a DN for each voice service, users will dial a different access DN to use each different service. 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 requesting them to leave a message.

The flowchart shown in Figure 4-6 outlines the sequence of a call placed to a DN that terminates on a line DN.

The primary UCD queue DN is added to the VSDN table (on the MSM) of one of the customer groups (such as Customer 1, the default customer group). This primary Voice Messaging DN can be used as the Voice Messaging access DN for the users that belong to the same customer group. Each customer group should have its own DN because if all of the users in all of the customer groups were to use the same DN (the DN of the primary UCD queue), a user could get the wrong greeting or service (MMUI instead of VMUIF, for example). The preferred method is for each customer group to have a unique access DN for Voice Messaging.

Figure 4-6
Sequence of a call terminating on a line DN

```
          ┌─────────────────────────┐
          │  Caller dials the Express│
          │  Messaging DN (1001)     │
          └─────────────────────────┘
                     ▼
          ┌─────────────────────────┐
          │ Call terminates on a line DN│
          └─────────────────────────┘
                     ▼
          ┌─────────────────────────┐
          │  Call is forwarded to the│
          │  Primary UCD Queue       │
          └─────────────────────────┘
                     ▼
          ┌─────────────────────────┐
          │ Call is sent to the VSDN table│
          │ to look up which service has │
          │ been requested.          │
          └─────────────────────────┘
                     ▼
          ┌─────────────────────────┐
          │ DN      VSDN Table       │
          │ 1001    Express Messaging│
          └─────────────────────────┘
                     ▼
          ┌─────────────────────────┐
          │  The caller is prompted  │
          │  for a mailbox number.   │
          └─────────────────────────┘
                  ▼ ▼ ▼

     The caller deposits a voice
     message in the specified
     mailbox.
```
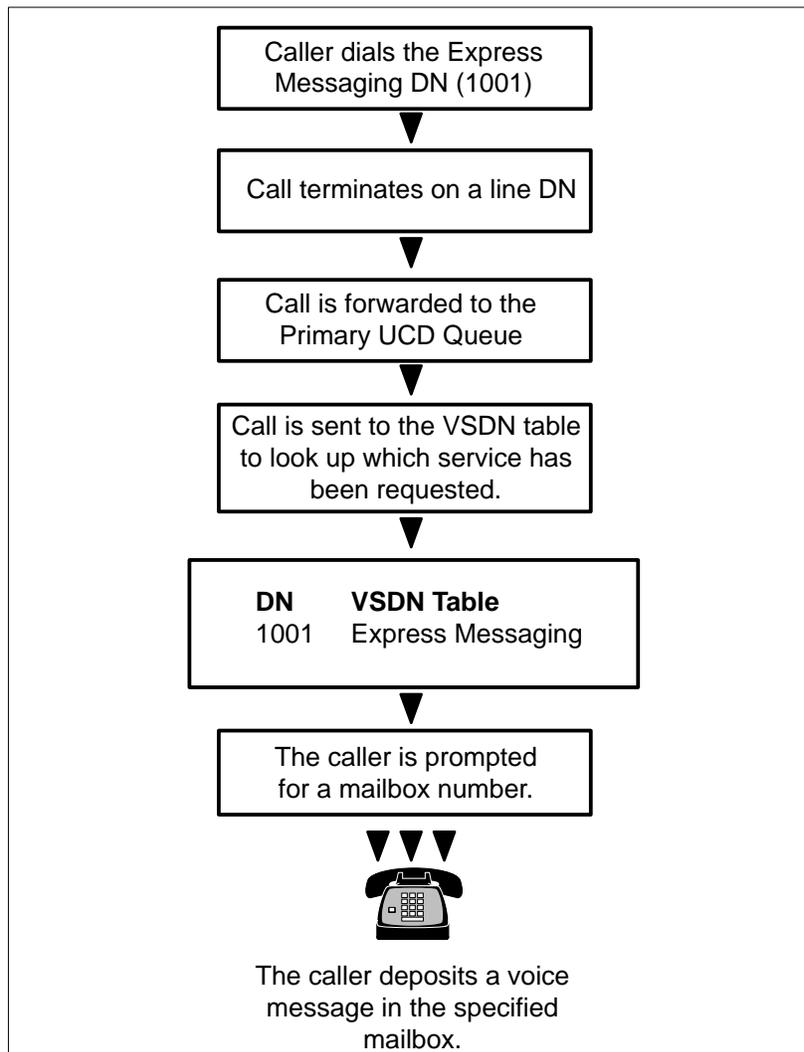
Procedure 4-8
Defining the VSDNs for UCD queues

1   Log on as system administrator at the MSM administration terminal.

2   Select Customer Administration from the Main Menu.

3   Select a customer from the Customer Administration softkey screen.

   The Customer Administration menu appears.

4   Select Voice Administration from the Customer Administration Menu.

5   Select Voice Services Administration.

6   Select Voice Services-DN Table.

7 Add DNs for all services to the VSDN table. For each service, enter the appropriate UCD DN or line DN in the *Access DN* field in the Add DN Information screen.

Note 1: For AT&T or ROLM configurations, enter the DN of the VoiceBridge.

Note 2: See Chapter 9 "Voice Administration" in the *Customer Administration Guide* for more detailed information about adding service DNs.

Adding additional MSM services after installation

To add additional MSM services after your initial installation, carry out the following steps:

1 Identify the services that you need to add.

If there are not enough UCD queues and line DNs configured on the switch to support these new services, they will have to be created.

2 Determine the port requirements of each service.

In other words, does the service need to terminate on a basic service port, a full service voice port or a full service multimedia port?

3 Determine if there are adequate ports of the appropriate type/capability to support these services.

Check the Channel Allocation Table to see how many ports are installed and how many are already allocated. You may need to expand your system if you require more services than can currently be supported by existing ports.

4 If necessary, add and/or reconfigure ports on the MSM using the Port Reconfiguration Utility.

This utility is documented in the *System Installation and Modification Guide* (NTP 557-7001-215).

5 Follow the appropriate procedures for programming the switch.

These are described on the following pages for both shared and dedicated configurations.

6 Follow the appropriate procedures for configuring MSM.

These are described on the following pages for both shared and dedicated configurations.

Configuring PBXs from other vendors

Meridian Connections allows an MSM sytem to be integrated with an AT&T, ROLM, or Meridian 1 PBX. A unit called a VoiceBridge provides the connection. SMDI protocol is used to connect the MSM and the VoiceBridge unit.

DSP ports are connected as individual analog lines to the PBX. Because the VoiceBridge emulates a station set, the VoiceBridge DN is used as the MSM Voice Messaging DN.

In these configurations, you will have to make use of existing call queueing or call distribution functions on the PBX. Since no data link exists between the MSM and the PBX, it is not necessary to use a UCD function to present calls to ports.

Each MSM voice service that will be directly dialable requires a unique VSDN in MSM. On the PBX, you will need to create a corresponding line DN (that has no members). Forward the line DN to the VoiceBridge DN. The advantage of using a line DN is that you do not have to have a physical line available on the PBX, whereas if you configure a DN, there must be a physical line associated with it. If you create a line DN for a service, the DN of the line becomes the VSDN of the MSM voice service. If you create a line DN, the pilot number of the line DN becomes the VSDN of the voice service.

If you want to dedicate lines to a particular service, you need a second VoiceBridge. The DN of the second VoiceBridge unit becomes the VSDN.

Because the exact manner in which you configure voice services is switch-dependent, please see the appropriate documentation for your PBX. The following NTPs provide some guidance for PBX administration:

- *VoiceBridge Installation Procedures for ROLM Switches* (NTP 555-7001-216)

- *VoiceBridge Installation Procedures for AT&T Switches* (NTP 555-7001-217)

- *VoiceBridge Installation Procedures for Meridian 1 Switches* (NTP 555-7001-219)

Chapter 5: Setting up the system

Once the PBX/switch facilities have been provisioned, you are ready to set up Meridian Mail on the MSM system. Before beginning, review the site-specific and user-specific information you have prepared using the forms in the *Planning and Engineering Guide* (NTP 557-7001-100).

Overview

This chapter describes those tasks that are carried out at the system administration level. However, the initial configuration of your system will involve both system administration tasks and customer administration tasks. You should therefore have both this document and the *Customer Administration Guide* (NTP 557-7001-301) 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.

Guidelines for setting up a multicustomer system

Initial configuration of a Meridian Mail 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 the setup for all of the 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 Chapter 6 "Administrator Logon."

Note: When you create customer groups at the customer administration level, it is recommended that you create a customer group for the main Voice

Messaging UCD queue; the VSDN table will contain only the DN for the Voice Messaging service. No users should be assigned to this customer group. You might want to name this customer Main Queue. The reasons why it is recommended that you create a customer group for the main Voice Messaging queue are described in Chapter 4, "Configuring Meridian Mail MSM services."

> **CAUTION**
> **Adding Multi-Customer to an existing system**
> When you install the Multi-Customer feature on an existing system, all existing mailboxes are assigned to the default customer group. To move user mailboxes to the new customer groups, you will have to delete them from the default customer group and then add them to the appropriate customer group.

Step 1

To start your configuration of Meridian Mail, begin with the basic setup procedure described in Procedure 5-1 to:

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

Step 2

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 these are optional and may not be installed on your system. The other procedures in this chapter include

- enabling address expansion
- setting up Voice Menu applications
- configuring Outcalling features
- setting up Voice Form applications
- setting up Fax on Demand applications
- configuring AMIS Networking
- configuring Meridian Networking

- maintaining and servicing your MSM 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 555-7001-325) and the Voice Forms feature is documented in the *Voice Forms Application Guide* (NTP 555-7001-326).

Basic setup procedures

Before carrying out any of the following steps, ensure that the MSM has been properly provisioned on the switch. See the *Planning and Engineering Guide* (NTP 557-7001-100) and the *Translations Guide* (NTP 557-7001-310).

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

Procedure 5-1
Setting up the system

Procedure 5-1
Setting up the system (continued)

Step 1. Check the system status.	
From the Logon/Status screen, press the [System Status] softkey to ensure that the MSM is operational.	See page 6-10.
Step 2. Log on and change the system administrator password.	
Log on to the administration terminal with the default password (adminpwd). You are prompted to change the password the first time you log on.	See page 6-19.
Step 3. Check the hardware configuration.	
Check the node configuration and data port configuration. 1 From the Main Menu, select Hardware Administration, Node Configuration.	See page 10-3.
If the configuration is incorrect, log on to the TOOLS menu, access HW_Modify and correct the configuration.	See "Hardware Modification" in the *System Administration Tools Guide* (NTP 557-7001-305).
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. 1 From the Main Menu, select Hardware Administration, Data Port Configuration.	See page 10-18.
If the configuration is incorrect, log on to the TOOLS menu, access HW_Modify and correct the configuration.	See "Modify hardware" in the *System Administration Tools Guide* (NTP 557-7001-305).
—continued—	

Procedure 5-1
Setting up the system (continued)

Step 4. Check the Channel Allocation Table.	
Note: This step should only be carried out by a qualified technician to ensure consistency between the switch and the Meridian Mail system. This step may have already been carried out by the installation technician.	
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. 1 From the Main Menu select System Status and Maintenance, Channel Allocation Table.	See page 11-26.
Step 5. Configure General Options.	
The parameters that define the general characteristics of the system have to be defined, such as: system name, system number, Access default number, date format, SEER printing, SEER printer port name, and reports printer port name. To configure the general options: 1 From the Main Menu select General Administration, General Options. Do the following:	See page 8-8.
a. Enter the System Name (this is the name that will appear on reports).	
b. Define the System Addressing Length (to enable address expansion).	See "Address expansion" on page 5-6.
c. Enable SEER printing (if you have a printer attached to the administration terminal). If SEER printing is enabled but no printer is attached to the administration terminal, SEERs will overwrite the display on your administration terminal.	
Step 6. Set up dialing translations.	
This step is necessary only if AMIS Networking and/or Fax on Demand is enabled. Define network access prefixes (for local off-switch, long distance and international dialing) and dialing translation tables. These prefixes and tables are used by AMIS Networking and Fax Call Back Delivery. 1 From the Main Menu, select General Administration, Network Dialing Translation.	See the chapter "Setting up dialing translations" in the *Networking Services Administration Guide* (NTP 555-7001-335).
—continued—	

Procedure 5-1
Setting up the system (continued)

Step 7. Define restriction/permission codes.	
THIS IS A VERY IMPORTANT STEP! Restriction and permission 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, unless you have upgraded from an earlier release. 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. 1 From the Main Menu, select Voice Administration, Voice Security Options. 2 Define restriction and permission codes.	See page 9-10.
Step 8. Define classes of service (COSs).	
Each user on the system must be assigned to a class of service. A class of service defines operating parameters for a group of users that have similar needs. When you change a parameter in a COS, all user profiles belonging to that COS are automatically modified accordingly. Up to 127 classes of service can be defined on the system. However, for each customer group, you can assign only up to 15 of these COSs. If you will be configuring any of these features, identify which classes of service need to have these features enabled in order to support users. If you want to configure these services now, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323) and/or the *Networking Services Administration Guide* (NTP 555-7001-335). To define classes of service: 1 From the Main Menu, select Class of Service Administration.	See the chapter 16 "Class of service administration."
Step 9. Configure the operational measurement options.	
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. 1 From the Main Menu, select Operational Measurements, Operational Measurements Options.	See page 12-5.
—continued—	

Procedure 5-1
Setting up the system (continued)

Step 10. Set up and provision customer groups.	
To complete the system setup, there are certain tasks that must be performed at the customer administration level. You can either back up the system now or log on as customer administrator to complete system setup and then back up the entire configuration.	See the chapter "Setting up customer groups" in the *Customer Administration Guide*.
Step 11. Back up the system.	
Once the system configuration has been customized, back up the new data onto tape to ensure its safety.	See page 8-12.
—end—	

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

- creating customer 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

During message addressing, a short form of the mailbox number is entered by the user. The system pads the number to create a full mailbox number. This feature is used to mimic addressing by telephone numbers 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-NXX-XXXX). Depending on the dialing plan of the PBX/switch, the user community may be used to entering 4 to 7 digit numbers. In all cases, 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 Addressing Length** This field is located in the General Options screen (accessed from the General Administration menu) at the system administration level.

The system addressing length is the length of the DNs that are configured on the PBX/switch. In North America, the standard network DN length is 10 digits (in the form NPA-NXX-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.

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, a user might enter an address that is less than the system addressing 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, a user might enter an address that is less than the system addressing 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 second field, *Enforce Prefix*, is associated with the expansion digits fields in the Add DN information screens:

- **Enforce Prefix** This value ensures that addressing is done within a defined set of expansion digits (in the case of Express Messaging), and it ensures that login is done within a defined set of expansion digits (in the case of Voice Messaging).

  The following example illustrates how enforce prefix is used. The address expansion digits are set to the NPA (area code). A user calls into the system from an outside phone to log in and pick up messages. If the caller enters a DN equal to the full system addressing length (10 digits long) to log in from outside the NPA, the entered address is considered invalid. The user is not allowed to enter a DN that is equal in length to the system addressing length and conflicts with the expansion digits.

Examples:

The system addressing length is 10 (e.g., 416-555-2337).

The local addressing length for customer group 50 is four. The expansion digits for Voice Messaging and Express Messaging are 416555.

The local address length for customer group 100 is seven. The expansion digits for Voice Messaging and Express Messaging are 416.

> A user in customer group 50 enters a 10-digit address during message composition. The address is not expanded since it matches the system addressing length. However, the address is a potentially valid address since it matches the system addressing length (10).
>
> A user in customer group 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 user in customer group 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 prefix is enabled for Voice Messaging in customer group 100. A user 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 user is not permitted to log on. (If enforce prefix had not been enabled, the user would be able to log on in this example.)

Procedure 5-2
Enabling address expansion

Step 1. Define the system addressing length.	
To define the system addressing length 2 Log on as system administrator and select General Administration. 3 From the General Administration menu, select General Options. 4 Enter the system addressing length in the *System Addressing Length* field.	See the section "General Options" in Chapter 8 "General Administration."

Step 2. Define local addressing lengths for each customer group.	
To define the local addressing lengths 5 Log on as customer administrator and select a customer group. Select Voice Administration from the Customer Administration menu. 6 From the Voice Administration menu, select Voice Messaging Options. 7 Enter up to two local DN lengths in the *Local Addressing Lengths* field. Repeat this procedure for each customer group.	See the section "Voice Messaging Options" in chapter 9 "Voice Administration" in the *Customer Administration Guide*.
Step 3. Define the expansion digits for the Voice Messaging and Express Messaging VSDNs for each customer group.	
To define the expansion digits 1 Log on as customer administrator and select a customer group. Select Voice Administration from the Customer Administration menu. 2 From the Voice Administration menu, select Voice Services Administration, Voice Services-DN Table. Press the [Add] softkey to add the Voice Messaging DN to the VSDN table. 3 When you enter VM in the *Service* field, two additional fields are displayed (*Mailbox* and *Expansion Digits*). Leave the *Mailbox* field blank, and enter the expansion digits. Repeat this procedure for the Express Messaging VSDN.	See the section "The Voice Services-DN Table" in chapter 9 "Voice Administration" in the *Customer Administration Guide*.

Setting up for Voice Menu applications

Voice Menus includes the following voice services:

- Announcements

- Thru-Dial services

- Time-of-Day Controllers

- Voice Menus

Voice Menu 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 555-7001-325) for more information.

More about setting up optional features

Meridian Mail offers a number of optional features including Outcalling, Voice Forms, Fax on Demand, AMIS (audio messaging interchange specification) Networking, and Meridian Networking.

Setting up the Outcalling feature

The Outcalling feature refers to two functions. The first allows Meridian Mail 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-User (DNU), allows users to compose and deliver messages to non-users of Meridian Mail.

To configure Outcalling, you must first enable Remote Notification and/or Delivery to Non-User in classes of service. There are also a number of outcalling parameters to configure in classes of service. In the Outcalling Administration screen, there are additional outcalling parameters, such as DNU retry limits and intervals, dual tone multi-frequency (DTMF) confirmation, and some pager information. Once these parameters have been set up, you can add users (or assign existing users) to the appropriate class of service in which RN and/or DNU is enabled. At this stage, either the administrator or the user can create a remote notification schedule if Remote Notification is enabled. Once outcalling services are in use, you can monitor them using the Outcalling Audit Trail Report.

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.

Refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323) for detailed planning and configuration instructions.

Voice Form applications

A *voice form* is the electronic equivalent of a paper form. It is "filled out" by callers who dial a special number that connects them to the voice form. (Alternatively, callers can be connected to a voice form through a voice menu or time-of-day controller.) The form is made up of a series of questions that are played over the telephone to the caller. The caller listens to each question and responds by giving a verbal answer. If callers require assistance while responding to a form, they can press 0 to transfer to an operator. (This functionality can be enabled or disabled for each voice form.) The caller's *answers* are recorded and stored in the system as a *response*.

The Voice Forms feature is intended to help fulfill an organization's information-gathering needs. Voice forms can replace paper forms as well as certain information gathering tasks that are currently carried out over the phone (such as order taking).

Voice Forms is an optional feature and may not be enabled on your system. Voice Forms must be enabled for each customer group on the system for which you need to create voice form applications. Voice forms can only be created and maintained at the customer administration level. Unlike voice

menu applications, you cannot modify or delete voice form definitions at the system administration level. All of the voice forms administration tasks are done at the customer administration level.

See the *Voice Forms Application Guide* (NTP 555-7001-326) for more details. For additional information about transcribing voice forms, refer to the *Meridian Voice Forms Transcriber User Guide*.

Fax on Demand

Fax on Demand is an optional feature that is new to Meridian Mail MSM, Release 9.0. It allows you to store fax items in the system and then make them accessible to external callers and internal users.

Fax items can be accessed directly. In this case, the fax service has a unique DN entered in the VSDN table which is published. Depending on how the service is set up, the fax will either be delivered on the same call (only if the caller is calling from a fax phone), or the caller will be prompted for a call-back number. This is the number of a fax phone to which the fax will be delivered at a later time. You can also give callers the choice of choosing same-call delivery or callback delivery.

You can also include fax items in voice menus. This allows you to create fax menus that are collections of fax items only, or combine fax items with other services in your voice menus.

For information about configuring this service, refer to the *Fax on Demand Application Guide* (NTP 555-7001-327).

AMIS Networking

Note: AMIS Networking requires that your system has (or has been upgraded) to use RS-232 instead of current loop service modules. If you need to convert your current loop service modules to RS-232, contact your Nortel support organization.

AMIS Networking is an optional feature and may not have been enabled on your system.

AMIS is a standardized networking protocol that allows users in your Meridian Mail system to compose messages to and receive voice messages from users at other voice messaging sites. This means that the remote users can be part of a voice messaging system other than Meridian Mail, and still be able to send voice messages back and forth.

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. (This is explained in the "AMIS Networking" chapter in the *Networking Services Administration*

Guide [NTP 555-7001-325].) The only requirement is that the voice menu or thru-dialer have direct inward dialing (DID) access. If the Voice Menus feature is not enabled, or if none of your voice menus or thru-dialers have DID access, you will have to configure a DN specifically for the AMIS service in the VSDN table.

AMIS Networking must be enabled in the class of service to which a user belongs for a user to have access to this feature. Unlike Meridian Networking, AMIS Networking can be made available to all users on the system (if necessary), not just one customer group. For more information about Class of Service administration, see Chapter 14, "Class of Service Administration."

For more information about configuring and administering AMIS Networking, in general, see the "AMIS Networking" chapter in the *Networking Services Administration Guide* (NTP 555-7001-335) for details.

Meridian Networking

Note: Meridian Networking requires that your system uses RS-232 instead of current loop service modules. If you need to convert your current loop service modules to RS-232, contact your Nortel support organization.

Meridian Networking is an optional feature and may not be enabled on your system.

Meridian Networking allows users at one Meridian Mail site to compose messages to and receive voice messages from another Meridian Mail site. This type of networking, also known as proprietary networking, requires that each site in the network have Meridian Mail. This is unlike AMIS Networking.

Note: Meridian Networking can only be enabled for one customer group.

For more information about configuring and administering Meridian Networking, refer to the *Networking Services Administration Guide* (NTP 555-7001-335).

Configuring the switch

To configure the AT&T, Meridian 1 or ROLM switch, follow the steps in Procedure 5-3.

Procedure 5-3
Configuring the Meridian Connections service

Step 1. Create a line DN on the PBX/switch.	
Create a line DN on the AT&T, Meridian 1, or ROLM PBX/switch.	Depending on the PBX/switch you are using, refer to one of these books: • *VoiceBridge Installation Procedures for ROLM Switches* (NTP 555-7001-216) • *VoiceBridge Installation Procedures for AT&T Switches* (NTP 555-7001-217) • *VoiceBridge Installation Procedures for Meridian 1 Switches* (NTP 555-7001-219)
Step 2. Create a unique VSDN in the MSM.	
To create a unique VSDN in the MSM: 1 Log on as customer administrator at the MSM administration terminal. 2 Select Voice Administration, Voice Services Administration, Voice Services-DN Table. 3 Add the unique DN to the VSDN table.	See "Adding VSDNs" in the *Customer Administration Guide*.
Step 3. Forward the line DN.	
Forward the line DN that you created on the PBX/switch (using either Call Forward Universal (CFU) or Call Forward Fixed (CFF)) to the primary Voice Messaging UCD queue.	See page 4-24.
Step 4. Create and forward line DNs for dedicated services.	
For each line that you want to dedicate to a particular service: 1 Repeat steps 1 and 2 for each VSDN that you want to create and each line that you want to forward.	

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 5-4
Maintaining and servicing your MSM system

Step 1. Monitor MSM operation.	
Check the performance of your MSM periodically to ensure that efficient use is made of the voice services provided on your system.	See Chapter 12, "Operational Measurements."
Step 2. Monitor MSM hardware.	
Check the operation of MSM hardware periodically, or when a problem is reported by the system.	See the Chapter 11, "System Status and Maintenance" and Chapter 10 "Hardware Administration."
Step 3. Modify user information.	
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 chapter "User Administration" in the Customer Administration Guide.
Step 4. Back up the system.	
When changes are made to your system, back up the new data to ensure its safety.	See the "Volume Administration (tape backup)" section in Chapter 8 "General Administration."

Chapter 6: Administrator logon

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

A remote administration configuration is shown in Figure 6-8. 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.

This chapter describes

- the functions available from the Logon/Status screen
- logging on to the system
- the Main Menu

The Logon/Status screen

The Logon/Status screen (Figure 6-1) appears when the administration terminal is idle. From the Logon/Status screen you can log on as either

- system administrator to perform administration on a system-wide basis
- customer administrator to enter or update customer-specific data only

However, you can press the softkeys on the logon screen to perform several functions before you actually log on:

- Check T1 status.

  "T1 status" describes the T1 status softkeys, how to get T1 link status, and how to get T1 channel status from the Logon/Status screen.

- Check system status.

  "System status" describes how to get system status from the Logon/Status screen.

- Check Digital Signal Processing (DSP) port status screens.

"DSP port status" describes how to get DSP port status from the Logon/Status screen.

- Silence any alarms.

"Silencing alarms" describes how to use the silence alarm softkeys on the Logon/Status screen.

- Reset the system time.

"Resetting the system time from the logon screen" describes how to reset the system time from the Logon/Status screen.

- Enable or disable a remote terminal.

"Using a remote terminal" describes how to enable or disable a remote terminal from the 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, press Ctrl-w (a small window opens up), and type **if** to redraw the screen. (You do not have to press <Return>. The "i" means initialize and the "f" means full screen.)

Figure 6-1
The Meridian Mail Logon/Status screen

```
                              Logon/Status



                      MMM          MMMERIDIAN
                    MMMMM      MMMMMM
                   MMMMMM    MMMMMMM
                  MMM MMM MMM   MMM       MMM          MMMAIL
                   MMM   MMMMMM  MMM       MMMMM         MMMMM
                    MMM    MMM      MMM      MMMMMM     MMMMMM
                     MMM             MMM      MMM MMM MMM MMM
                      MMM              MMM      MMM MMMMM   MMM
                       MMM              MMM      MMM   MMM    MMM
                        MMM              MMM    MMM          MMM
                         MMM              MMM   MMM          MMM
                          MMM              MMM   MMM          MMM
                           MMM              MMM   MMM          MMM
                            MMM              MMM   MMM          MMM



                                          Copyright  (c)  Nortel, 1995
```

Select a softkey >

Logon	T1 Status	System Status	Silence Alarm	DSP Port Status

T1 status

You can access some of the T1 status functions from the logon screen. This section describes the following topics that allow you to use these T1 status logon functions:

- the softkeys that are displayed when you select the [T1 Status] softkey
- how to look at the status of the T1 links
- how to look at the status of the T1 channels

T1 Status softkey

When [T1 Status] is pressed, a new row of softkeys is displayed. These are shown in Figure 6-2.

Figure 6-2
The T1 status softkeys


```
Select a softkey >
```

| | Cancel | T1 Link Status | T1 Channel Status | |
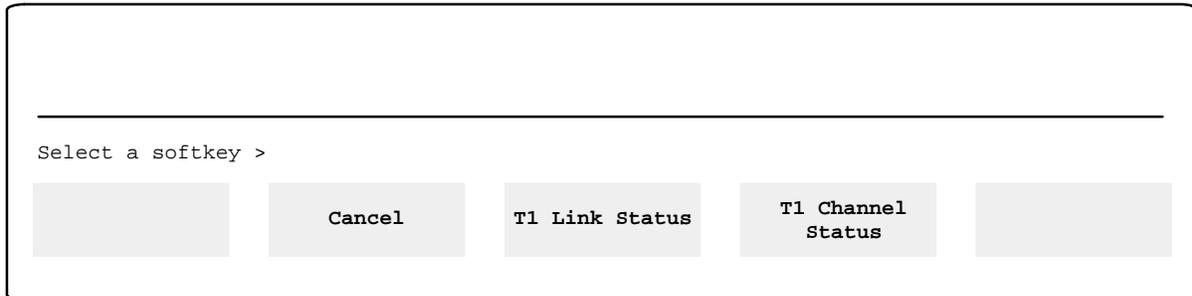
T1 link status

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 (Figure 6-3) is identical to the T1 Link Status screen in System Status and Maintenance. It is, however, read-only when accessed from the logon screen. Only the [Exit] softkey is displayed and you, therefore, cannot disable, enable, or switch any links from this screen. This can only be done when the screen is accessed from the System Status and Maintenance menu. Procedure 6-1 on page 6-7 describes how to get T1 link status.

Figure 6-3
The T1 Link Status screen

```
                          T1 Link Status


T1 Link Status

System Status: InService    Alarm Status:Critical=Off Major=On Minor=Off

         Clocking    Primary Connection              Redundant Connection
Link Cand Mode    T1   T1                         T1     T1
ID               Number Location   Status        Number 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     InSvStandBy
  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
```

The following fields are displayed:

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

  — *InService*   This indicates that all critical programs on all nodes are
    operational and the system is accepting calls.

  — *CourtesyPending*   This 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*   This indicates that the system has shut down and is
    no longer operational nor accepting calls.

  — *Loading*   This 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*   These alarms indicate a service-affecting problem that
    requires immediate attention.

— *Major*   These 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*   These 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*   This 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*   This indicates that one or more alarm situations was detected.

— *Unk*   This 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.

- *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. For more information about clock referencing, see the section "Modifying the T1 link setup" in the "Hardware Administration" chapter.

- *Clocking Mode*   The currently activated clock reference is indicated with an "R" in this field. A link is activated by pressing [Change T1 Clocking Mode] as described in Procedure 11-9 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 MSM clock. Only one link at a time will be the active clock reference.

- *Primary Connection T1 Number*   This is the number of the primary T1 connection within the specified T1 link.

- *Primary Connection T1 Location*   This is 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*   This is the current state of the primary T1 connection.

— *UnEquipped*   This 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 557-7001-305).

— *Faulty*   This indicates that a hardware problem has been detected on the connection.

— *InSvYelAlarm*   This indicates that the T1 link is in service but has lost signaling with the far end.

— *InSvRedAlarm*   This indicates that the T1 link has lost signaling with the near end (host PBX/switch).

— *InService*   This indicates that the T1 connection is fully operational and is currently accepting calls.

— *InSvStandBy*   This 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*   This indicates that the connection is not operational due to a forced disable.

— *Pending*   This indicates that the connection is in the process of shutting down or restarting.

- *Redundant Connection T1 Number*   This is the number of the secondary T1 connection within the specified T1 link.

- *Redundant Connection T1 Location*   This is 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*   This is the current state of the secondary connection. See the descriptions for the *Primary Connection Status* field.

Procedure 6-1
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. (Because this is a read-only screen, only the [Exit] softkey is displayed.)

3   Press [Exit].

A new row of softkeys is displayed.

4   Press [Cancel] to return to the Logon/Status screen.

T1 channel status

Press [T1 Channel Status] 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.) Procedure 6-2 describes how to get T1 channel status.

Figure 6-4
The T1 Channel Status screen
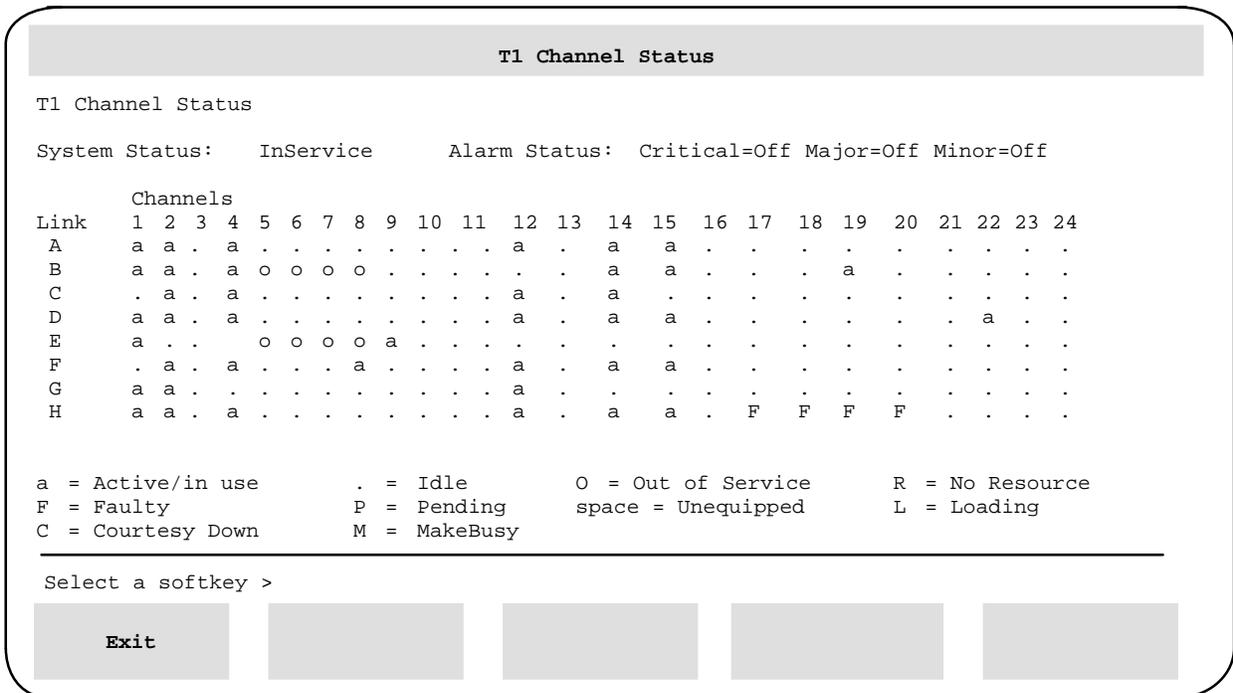
```
                            T1 Channel Status

 T1 Channel Status

 System Status:    InService     Alarm Status:  Critical=Off Major=Off Minor=Off

        Channels
 Link   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 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   │ │          │ │          │ │          │ │          │
 └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘
```

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

- *System Status*   See the description in the section "T1 Link Status" on page 6-5.
- *Alarm Status*   See the description in the section "T1 Link Status" on page 6-5.
- *Link*   This is 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.
- *Channels*   This is 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*   This indicates that the T1 channel is operational and in use.

— *Idle*   This indicates the channel is operational but not currently in use.

— *OutOfService*   This indicates that the channel is no longer operational.

— *No Resources*   This indicates that the T1 channel is available, but there is no software associated with it.

— *Faulty*   This indicates that the system has detected an error in the channel.

— *Pending*   This indicates that the channel is in the process of shutting down or restarting.

— *Unequipped*   This 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 557-7001-305).

— *Loading*   This indicates that the channel is currently starting up after a request to enable, and that the necessary software is loading.

— *Courtesy Down*   This 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. The software remains loaded.

— *MakeBusy*   This 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 6-2
Viewing the T1 channel status

Starting Point: The Logon/Status screen

1   Press [T1 Status].

   A new row of softkeys is displayed.

2   Press [T1 Channel Status].

   The T1 Channel Status screen is displayed.

3   Press [Exit].

   A new row of softkeys is displayed.

4   Press [Cancel] to return to the Logon/Status screen.

System status

The System Status screen (Figure 6-5) is displayed when you press [System Status] 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 Chapter 11 "System Status and Maintenance." Procedure 6-3 describes how to get the system status.

Figure 6-5
System Status screen

```
                              System 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


                   DSP Port/Channel Status              Storage Used
 Node Type   Status Active Idle OutSv Faulty Pending Others Voice   Text

  1   MSP    InService
  2   MSP    InService
  3   SPN    Faulty     0  0      0     12      0       0    32%     40%
  4   SPN    OutOfService0  0     12      0      0       0    41%     6%




 _____

 Select a softkey >

 ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
 │          │ │          │ │          │ │ Next Set │ │          │
 │   Exit   │ │          │ │          │ │ of Nodes │ │          │
 └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘
```

The following fields are displayed in the System Status screen:

- *System Status*   This field displays the current system status. For a description of the system states that can appear in the System Status screen, refer to the descriptions in the "T1 Link Status" section on page 6-5.

- *Alarm Status*   This field indicates the alarm category. For a description of the alarms that can appear in the System Status screen, refer to the descriptions in the "T1 Link Status" section on page 6-5.

- *Last Event*   This is the most recent system event or error report (SEER) logged. This field displays the SEER number, SEER description, date, and time.

- *Node*   This is thhe node number.
- *Type*   This is thhe type of node. A node may be of the following types: MSP (Multi-Server Processor), SPN (Signal Processing Node), and TIFN (Telephony Interface Node).
- *Status*   This is thhe status of the nodes in your system. A node may be in one of the following states:
  - *InService*   This indicates that the node is running and accepting calls. For the MSP node, it indicates that it is the active MSP node.
  - *UnEquipped*   (used with the MSP, SPN, or TIFN node) This indicates that the node is not defined in the hardware database. The "Modify hardware" chapter in the *System Administration Tools* guide (NTP 557-7001-305) describes how to modify the hardware database.
  - *Faulty*   This indicates that a hardware problem is detected.
  - *Loading*   (used with the MSP, SPN, or TIFN node) This 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 MSP or TIFN node) This 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) This indicates that the node is in the process of shutting down (the software is unloading), as a result of a forced disable.
  - *OutOfService*   This indicates that the node is no longer operational, as a result of a forced disable.
  - *Booting*   This indicates that an operating system is being loaded on to the node.
- *DSP Port/Channel Status*   These fields reflect the state of DSP ports on the associated SPN nodes. The entry in each column represents the number of DSP ports in that particular state. A DSP port may be in one of the following states:
  - *Active*   This indicates that the port is operational and is currently in use.
  - *Idle*   This indicates the port is operational but not in use at the moment. The port is ready to accept calls.
  - *OutSv*   This indicates that the associated port is not operational, and is not accepting calls.
  - *Faulty*   This indicates that a hardware problem has been detected in the DSP port.

— *Pending*   This 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.

— *Others*   This 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 reenable 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 6-3
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, press [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   Press [Exit] to return to the Logon/Status screen.

DSP port status

The DSP Port Status screen (Figure 6-6) 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. To enable or disable a DSP port or perform out of service diagnostics, you must access the Card Status and/or DSP Port Status screen from the System Status and Maintenance Menu. See "Card status" and "DSP port status" in Chapter 11 "System Status and Maintenance."

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

Note: If you are using multimedia ports, the maximum number of ports you can have decreases. Each multimedia port takes the space that two non-multimedia ports would take. For example, if your system only uses multimedia ports, you can only have a maximum of 16 ports per node instead of 24.

Figure 6-6
The DSP Port Status screen

```
                            DSP Port Status

DSP Port Status


       Ports
Node   1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

   3   a  a  .  .  .  .  .  .  a  .  .  .  .  a  a  .  .  .  .  .  .  .  .  .
   4   .  .  .  .  a  .  a  a
   5   a  a  .  a  .  .  .  .  .  .  a
   6   .  .  .  a  a  a  .  .  .  .  .  .  .  .  a
   7   a  a  .  .  0  0  0  0  a  .  .  .  .  a  a  .  .  .  .  .  F  F  F  F
   8   a  a  .  .  a  .  a  .  a  .  .  .  .  a  a  .  .  .  .  .  .  .  .  .
   9   a  a  .  .  .  .  .  a  .  .  .  .  a  a  .  .  .  .  .  .  .  .  .
  10   a  a  .  .  .  .  .  a  .  .  .  .  a  a  .  F  F  F  F  .  .  .  .



 a = Active/In use      . = Idle         O = Out of Service    ? = Unknown
 F = Faulty             P = Pending      U = Unequipped        R = NoResource
 L = Loading            C = CourtesyDown
_____

Select a softkey >

    Exit
```

- *Ports*   This is the port number.
- *Node*   This is the node number.
- *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/In use*   This indicates that the DSP port is running and accepting calls.

  — *Faulty*   This indicates that a hardware problem is detected.

  — *Loading*   This indicates that the DSP port is currently starting up and loading software into memory.

  — *Idle*   This indicates that the DSP port is operational but not in use.

  — *Pending*   This indicates that the DSP port is in the process of shutting down. This occurs after pressing [Courtesy Disable] in the DSP Port Status screen that is displayed from the System Status and Maintenance menu. Calls in progress are not interrupted.

— *CourtesyDown*   This indicates that the DSP port has been shut down as a result of a Courtesy Down System, and is no longer operational nor accepting calls. The software remains loaded.

— *Out of Service*   This indicates that the port is no longer operational, as a result of a courtesy disable or forced disable.

— *UnEquipped*   This indicates that the DSP port is not defined in the hardware database. The *System Administration Tools* guide (NTP 557-7001-305) describes how to modify the hardware database.

— *Unknown*   This indicates that the status of the port is unknown.

— *NoResource*   This 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.

Procedure 6-4
Viewing the DSP Port Status screen

Starting Point: The Logon/Status screen

1   Press [DSP Port Status] to view the status of the system DSP ports.

2   Press [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 in Figure 6-7 are displayed.

Figure 6-7
The Silence Alarm softkeys screen
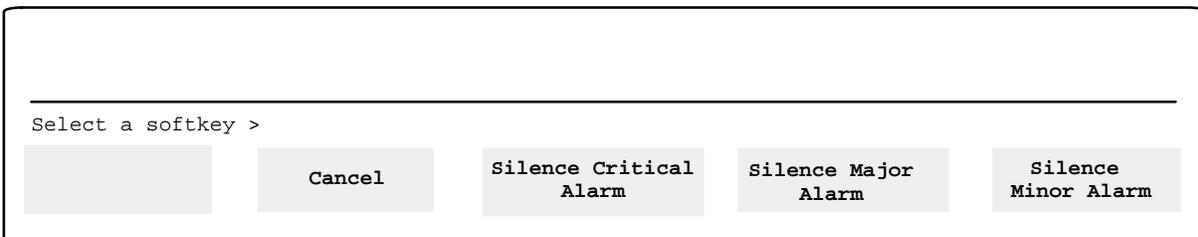
```
┌─────────────────────────────────────────────────────────────────────────────┐
│                                                                               │
│                                                                               │
│   ─────────────────────────────────────────────────────────────────────      │
│   Select a softkey >                                                          │
│                                   Silence Critical   Silence Major    Silence │
│                      Cancel           Alarm             Alarm      Minor Alarm │
│                                                                               │
└─────────────────────────────────────────────────────────────────────────────┘
```

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 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 557-7001-503) and the *Maintenance Messages (SEERs)* manual (NTP 555-7001-510).

Passwords

There are two passwords which give you access to 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*.

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

Resetting the system time from the logon screen

It is possible that the system time may be undefined, as may happen when a time signal is not provided by the MSM. In this case, 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. Procedure 6-5 describes how to reset the system time from the Logon/Status screen. At other times, you can perform optional system time changes as desired. See "Changing the system time" in Chapter 8, "General Administration."

CAUTION
Risk of losing read messages
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 seven days. You set the time ahead by 72 hours. Any read messages that are 4, 5 or 6 days old will be deleted before they are supposed to be according to the read message retention maximum.

Procedure 6-5
Resetting the system time

Starting Point: Logon/Status screen, with the system time incorrect or undefined

1   Press [Logon] to log on to the system.

     You are prompted for the correct time.

2   Enter the date and time in the format indicated, with leading zeroes, slashes, and colon (for example, 31/01/89 09:35).

     The Main Menu is displayed.

3   Press [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 MSM *Trouble-locating and Alarm-clearing Procedures* (NTP 557-7001-503).

Using a remote terminal

If your installation has a remote terminal installed for service personnel, as shown in Figure 6-8 (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. Procedure 6-6 describes how to enable or disable remote access for a remote terminal.

Figure 6-8
A typical remote administration configuration
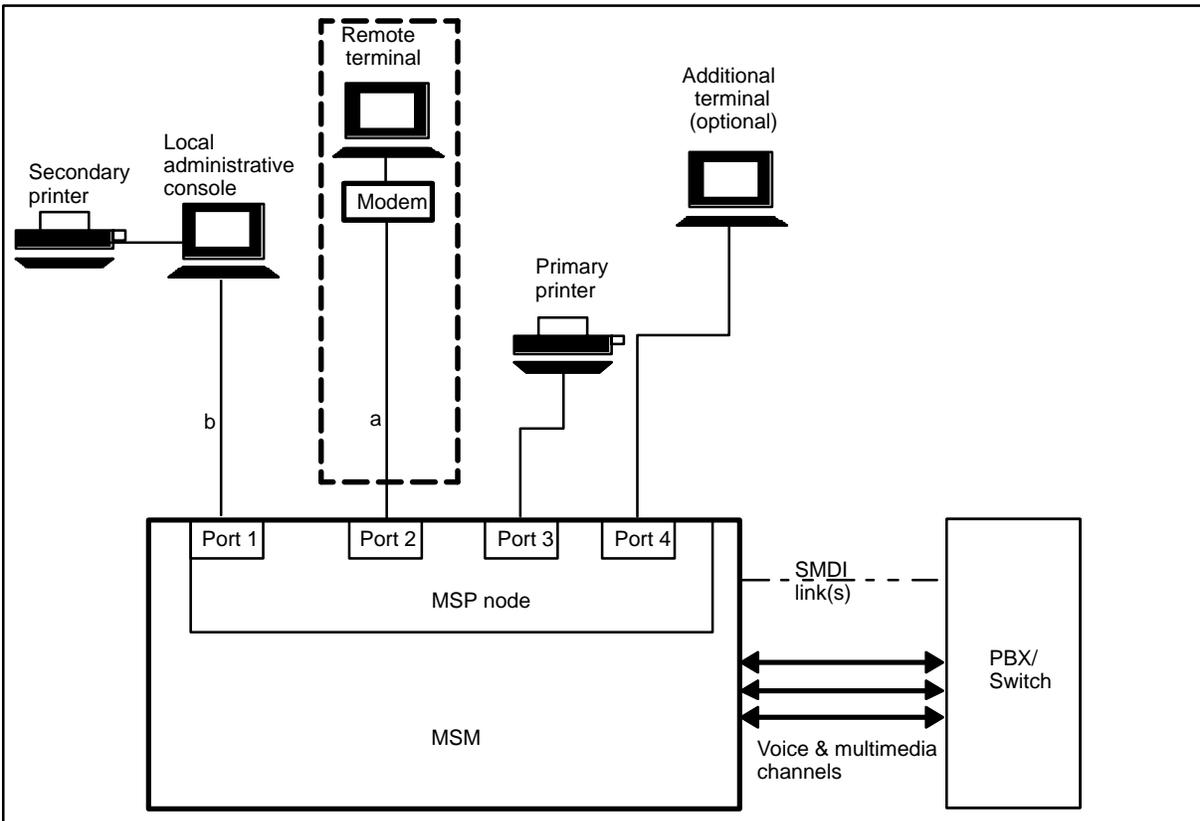
"Appendix C: Remote Access" in the *System Installation and Modification Guide* (NTP 557-7001-504) provides information needed to set up a remote terminal and modem.

Procedure 6-6
Logging on to a remote terminal

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

1 To bring up the COBRAVT selection window, press **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.

Dial into the modem.

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

The logon screen appears at the remote 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.

CAUTION
Risk of losing of data
The Ctrl-w m command may cause data loss if the remote administrator is in the process of changing system data and a save was not performed.

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.

When logging on for the first time, enter the default system administrator password **adminpwd**. (To log on as customer administrator, 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* for more information about logging on with the customer administrator password.)

Passwords can be up to 16 characters in length. It is recommended that the password be no less than seven 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 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 6-7
Logging on with the system administrator password

Starting Point: The Logon/Status screen

1   Press [Logon].

    You are prompted to enter the system administration password.

2   Enter the system administrator password (**adminpwd**, if you have not changed the default) and press <Return>.

    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.

3   Enter the date and time in the format indicated, with leading zeroes, slashes, and colon (for example, 31/01/89 09:35).

    Note 1: If an invalid password is entered, an error message appears. Try logging on again.

    Note 2: 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 reenter 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.

After successful logon, the Main Menu is displayed (Figure 6-9).

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.

4 Press [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.

The Main Menu

The Main Menu (Figure 6-9) is displayed after a successful logon. This menu is a routing menu from which you can select the type of administrative function you require. Procedure 6-8 describes how to use the Main Menu.

CAUTION
Risk of security breach or delays
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 6-9
The Main Menu

```
                              Main Menu

        1    General Administration

        2    Voice Administration

  *     3    Fax Administration

        4    Hardware Administration

        5    System Status and Maintenance

        6    Operational Measurements

  **    7    Network Administration

        8    Customer Administration

        9    Class of Service Administration



_____

Select an item >

     Logoff
```

```
*  This item is displayed only if Fax on Demand is enabled.
** This item is displayed if at least one of the following is enabled:
Meridian Networking or AMIS Networking.
```

Procedure 6-8
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 (in this document)
or NTPs for details:*

"General Administration"

"Voice Administration"

*Fax on Demand Application Guide (NTP 555-7001-327) if Fax on Demand
is enabled.*

"Hardware Administration"

"System Status and Maintenance"

"Operational Measurements"

*Network Services Administration Guide (NTP 555-7001-335) if AMIS or
Meridian networking is enabled*

"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 Press [Exit].

The Logon/Status screen is redisplayed.

Logging on at a Multiple Administration Terminal

Note: In previous releases of Meridian Mail MSM, MATs were referred to as UATs.

If the Multiple Administration feature is configured, the MSM can support up to four administration terminals (one main administration terminal and up to three secondary terminals).

However, only a limited number of administrative tasks can be performed on a secondary Multiple Administration Terminal (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.)
- 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, voice forms, and fax item definitions)

See the *System Administration Tools* guide (NTP 557-7001-305) for more information about configuring MATs.

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. The customer administrator password can only be changed 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.

Chapter 7: Making recordings

This chapter describes

- the four types of recordings and how to record them
- guidelines for making recordings
- voice prompt maintenance
- remote activation
- how to make recordings using the [Voice] softkey

Types of recordings

There are four types of recordings you can make:

- call answering customer greeting
- personal verification
- broadcast mailbox personal verification
- VMUIF introductory tutorial greeting

The call answering customer greeting and personal verification are used for identification purposes. The call answering customer greeting identifies a customer to external callers, and the personal verification identifies users during message composition.

The call answering customer greeting

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

The call answering customer greeting can be recorded for each customer group on the system. This greeting is played when a user's mailbox is reached through call answering from an external caller. 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. This recording can be used to identify the organization to external callers or to introduce the call answering service to the 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. Meridian Mail has received a message for ...."* For VMUIF systems, the prompt is *"Hello, Call Answering has received a message for...".*

Considerations for recording call answering customer greetings

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 greeting.

   When an external caller is connected to a user's mailbox, the caller will only hear the user's personal greeting. 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.

Recording call answering customer greetings

Procedure 7-1 describes the steps required to record a call answering greeting.

Procedure 7-1
Recording call answering greetings

1 Log on to a mailbox with administrator capabilities.

2 To record a call answering greeting, press **829** on the telephone keypad.

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 recording.

4 Wait for the tone and say the custom call answering greeting.

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.

   Note: The call answering greeting can be recorded from the administration terminal with a telephone nearby.

The personal verification

The personal verification is a recording of a user's first and last names (and extension if desired). It is used to identify the owner of a mailbox. If no personal verification is recorded, the system plays a recording of the user's extension number. Since it is easier to determine if you have reached the correct person by hearing their name rather 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 it can be recorded 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 14-10). 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 later in this chapter in the "Recording prompts or personal verifications using the [Voice] softkey" section. 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 *Call Answering User Guide* or the *Voice Messaging (VMUIF) User 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.

When personal verifications are used

Personal verifications are used 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 prompts or personal verifications using the [Voice] softkey" in this chapter.

Recording personal verifications

Procedure 7-2 describes the steps required to record a personal verification.

Procedure 7-2
Recording personal verifications

> *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 To record a Personal Verification for a user

   a. Press **89**.

   b. Enter the user's mailbox number.

   c. Press **#**.

3 Choose step 3a to replace an existing Personal Verification, or 3b to add a new 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 recording.

4 Wait for the tone and say the 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, and then hang up.

> *Note:* The personal verification can be recorded from the administration terminal with a telephone nearby.

Broadcast mailbox personal verification

There may be times that you will need to send a message to all users in a particular customer group. A message that is sent to all users is known as a *broadcast mailbox personal verification.* A special mailbox number (the broadcast mailbox number) is defined in the Voice Messaging Options screen. (See the chapter "Voice Administration" in the *Customer Administration Guide*.) When composing a broadcast mailbox personal verification, you simply specify the broadcast mailbox number and all users in the customer group will receive the message.

Note: Any user who knows the broadcast mailbox number and has access to a mailbox with broadcast capability can also send broadcast messages.

Note: You cannot send a broadcast message to all users on 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 (for example, 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. If you are sending broadcast messages to large customer groups, it is recommended that you do so outside of peak hours because the system can become overloaded.

It is a good idea to record a personal verification for the broadcast mailbox (before you record any broadcast messages as described in Procedure 7-3). This verification is played to users when they receive the message. You can either identify who the message is from (that is, 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 "Voice Messaging Options" section, in the "Voice Administration" chapter of the *Customer Administration Guide*, for details.

Recording broadcast messages

Procedure 7-3 describes the steps required to record a broadcast message.

Procedure 7-3
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, and then hang up.

VMUIF introductory tutorial greeting

The introductory tutorial is played to VMUIF users only, when they log into a new mailbox for the first time. This tutorial familiarizes them with the service. You can record your own custom introductory tutorial greeting or use the default. This introductory tutorial greeting can also be made available to dial pulse (rotary telephone) users.

The following fields in the Voice Messaging Options screen allow you to configure the VMUIF introductory tutorial greeting:

- *VMUIF Introductory Tutorial (Voice)*

- *VMUIF Introductory Tutorial Type*

- *VMUIF Introductory Tutorial for Dial Pulse (Voice)*

- *VMUIF Introductory Tutorial for Dial Pulse Type*

For more information about these fields and using the Voice Messaging Options screen, refer to the section "Voice Messaging Options" in the chapter "Voice Administration" in the *Customer Administration Guide*.

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 Meridian Mail 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 and 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 rerecord 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 that 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 the *Voice Menus Application Guide* [NTP 555-7001-325].) 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 "Voice Services Administration" section in Chapter 9, "Voice Administration"). This DN is dialed directly to access the service.

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

Voice menus consist of a recorded greeting, and a prompt which specifies the actions that 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.

Updating voice menu prompts

Procedure 7-4 describes the steps required to update voice menu prompts.

Procedure 7-4
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 (telephone keypad number 1)

   b.   Update Menu Choices prompt (telephone keypad number 2)

    c.   Update No Response prompt (telephone keypad number 3)

    d.   Update Other Menu prompts (telephone keypad number 4)

5   Select the required function.

If you press 1, 2, or 3 on the telephone keypad, you are prompted to play the prompt if it exists.

If you press 4 on the telephone keypad, you are prompted for the number of the prompt. This is the number on the keypad that a caller using the menu must press to hear the prompt. Enter the appropriate number.

6   Play or record the prompt.

If you pressed 4 on the telephone keypad after playing, recording, or updating the prompt, enter a number sign (#) to go back to where you can enter the number (key) 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.

Updating announcements and thru-dialer greetings

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 auto-attendant 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 7-5 describes the steps required to update announcements and thru-dialer greetings.

Procedure 7-5
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.*

Recording prompts or personal verifications using the [Voice] softkey

The [Voice] softkey is used to record personal verifications and prompts for
voice menus, announcements, thru-dialers, and voice forms. When you use
the voice subset of softkeys, the *Personal Verification Recorded (Voice)* field is
set to "Yes" or "No." The [Voice] softkey is available on the Add or
View/Modify User screens, the Add or View/Modify Distribution List
screens, and several of the Voice Services Administration screens. When
[Voice] is pressed, a new set of softkeys is displayed as shown in Figure 7-1.

Note: A telephone set is required to record the personal verification. Ensure
that a phone set is available near the administration terminal where you are
working.

**Figure 7-1
Recording softkeys**

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│                                                                       │
│                                                                       │
│     _____ │
│     Enter a phone number in Dialable format >_____ │
│   ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐ ┌──────────┐ │
│   │  Return  │  │   Play   │  │  Record  │  │  Delete  │ │Disconnect│ │
│   └──────────┘  └──────────┘  └──────────┘  └──────────┘ └──────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```
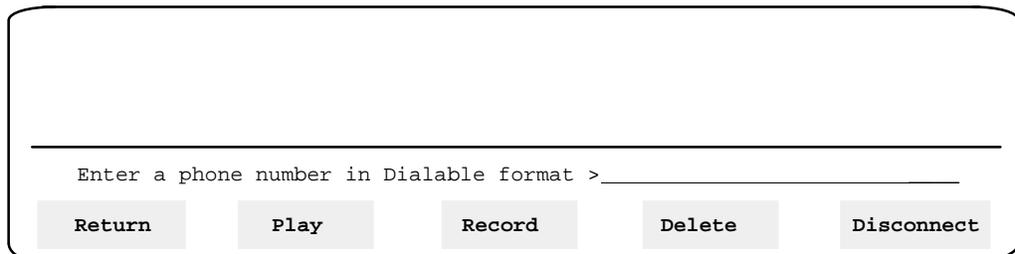
**Procedure 7-6
Using the recording softkeys**

Starting point: The Main Menu

1   Select User Administration.

2   Select the type of user (local voice user, directory entry user, or remote voice
    user).

3   If you have not added the user yet, go to step 3a. If you want to record a personal verification for an existing user, go to step 3b.

    a.   Press [Add]. Enter the extension number when prompted and press <Return>.

    b.   Press [View/Modify]. Enter the extension number when prompted. If you do not know the extension number of the user, press [Find] instead to retrieve the user from a subset of users.

4   From the Add or View/Modify User screen, press the [Voice] softkey.

The current screen remains displayed; the softkey display changes to [Cancel].

You are prompted for an extension number:

    Enter a phone number in Dialable format > __

5   Enter the extension number of the phone set you are going to use to make the recording. (The number you enter should be in a form that would allow a caller from any other PBX/switch customer group to reach the phone set.) Press <Return>.

The phone will ring.

6   Pick up the telephone handset.

The recording softkeys are displayed. See Figure 7-1.

7   To listen to the existing recording, go to step 7a. To make a new recording, go to step 7b. To delete the existing recording, go to step 7c.

    a.   Press [Play].

       See Procedure 7-7 on page 7-12 for more details.

    b.   Press [Record]. At the sound of the beep, begin speaking into the handset.

       See Procedure 7-8 on page 7-12 for more details.

    c.   Press [Delete].

       See Procedure 7-9 on page 7-13 for more details.

8   When you are satisfied with the recording and want to disconnect the call through the softkeys, go to step 8a. To disconnect by hanging up, go to step 8b. To return to the original softkeys without disconnecting the extension, go to step 8c.

    a.   Press [Disconnect]. The line is disconnected and the original softkeys are displayed. If you press [Voice] to access the recording softkeys again, you will have to reenter the telephone extension.

    b.   Place the receiver on hook.

       The call is terminated and [Return] appears.

       Press [Return] to return to the current screen with its original softkeys.

      c. Press [Return]. The line is not disconnected (unless you hang up the receiver). The original softkeys are displayed. This means that if you decide to rerecord or listen to the recording, you do not have to re-enter the telephone extension after pressing the [Voice] softkey.

9 Press [Save] to save the recording.

Playing a recording

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

Procedure 7-7
Playing a voice recording

Starting point: The current screen, Voice softkeys displayed

1 Press [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 Press [Stop] at any time to stop the playback.

The Voice Recording softkeys are redisplayed.

Note: If you press [Stop] and then press [Record], the recording starts from the beginning, overwriting the entire recording.

Recording a new message

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

Procedure 7-8
Recording a voice recording

Starting point: The current screen, Voice softkeys displayed

1 Press [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 press [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 7-9
Deleting a voice recording

Starting point: The current screen, Voice softkeys displayed

1   Press [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.   Press [OK to Delete].

The recording is deleted.

The Voice Recording softkeys are redisplayed.

b.   Press [Cancel].

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

Remote Activation

Remote Activation allows administrators or delegates to associate a VSDN with a different voice service (voice menu, announcement, thru-dialer, time-of-day controller, voice forms, or fax items) from off-site, using a standard remote DTMF telephone set. If, for example, there is a severe storm and the office is unexpectedly shut down, you would want to make sure that the main office number activates the appropriate service. Using remote activation, you can log in from your home phone (as long as it is a touch-tone phone) and change the service that is associated with the main number so that the announcement stating that your office is closed will be played. For more information see "Remote Activation" on page 9-4.

Chapter 8: General Administration

This chapter describes

- the General Administration Menu
- how to use the options on the General Administration Menu
  — defining the general options
  — volume administration (tape backups)
  — changing the system administrator password
  — changing the system time
  — dialing translations

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.

About MSM volume storage

This section describes

- the system volume numbers
- the distribution of users over volumes
- volume naming conventions
- types of information contained on the volumes

System volume numbers

The MSM can have up to sixteen nodes. These are divided into: nodes 1 and 2, (the Multi-Server Processors, MSP), nodes 3 through 10, (the Signal Processing Nodes, SPN), nodes 11 and 12 (reserved for future use) and nodes 13 through 16, (the Telephony Interface Nodes, TIFN). Nodes 1 through 10 contain the hard disk drives for data storage with the disk drives being partitioned into volumes. See Figure 8-1. Volumes are storage areas for system and user related information. The volumes are already set up when your system is installed. Table 8-1 specifies the maximum amount of storage available on each volume for the various system configurations.

Distribution of users over volumes

When initially setting up the MSM, you must distribute 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*.

Volume naming conventions

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 user backup

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

Each volume can contain two or three "regions." X will either be T (for text data), V (for voice data, or fax data, if enabled).

Using this 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.

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

Types of information contained on the volumes

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
- network database (if Meridian Networking is installed and enabled for one of the customer groups)
- voice menus and announcements (if the Voice Menus feature is enabled)
- voice form definitions (if the Voice Forms feature is enabled)
- fax item definitions (if the Fax Item Definition feature is enabled)
- network message queues
- voice prompts

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

- messages
- greetings
- voice menus and announcements, voice form definitions, and fax item 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, and fax item definitions are located on VS1 or VS203. Check the Voice Services Profile screen to determine which volume contains these voice services. (See "The Voice Services Profile" in Chapter 9 "Voice Administration.") 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 "Disk Usage Detail report" in Chapter 12, "Operational Measurements." Listings of the volumes can be obtained by displaying the Volume Administration screen, described later in this chapter.

Figure 8-1
Volume distribution on the MSM nodes

Node 1

```
VS1T
VS1V
VS2T
VS2V
VS901T
```

Node 3

```
VS203T
VS203V
```

Node 5

```
VS205T
VS205V
```

Node 7

```
VS207T
VS207V
```

Node 9

```
VS209T
VS209V
```

Node 2

```

```

Node 4

```
VS204T
VS204V
```

Node 6

```
VS206T
VS206V
```

Node 8

```
VS208T
VS208V
```

Node 10

```
VS210T
VS210V
```
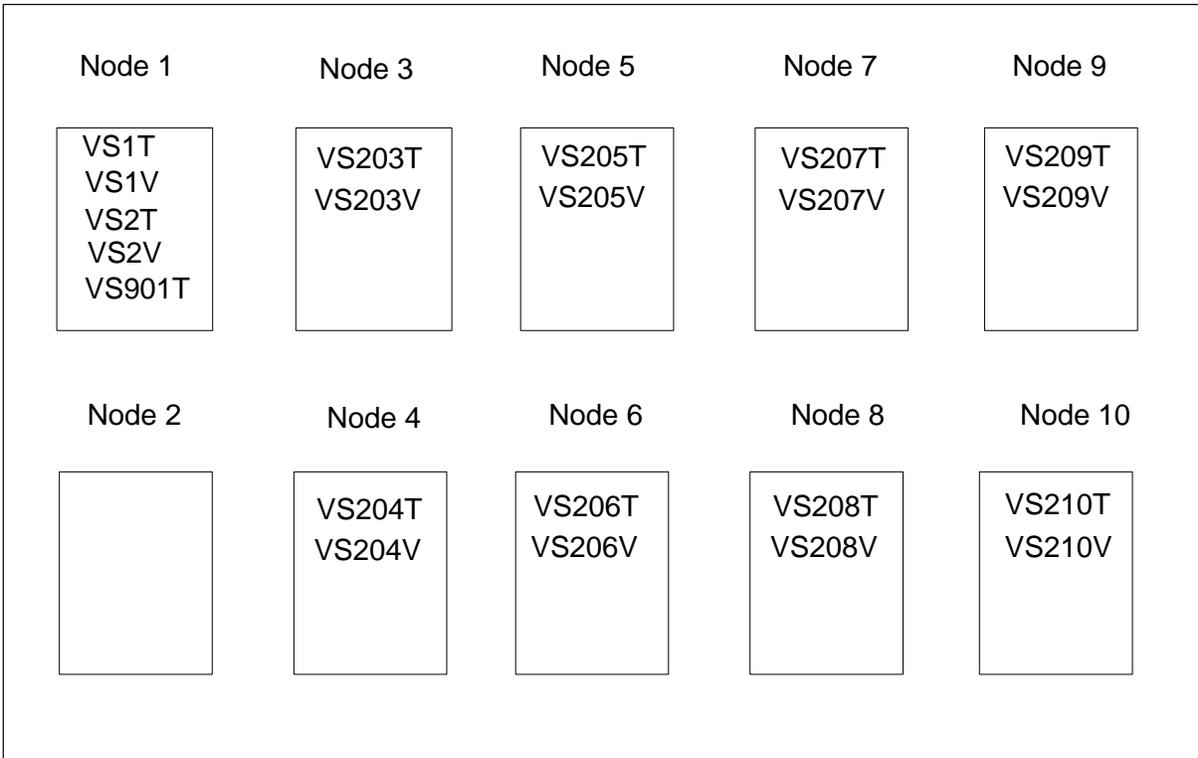
TIFN Nodes are nodes 13, 14, 15 and 16 and do not have any volumes
VS1 contains voice prompt sets 3 and 4, and VS2 contains voice prompt sets 1 and 2.
T indicates text data.
V indicates voice data or fax data (if Fax on Demand is enabled).

Table 8-1
User disk capacities for MSM systems

System size		Maximum Hours available for Voice Storage (per disk volume)							
Ports	Hours	VS203	VS204	VS205	VS206	VS207	VS208	VS209	VS210
48	**150**	150	-						
	300	150	150						
72 or 96	**300**	150	-	150	-				
	600	150	150	150	150				
120 or 144	**450**	150	-	150	-	150	-		
	900	150	150	150	150	150	150		
168 or 192	**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, voice forms, or fax items) 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]

The General Administration menu

The General Administration menu displays the options shown in Figure 8-2.

Figure 8-2
The General Administration menu

```
                          General Administration


          1  General Options

          2  Volume Administration

          3  Change System Administrator Password

          4  Change Customer Administrator Password

       #  5  Change AdminPlus Download Password

          6  Change System Time

       *  7  Dialing Translation

Select an item >

    Exit
```
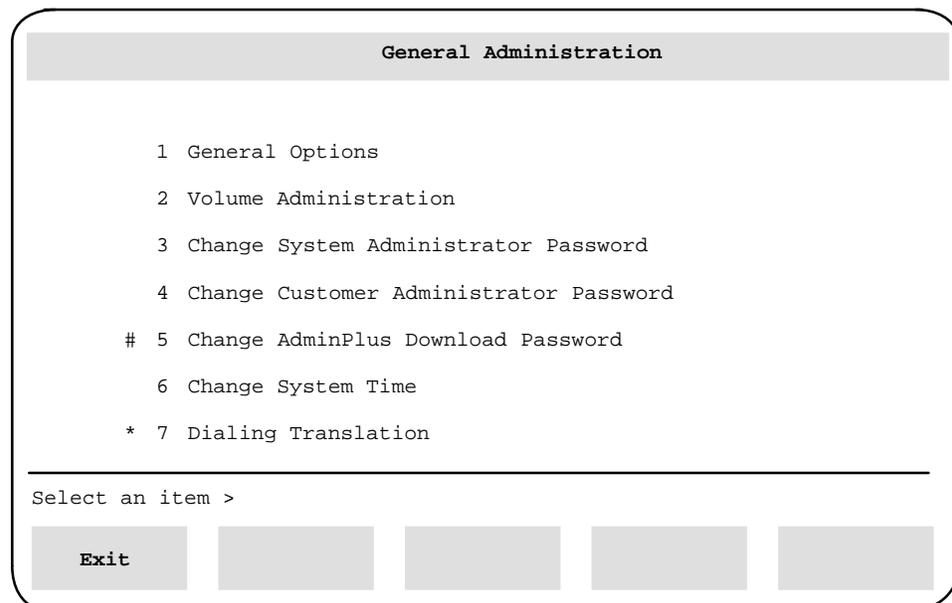
This item is displayed only if AdminPlus is an installed feature.

* This item is displayed only if AMIS Networking and/or Fax on Demand is enabled.

Procedure 8-1
Using the General Administration menu

Starting point: The Main Menu

1   Select General Administration.

The General Administration screen appears (Figure 8-2).

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

The menu corresponding to your selection appears.
See the following sections in this chapter for details:

<1> "Defining the general options"
<2> "Volume administration (tape backup)"
<3> "Changing the system administrator password"
<4> "Changing the customer administrator password"
<5>"Changing the AdminPlus download password
<6> "Changing the system time"
<7> "Dialing translations"

Note: *For information about dialing translations, see the chapter "Setting up dialing translations" in the Networking Services Administration Guide.*

3   Press [Exit] to return to the Main Menu.

Defining the general options

The General Options screen contains parameters for configuring broad characteristics of your system. The General Options screen displays the features that are enabled on the 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, Access default 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.

If any of the following features are enabled 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)

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
  (described in the *Voice Menus Application Guide* [NTP 555-7001-325])
- Voice Forms
  (described in the *Voice Forms Application Guide* [NTP 555-7001-326])
- Fax on Demand
  (described in the *Fax on Demand Application Guide* [NTP 555-7001-327])
- Meridian Networking
  (described in the *Networking Services Administration Guide* [NTP 555-7001-335])

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

Figure 8-3
The General Options screen

```
                        General Administration

   General Options

   System Name:                      Customer_____

   System Number:                    0___

   System Addressing Length:         0_

 * ACCESS Default Customer Number:   1___

 * Meridian Mail Networking Customer: 139_

 * Available Features:               Multi-Customer
                                     Multiple Administration Terminals
                                     SMDI
                                     Meridian ACCESS
                                     AdminPlus
                                     Voice Messaging (MMUI)
                                     Voice Messaging (VMUIF)
                                     AMIS
                                     Dual Language Prompting
                                     Outcalling
                                     Voice Menus & Announcements
                                     Voice Forms
                                     Fax On Demand
                                     Meridian Mail Networking

   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)




   Select a softkey >

      Save          Cancel
```

```
* These fields are displayed only if the necessary features are installed.
```

The following fields are displayed:

- *System Name*   This is the name by which the MSM is identified to the switch. This name is printed on all reports and lists in Meridian Mail MSM. 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 Addressing Length*   The standard in North America is 10 (nnn-xxx-yyyy, where nnn is the area code, xxx is the NXX, and yyyy is the subscriber number). This field accepts values in the range 0-18. The default is 0 (which means that address expansion is disabled).

  If this field is set to a non-zero value and local addressing lengths are fixed, address expansion is enabled. Address expansion allows users to dial the local addressing length they are used to (and that are shorter than the full 10-digit system addressing length) when composing messages, logging in, or using express messaging. When a DN that is shorter than the system addressing length is entered by a user via the telset, it is expanded out to the full 10-digit DN.

  For example, if address expansion is enabled with a local addressing length set to 4, a user who wants to compose a message to local DN 2335 need only enter a 4-digit DN during message addressing. The DN is expanded out to the full 10-digit DN (such as 416-599-2335). If, however, this field is set to 0, the user has to enter the 10-digit DN when composing messages.

  If you enter a value other than zero in this field, then all of the local voice user mailbox numbers on the system will have to equal system addressing length, and you also have to define values for the following fields:

  — *Local Addressing Length*   This is the length of the DNs in a particular system. It is defined in the Voice Messaging Options screen.

  — *Expansion Digits*   These are the digits that are used to convert an entered local address to the full system addressing length. These digits must be specified for both Voice Messaging and Express Messaging. They are defined when adding the Voice Messaging DN and Express Messaging DN to the VSDN table. (See the section "Adding DN information" in the "Voice Administration" chapter in the *Customer Administration Guide*.)

  These digits are prefixed when a user enters an address that is shorter than the system addressing length to convert a local address to the full system addressing length.

- *ACCESS Default Customer Number*   This field is displayed only if Meridian ACCESS is enabled. Each ACCESS application that is created should specify the customer number to which it applies. If there is no customer number specified in the application, the number entered in this field is used by default. The number you enter must be that of an existing customer group. This field can be up to four digits long.

- *Meridian Mail Networking Customer*   This field is displayed only if Meridian Networking is enabled. If Meridian Networking has been enabled for one of the customer groups on the system, this field will indicate the customer number of that group. This field is read-only and is initially blank. It is automatically updated when Meridian Networking is enabled for a customer group (in the General Options screen for that customer group).

- *Available Features*   This list displays all of the features that are enabled on the system. Figure 8-3 displays a list of all possible features for illustration purposes.

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

  — Multi-Customer

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

  — Multiple Administration Terminals (MATs)
  — SMDI (this is the Multi-SMDI feature which provides additional connectivity capability)
  — Meridian ACCESS (Unix access)
  — AdminPlus
  — Voice Messaging
  — Fax on Demand

    This enables a number of fax-related services: Fax Information Service, Fax Item Maintenance Service, Fax Call Back Delivery, and Fax Same Call Delivery.

  The following are system features, and, if enabled, 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 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*.

— Voice Menus & Announcements

— Voice Forms

— Meridian Networking

This feature can only be enabled for one customer group. Log on as customer administrator for that customer in order to enable it.

Note: If this feature is currently enabled and remote voice users have been added to the system, this feature cannot be disabled until all remote voice users are deleted.

- *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 entering 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 "Enabled" and no printer is attached, SEERs are printed on the screen as they occur. 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 fills up relatively quickly. Once full, the contents are automatically deleted. It is therefore recommended that you print your SEERs on a regular basis. This also helps you troubleshoot problems as you can look back through system events to monitor the 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, system, or all) or severity level (critical, major and minor). (If SEER printing is disabled, SEERs are still collected on disk and can be viewed.) See the section "System Event and Error Reports" in Chapter 11 "System Status and Maintenance" for more information.

- *SEER Printer Port Name*   This is the printer port to which the dedicated SEER printer is connected. This requires a data port on the Multi-Server Processor (MSP) node which must be defined as a printer port in the hardware database. This field holds up to 12 alphanumeric characters. If this field is left blank, reports will 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 MSP node which must be defined as a printer port in the hardware database. If this field is left blank, reports will print to the console printer port.

Procedure 8-2
Modifying General Options
Starting point: General Administration menu

1   Select General Options.

The General Options screen appears (Figure 8-3) with the cursor positioned on the System Name field.

2   Use the cursor keys to move the cursor to the field you wish to modify, and make the required changes.

3   Choose step 3a to save the changes or 3b to cancel.

   a.   Press [Save].

   Changes are saved and the General Administration menu is displayed.

   b.   Press [Cancel].

   Changes are saved and you are returned to the General Administration menu.

Volume administration (tape backup)

Volumes are subdivisions of the overall storage capacity of a hard disk. 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 reentry 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.

CAUTION
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.

Do not back 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 operating 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 Nortel 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).

Types of backups

There are two types of backups that can be done:

- partial
- full

The following sections, "Partial backups" and "Full backups," describe the kinds of information that is stored on each of the system volumes. However, you can view information about the disk usage on your system through the Disk Usage report (as described in Chapter 12 "Operational Measurements"). A listing of the volumes on your system can be obtained by displaying the Volume Administration screen (Figure 8-4 on page 8-17).

Partial backups

When you perform a partial backup, you save the administrative configuration of the system including the following:

- the user database
- spoken names (personal verifications)
- voice services (voice menus, voice forms, fax items)

Partial backups do not back up the following information:

- users' voice data (including voice messages and greetings)
- voice services (voice menus, voice forms, fax items) if stored on a volume other than VS1

CAUTION
Backing up voice services
If voice services are stored on a volume other than VS1, be sure to do a full backup of that volume. (To do a full backup, choose the "Voice&Data" option.) To check the volume on which voice services are stored, select Voice Services Profile from the Voice Administration menu at the customer administration level. The *Voice Services Volume* field indicates where voice services are stored.

It is recommended that you keep voice services on VS1 so that they will be backed up during a partial backup. To move voice services from one volume to another, contact your Nortel technical support representative.

Restoring from a partial backup avoids the need to reenter all users. However, the voice messages and user greetings will be lost. A partial backup saves the following volumes: VS1T, VS1V, VS1B and VS901T. See the section "Volume naming conventions" and "Types of information contained on the volumes" on page 8-2 for a description of the various volumes.

Full backups

A full backup backs up all system data:

- the user database

- spoken names (personal verifications)

- voice services (voice menus, voice forms, fax items)

- users' voice data (including voice 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. A full backup saves the following volumes: VS1T, VS1V, VS1B, and all the VSxT, VSxV and VSxB volumes, where x is 203 through 210, depending on the number of nodes.

Note 1: 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.

Note 2: If voice services are stored on a volume other than VS1, a full backup of the voice services volume is required.

Scheduling a backup

Backups should be carried out at a time when the system is quiet, or outside the regular hours for your organization. Do not backup the system when the system is operating above 50% of the rated capacity. Do not back 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. These audits are activated automatically at the same time every day and ensure continued operation of your system. Do not schedule a backup if more than one tape is required.

Backup media (tapes)

All MSM 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 MSM systems.

The MSM uses the Viper 2150S cartridge drives. The type of backup tape used is the DC6250 which can store 250 Mbyte of data. (Although this tape drive accepts DC6150 (150 Mbyte) tapes, it is not recommended that they be used.)

The approximate number of tapes required for one full and one partial backup are listed in Table 8-2.

Table 8-2
Backup tape requirements

System size		Tapes required	
Ports	**Hours**	**1 Full Backup**	**1 Partial Backup**
48 ports	150 hours 300 hours	12/18 tapes	6 tapes
72 or 96	300 600	18/30	6
120 or 144	450 900	30/42	6
168 or 192	600 1200	30/54	6

Note: The figures in this table represent the approximate requirements.

Using the tape drive

The MSM 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
the section "Tape drive maintenance" or the *Routine Maintenance
Procedures* guide (NTP 557-7001-501).

When using a viper tape drive, insert the tape with the metal side facing the
left side of the drive and the opening on the tape facing up. Once the tape is
inserted, secure it by pressing down on the lever on top of the opening until
the latch catches.

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.

Doing backups: the Volume Administration screen

Data storage on the hard disk is distributed between volumes, which are subdivisions of the hard disk. The Volume Administration screen (Figure 8-4) 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 being used. To back up a volume, you select it and use the applicable softkey as described in Procedure 8-3.

Figure 8-4
Volume Administration screen

```
                          General Administration


 Volume Administration

 Volume        Use             Volume Size                Usage (% Full)
  Name                     Data          Voice            Data    Voice
                          (KBytes)    (KBytes)  (hh:mm)

 VS1           System       216912     850048    104:11      22       3
 VS203         Users         47104    1275008    156:16      13      23
 VS204         Users         47104    1275008    156:16      17      40
 VS205         Users         47104    1275008    156:16      14      17
 ...           ...           ...        ...        ...       ...     ...
 VS210         Users         47104    1275008    156:16      14      17




 _____

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


 ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────────┐ ┌────────────┐
    Exit        Backup                    Backup Status    View/Delete
                to Tape                                      Schedule
 └──────────┘ └──────────┘ └──────────┘ └──────────────┘ └────────────┘
```

Procedure 8-3
Performing a backup

Starting point: General Administration menu

1 Select Volume Administration.

The Volume Administration screen appears (Figure 8-4).

2 Use the cursor keys to move the cursor to the volume name you wish to back up; press <Space Bar> to select the volume.

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

3   Choose step 3a to start a backup, 3b to monitor the progress of a backup, 3c to display or delete the backup schedule, or 3d to return to the General Administration menu.

   a.   Press [Backup to Tape].

   See the section "Disk to tape backup" on page 8-18.

   b.   Press [Backup Status].

   See the section "Getting the status of a backup" on page 8-22.

   c.   Press [View/Delete Schedule].

   See the section "Viewing or deleting a backup schedule" on page 8-23 for details.

   You can only change the backup schedule while in the Disk to Tape Backup function.

   d.   Press [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 a message will be displayed 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 8-5) 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 backup, use the "Voice_&_Data" option on all of the user volumes. For the system volume, only "Voice_&_Data" can be used.

The Disk to Tape Backup screen also allows you to automate backups through the [Schedule Backup] softkey. To use this function, insert a tape in the tape drive before the scheduled backup time; the backup will proceed automatically at the specified time. You will be informed of how much data is to be copied when you schedule the backup.

Note: Do not perform a scheduled backup to tape if more than one tape is required.

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 section "Tape drive maintenance" or the *Routine Maintenance Procedures* guide (NTP 557-7001-501) before inserting another tape cartridge.

Figure 8-5
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│ │Immediate│ │         │    │
│   │         │ │         │ │  Backup │ │ Backup  │ │         │    │
│   └─────────┘ └─────────┘ └─────────┘ └─────────┘ └─────────┘    │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
```

Procedure 8-4
Performing a Disk to Tape backup

Starting point: Volume Administration screen

1   Select the volume that you want to back up.

2   Press [Backup to Tape].

The Disk to Tape Backup screen appears (Figure 8-5).

3   Ensure that the tape you are using is either blank or can be overwritten and that it is installed properly in the tape drive.

4   Use the cursor keys to move to the Backup Options for the volume and select the required options ("Data" for partial backups or "Voice & Data" for full backups).

5   Choose step 4a to carry out a backup or 4b to schedule a backup for a later time.

   a.   Press [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.

   Press [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 "Getting the status of a backup" on page 8-22 for details.

   Before the backup proceeds, the tape is automatically retentioned.

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 1:** *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.*

> **Note 2:** *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. Discard 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 press 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, press [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.*

Press [Abort Backup] to stop a backup from proceeding.

You are returned to the Volume Administration screen.

b.   Press [Schedule Backup].

See the section "Scheduling Backups" on page 8-21 for details.

6   Press [Exit] at any time to return to the Volume Administration screen.

Scheduling backups

The [Schedule Backup] softkey in the Disk to Tape backup screen displays the Schedule Backup to Tape screen (Figure 8-6). This screen allows you to set the backup frequency (daily, weekly, monthly) and start time. Once you have saved the backup schedule, backups proceed at the specified day and time. Return to this screen to make any necessary modifications to the existing backup schedule.

Note: Do not schedule backups between 2:30 a.m. and 5:00 a.m. when important system audits occur. Do not schedule a backup if more than one tape is required; for this reason, only perform partial backup on a scheduled basis.

Figure 8-6
Schedule Backup screen

```
                        General Administration


    Schedule Backup to Tape


    Backup Frequency:             Daily   [Weekly]   Monthly

*   Weekly:                       [Sunday]  Monday  Tuesday  Wednesday  Thursday
                                  Friday    Saturday

**  Day of Month:                 20

    Backup Start Time:            23:00

    Volumes selected for Backup:  VS1     Backup Voice & Data
                                  VS202   Backup Voice & Data




   _____


   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
   │   Save   │   │  Cancel  │   │          │   │          │   │          │
   │ Schedule │   │          │   │          │   │          │   │          │
   └──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
```

```
*  This line is displayed if Backup Frequency is set to Weekly.
** This line is displayed if Backup Frequency is set to Monthly.
```

Procedure 8-5
Creating a backup schedule

Starting point: The Main Menu

1   Select General Administration.

2   Select Volume Administration.

The Volume Administration screen is displayed.

3   Position the cursor on the volume you want to back up and press the <Space Bar> to select it.

4 Press [Backup to Tape].

5 Press [Schedule Backup].

6 Move the cursor to the required backup frequency (daily, weekly or monthly) and press <Return>.

For weekly backups, the screen displays the days of the week; choose the day on which backups are to occur.

For monthly backups, the screen displays a prompt for the date on which backups are to occur; enter the required date.

7 Enter the backup start time.

8 Choose step 8a to save the schedule or 8b to cancel.

   a. Press [Save Schedule].

   The schedule is saved and you are returned to the Volume Administration screen; automatic backups are now in effect.

   b. Press [Cancel].

   You are returned to the Volume Administration screen.

Getting the status of a backup

The Backup Status screen (Figure 8-7) displays the current status of a backup, if one is in progress. The screen displays the start time, the volumes to be backed up, and the current progress on each volume.

Figure 8-7
Backup Status screen

```
                         General Administration


  Backup Status

  Backup Started:          3/20/91    23:00

  Backup Completed:

  Backing up Volumes:      VS1   VS202

                           VS1      100%            done
                           VS1B     100%            done *
                           VS202    100%            done




  _____


                                                           Abort
       Exit                                                Backup
```

* VS1B is a temporary volume created during backup. Once the backup is complete, this volume is automatically deleted from the disk.

Procedure 8-6
Displaying the status of the current backup

Starting point: Disk to Tape Backup screen, [OK to Start Backup] entered; or
Volume Administration screen, [Backup Status] entered

1   Choose step 1a to stop a backup in progress, or 1b to return.

   a.   Press [Abort Backup]. This softkey is displayed only if a backup is in
        progress.

        The backup is stopped and the tape is rewound.

        The Volume Administration screen is redisplayed.

        See the section "Disk to tape backup."

   b.   Press [Exit].

        *The Volume Administration screen is redisplayed and the backup contin-
        ues.*

Viewing or deleting a backup schedule

The View/Delete Backup Schedule screen (Figure 8-8) 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 8-8
View/Delete Backup Schedule

```
┌─────────────────────────────────────────────────────────────────────┐
│              General Administration                                   │
│                                                                       │
│                                                                       │
│   View/Delete Backup Schedule                                         │
│                                                                       │
│   Backup Frequency:              Daily   Weekly  Monthly              │
│                                                                       │
│ * Weekly:                        [Sunday]  Monday Tuesday Wednesday Thursday │
│                                  Friday   Saturday                    │
│                                                                       │
│** Day of Month:                  20                                   │
│                                  ──                                   │
│   Day of Month:                  20                                   │
│                                                                       │
│   Backup Start Time:             00:00                                │
│                                                                       │
│   Volumes Selected for Backup:  VS1     Backup Voice & Data           │
│                                 VS202   Backup Voice & Data           │
│  ──────────────────────────────────────────────────────────────      │
│                                                                       │
│    ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐ │
│    │          │  │  Cancel  │  │          │  │          │  │          │ │
│    │   Exit   │  │ Schedule │  │          │  │          │  │          │ │
│    │          │  │          │  │          │  │          │  │          │ │
│    └──────────┘  └──────────┘  └──────────┘  └──────────┘  └──────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```

   * This line is displayed if Backup Frequency is set to "Weekly."
   ** This line is displayed if Backup Frequency is set to "Monthly."

Procedure 8-7
Viewing/Deleting Backup Schedules

Starting point: The Main Menu

1 Select General Administration.

2 Select Volume Administration.

The Volume Administration screen is displayed.

3 Press [View/Delete Schedule].

4 Choose step 4a to return to the Volume Administration screen or 4b to delete a schedule.

    a. Press [Exit].

       The Volume Administration screen is redisplayed.

    b. Press [Cancel Schedule].

       The present schedule is deleted. The Volume Administration screen is displayed.

Tape drive maintenance

Preventive maintenance of the tape drive involves periodic cleaning (after every four to six hours of use). To ensure reliable tape drive performance, you should establish a regular cleaning schedule and observe the following precautions:

- Maintain a clean, dust-free environment within the temperature and humidity limits listed in the specifications of the Meridian Mail system.

- Keep all liquids away from the drive and tapes to prevent spills into the equipment.

- Exercise reasonable care when using and storing tape cartridges. Do not place cartridges on the Meridian Mail or Meridian 1 cabinets or the monitor of the system administrator's terminal.

- When a stored tape is moved to an environment with a greatly different temperature, allow the tape to slowly reach room temperature before using it.

- Do not open the cartridge access door to touch the tape.

- Keep the tape drive turned on when it is connected to the MSM.

Cleaning the tape drive

The tape drive should be replaced when you receive repeated errors when attempting to write to tape. You should also consider replacing the tape drive if the light on the front of the tape drive is out or you cannot hear or see the tape spinning.

The tape cartridge cavity should be cleaned after an initial pass with a new tape cartridge, after eight hours of normal use, or whenever dust or debris is visible inside the cartridge cavity.

To clean the tape drive, you need the following supplies:

- low pressure aerosol air
- tapehead cleaning fluid or reagent grade chemically-pure isopropyl alcohol
- tape drive cleaning kit (A0378220), including a tape drive cleaning cartridge, OR
- tapehead cleaning pads, lint-free cotton swabs, or any industry-acceptable head-cleaning swabs, six inches or longer.

Procedure 8-8
Cleaning the tape drive with a tape drive cleaning kit

1   If there is a tape cartridge in the tape drive, remove the cartridge.

2   Push the head loading lever down into the load position.

3   Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air. Release the head loading lever.

4   Moisten the flexible pad of the cleaning cartridge with 4 drops of the Streaming Tape Head Cleaning Fluid.

5   Insert the cleaning cartridge into the tape drive in the same way as a normal tape cartridge and lock into position.

6   Move the moistened pad using 4 strokes of the guide rod, moving the rod as far as it will go each time.

7   Remove the cleaning cartridge from the tape drive.

8   Remove the flexible pad by sliding it out of the holder. Discard the pad.

9   Insert a new, dry pad into the holder by sliding it into place.

10 Insert the cleaning cartridge into the tape drive and lock into place.

11 Move the dry pad using 4 strokes of the guide rod, moving the rod as far as it will go each time.

12 Remove the cleaning cartridge. Store it with the dry pad in its original carton until next use.

Procedure 8-9
Cleaning the Viper tape drive with swabs and fluid

1   If there is a tape cartridge in the tape drive, remove the cartridge.

2   Push the head loading lever down into the load position.

3   Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.

4   Moisten a pad or swab with the head-cleaning fluid until it is saturated but not dripping.

5 Carefully wipe the head in the direction that the tape travels. *Do not* wipe perpendicularly or use a circular scrubbing motion. This could seriously damage the tape heads.

6 DIscard the used swab and repeat steps 4 and 5 with new swabs until the swab shows no signs of dirt.

7 Use a new, dry swab to remove any remaining cleaning fluid from the head.

8 Allow 2 minutes for the tape head to dry before inserting a tape.

9 Release the head loading lever away from the load position. If there was a tape cartridge in the tape drive, reinsert it.

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 maximum length is 16 characters. It is recommended that your administration password be at least 7 characters for added security.

Procedure 8-10
Changing the administrator password

Starting point: General Administration Menu

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

1 Select Change System Administrator Password.

You are prompted to enter the existing administrator password.

2 Enter the existing password.

You are prompted to enter the new password.

3 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.

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

4 Enter the password again.

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 maximum length is 16 characters. However, it is recommended that your administration password be at least 7 characters for added security.

Procedure 8-11
Changing the customer administrator password

Starting point: General Administration Menu

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

1 Select Change Customer Administrator Password.

You are prompted to enter the existing administrator password.

2 Enter the existing password.

You are prompted to enter the new password.

3 Enter the new password.

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

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

4 Enter the new password again.

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

Changing the AdminPlus download password

This option allows the administrator to set and change the AdminPlus download password. Every file transfer request is permitted only if it contains the password which has been set using this option.

This menu item is only displayed on systems with the AdminPlus feature enabled.

Note: This menu item is not displayed in the General Administration menu at the customer level on multi-customer systems.

Procedure 8-12
Changing the AdminPlus download password

Starting point: The Main Menu

1 Select General Administration.

2 Select Change AdminPlus Password.

You are prompted to enter the existing administrator password.

3 Enter the existing system administrator password.

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

4 You are prompted to enter the new password.

5 Enter the new password.

The system administrator password is alphanumeric (it can contain both letters and numbers).

6 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 menu.

Changing the system time

The setting of the system clock in your Meridian Mail 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). Because the SL-100 does not have its own system clock, you will have to change the system time once Meridian Mail is installed and up and running.

Procedure 8-13
Changing the system time

Starting point: General Administration Menu.

1   Select Change System Time.

    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 returned to the General Administration menu.

Dialing translations

If you use AMIS networking or Fax on Demand on your system, you need to configure dialing translations. You administer dialing translations by selecting Dialing Translation from the General Administration Menu. Dialing translations are described in the chapter "Setting up dialing translations" in the *Networking Services Administration Guide* (NTP 555-7001-335).

Chapter 9: Voice Administration

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. This chapter discusses

- the types of voice services that are available
- how to configure Meridian Mail services
- an introduction to Voice Administration
- the Voice Administration menu
- how to use Voice Security Options
- how to use Voice Services Administration
- a description of Outcalling Administration

  For more information about the Outcalling Administration functions that can be accessed from the administration menus, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

- a description of Voice Form Definitions

  For more information about the Voice Forms Administration functions that can be accessed from the administration menus, refer to the *Voice Forms Application Guide* (NTP 555-7001-326).

Types of voice services

The following are the different types of voice services that you can make available to your users:

- Voice Messaging
- Outcalling
- Voice Menus and related services
- Voice Forms
- Fax on Demand
- AMIS Networking
- Meridian Networking

- Meridian ACCESS
- AdminPlus

Some of these features are optional and may not be enabled on your system (such as voice forms, AMIS Networking, Meridian Networking, Meridian ACCESS, and Fax on Demand).

Voice messaging services

There are two types of voice messaging services:

- Voice Messaging
- Express Messaging

Voice Messaging

This service provides call handling and message storage capabilities, thus allowing a user's mailbox to take calls when the user is not available or is 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 functionality 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. Also, a caller can record a message and then request that it be sent at a later date.

MMUI provides all users with compose and send capability.

With VMUIF, the compose/send capability can be turned on or off by setting the *Compose Capability* field in the Class of Service to "No" (the default) or "Yes." If the *Compose Capability* field in the COS is set to "No," the users 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 users who do not have touch-tone phones. This is done by setting the *Dial Pulse Support* field 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 to MMUI customer groups.

Express Messaging allows users to place a message directly 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.

Note: Users can only use Express Messaging to deposit a message into another local voice user's mailbox. If networking is enabled, Express Messaging cannot be used to send a message to a user at a remote site even if that user is defined on the system as a remote voice user.

Outcalling (Remote Notification and Delivery to Non-Users)

Remote Notification allows users to be informed of the arrival of new messages through a remote phone or pager. Delivery to Non-Users allows users to compose and send messages to people outside of the MSM system. For more information about Outcalling, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

Voice Menus and related services

Voice menus are custom call answering applications created by the administrator. Using Voice Menus, you can create single-layered or multi-layered menus that 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.

They allow callers to

- listen to recorded information (announcements)
- leave messages for specific users
- place calls (thru-dialers)
- activate voice services based on the time-of-day controllers

  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).

- allow the prompts used in your voice menus to be modified from a telephone (Voice Prompt Maintenance)

- allow voice services to be enabled or disabled from a DTMF telephone set (Remote Activation)

For more information about voice menus, refer to the *Voice Menus Application Guide* (NTP 555-7001-325).

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 predefined DNs (only if name dialing) 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. 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 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 7, "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 "Voice services administration" later in this chapter. To determine how many voice services can be created, see Table 1-1 in the "About Meridian Mail and the Message Services Module (MSM)" chapter in the *System Administration Guide*.

Using voice menus with fax items

Fax item definitions can be added to voice menus to allow callers to select fax services. Voice menus that only use fax items are referred to as fax menus.

However, depending on what type of fax items you add to your voice menus, you will require full-service voice or full-service multimedia ports. To decide, take the following into consideration:

- If the session profile that governs your voice menus requires that the user will have to enter a fax number only (which is call back fax delivery), then full service voice ports may be used.

- If the session profile that governs your Voice Menus requires that same call fax delivery be used, then full service multimedia ports are required.

Voice Forms

There are two things you do with voice forms:

- Administer them.

- Transcribe the information they collect.

   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 555-7001-326) 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*.

Fax on Demand

The Fax on Demand feature allows you to build simple "fax-on-demand" applications. These applications allow callers to dial a specified telephone number using a faxphone to connect to an application through which they can retrieve specific fax items.

Fax items are created and maintained by the administrator. Although similar in concept to announcements, fax items are distinct and separate from voice menus and announcements. However, the fax information service can be included within a voice menu so that callers can dial into a voice menu in order to retrieve fax items rather than calling the fax service directly. Fax items that are included in a menu are also referred to as fax menus.

The Fax on Demand feature includes the Fax Information Service and the Fax Item Maintenance Service.

For more information about Fax on Demand services, refer to the *Fax on Demand Application Guide* (NTP 555-7001-327).

Fax information service (FI)

The fax information service (FI) is the service by which a caller accesses fax items stored in Meridian Mail. A fax item can be set up to be directly dialed, or to be accessed indirectly through a voice menu.

If the service is configured to support either same call or caller choice delivery, then the service must be serviced by full service multimedia ports. If the fax delivery mode is callback only, then the service can terminate on full service voice ports.

Fax item maintenance (FIM)

The fax item maintenance service (FIM) is used to maintain the content of fax items via a fax phone from a remote location. When fax content is changed, the new fax content can be checked by having a verification fax sent immediately to the administrator or to the owner/sponsor of the information.

The fax item maintenance service requires full service multimedia ports.

Networking services

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-MSM 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. This chapter describes the parameters that you have to configure in Voice Administration for the AMIS Networking feature. For more information about AMIS Networking, refer to the "AMIS Networking" chapter in the *Networking Services Administration Guide* (NTP 555-7001-335).

Meridian Networking

This is a proprietary networking service that allows one customer group to participate in a network that allows users to send messages to users at remote Meridian Mail sites. Meridian Networking provides enhanced

capabilities above and beyond AMIS Networking. See the "AMIS Networking" chapter in the *Networking Services Administration Guide* (NTP 555-7001-335) for more information about AMIS Networking. Meridian Networking is described in the "Meridian Networking administration" chapter in the *Networking Services Administration Guide* (NTP 555-7001-335).

Note: This feature cannot be enabled for VMUIF customer groups.

Meridian ACCESS

Meridian ACCESS is an optional software program. It uses a Unix interface to provide a development tool for creating specialized voice service applications such as banking-by-phone and order entry-by-phone where the system places orders for callers based on the caller input on a tone-generating telephone. ACCESS applications provide users with access to computer systems without the need for complicated terminals or a human intermediary. ACCESS applications can make use of the full range of voice and telephony functions that a digital voice processing system and a telephone switching system can offer.

The only extra hardware that you need is a UNIX workstation running a Meridian ACCESS application. No special voice or telephone interface cards are needed as the PBX/switch and Meridian Mail together provide all of the necessary resources. ACCESS can be used to create applications for incoming or outgoing calls or for administrative purposes.

Meridian ACCESS allows customers to provide specialized services combining the convenience of a telephone with the power of a computer. Often these services are Interactive Voice Response (IVR) applications which enable a person to retrieve information or place an order over the telephone simply by pressing the telephone keys.

Meridian ACCESS applications can be developed to meet a wide variety of requirements. An application can receive or place telephone calls, play prompts, receive "input" in the form of digitone keypresses (which can be interpreted as commands or data), transfer calls, record messages, and use Meridian Mail services. All of these functions can be built into a voice service that is tailored to meet special requirements:

- Voice Security Options
- Voice Services Administration
- Outcalling Administration

The following NTPs document Meridian ACCESS:

- *Meridian ACCESS Configuration Guide* (NTP 555-7001-315)
- *Meridian ACCESS Developer's Guide* (NTP 555-7001-316)

- *Meridian ACCESS API Reference Manual* (NTP 555-7001-317)
- *Meridian ACCESS Voice Prompt Editor User Guide* (NTP 555-7001-318)

An introduction to Voice Administration

This section introduces the following voice services administration topics:

Voice Security Options

The Voice Security Options screen 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 the MSM.

Voice Services Administration

Voice Services Administration allows you to

- maintain existing DN information and voice service definitions
- maintain voice services such as announcements, thru-dialers, voice menus, and time-of-day controllers
- maintain fax services such as fax item definitions and fax menus

  Note: Voice menus and related services are documented in the *Voice Menus Application Guide* (NTP 555-7001-325). Fax item definitions and fax menus are documented in the *Fax on Demand Application Guide* (NTP 555-7001-327).

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

Outcalling Administration allows you to specify outcalling parameters that affect the Remote Notification and Delivery to Non-User features. Outcalling features are documented in the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

   Note: Voice Forms are documented in the *Voice Forms Application Guide* (NTP 555-7001-326).

The Voice Administration menu

The Voice Administration menu (Figure 9-1) is displayed by selecting Voice Administration from the Main Menu.

> ⚠ **CAUTION**
> **Risk of data loss**
> 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.
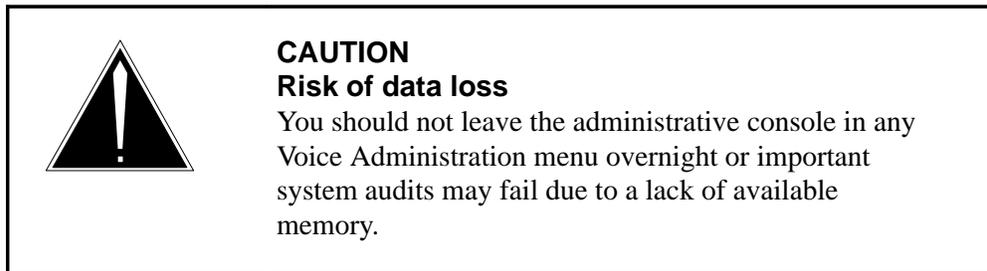
Figure 9-1

The Voice Administration Menu

```
                        Voice Administration


         5  Voice Security Options

         6  Voice Services Administration

    *  7  Outcalling Administration












     _____

     Select an item >

        Exit
```
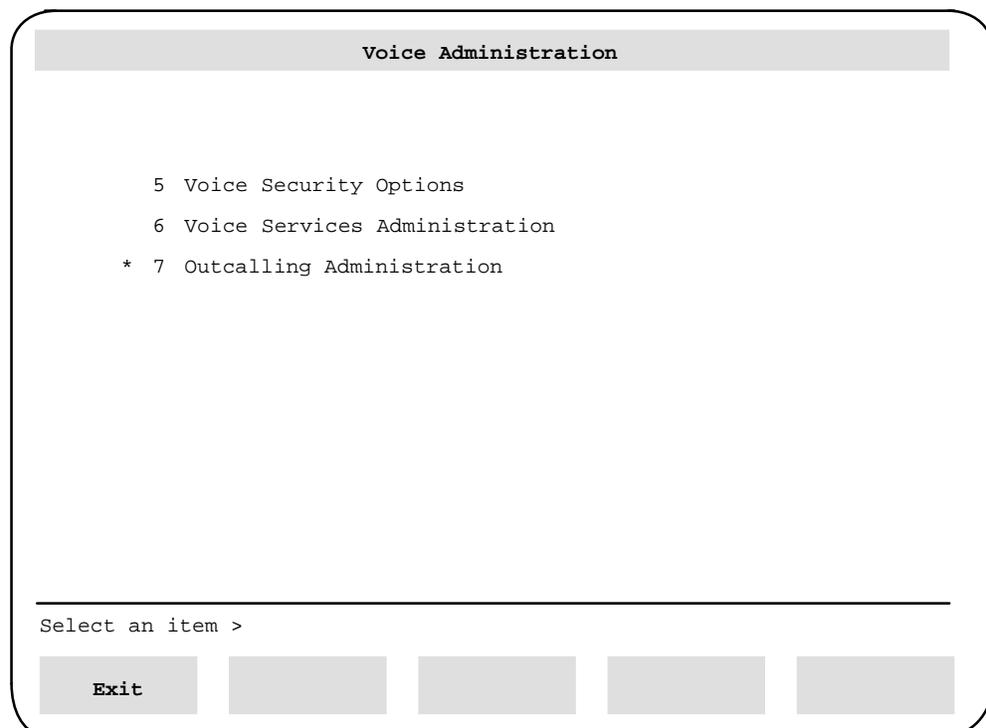
   *   This item is displayed only if Outcalling is enabled. Outcalling is
documented in the Outcalling Application Guide.

Procedure 9-1

Selecting items from the Voice Administration Menu

Starting point: The Main Menu

1   Select Voice Administration.

   The Voice Administration menu appears (Figure 9-1).

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

The menu corresponding to your selection appears. See the following sections and user guides for details:

    <1> "Voice Security Options" section

    <2> "Voice Services Administration" section

    <3> The Outcalling Application Guide

3 Press [Exit] to return to the Main Menu.

Voice Security Options

The Voice Security Options screen (Figure 9-2) 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. Up to four sets of codes can be created. Each restriction/permission set 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 long distance from the switch). An internal extension can also be entered as a dialing code if you wish to restrict certain DNs. Each set can contain up to 10 restriction codes and 10 permission codes.

⚠ CAUTION
Apply the appropriate security codes
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.

The Add (View/Modify) Class of Service screen

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

- Custom Revert

   This restricts the extension to which callers can be reverted when they press 0 while connected to Meridian Mail. (User's can define their own revert DN from their telephone set.)

- Extension Dialing (MMUI only)

   This restricts the extensions that users can dial while logged into their mailboxes

- External Call Sender

   This restricts users from using Call Sender to dial certain external numbers

- AMIS Networking

   This restrict outgoing AMIS messages

- Remote Notification (outcalling fields)

   This restricts the target DNs to which remote notifications can be sent (such as long distance)

- Delivery to Non-User

   This restricts 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 MMUI customer group, apply a restriction/permission set to the following features in the Voice Security Options screen:

- the *Call Answering/Express Messaging Thru_Dial Restriction/Permission codes* field—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 the MSM.

   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.

The Add (or View/Modify) a Thru-Dial Definition screen

For each thru-dialer that you create, select one of the restriction/permission sets that is defined in the Voice Security Options screen or customize a restriction/permission set for the thru-dialer in the Add or View/Modify a

Thru-Dial Definition screen. For more information about using the Add or View/Modify a Thru-Dial Definition screen, refer to the *Voice Menus Application Guide* (NTP 555-7001-325).

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 set that only allows dialing/messaging to 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 (Figure 9-2).

> **CAUTION**
> **All features are initially restricted**
> When Meridian Mail is initially 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, none of the features to which you can apply restriction/permission codes will work.

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

- 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 thru-dial during call–answering or express messaging sessions
- thru-dialers will not work

Note: If you have upgraded from a prior Meridian Mail release, the restriction and permission codes remain the same. They are not overridden during the upgrade.

Defining restriction and permission codes

Example: You want to create a restriction/permission set that restricts all long distance calls except calls to the area code 416 and 911 calls. 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."

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.)

However, DNs that are shorter than a restriction code, but which match a subset of such a restriction code are not restricted. For example, if "1614" is a restricted code, the DN 161 is not restricted.

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/caller hears a system message indicating that the number can't be reached from the service.

For more information about using the Voice Security Options screen, refer to the next section, "The Voice Security Options screen."

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 or View/Modify Class of Service screen (or the Voice Security Options screen at the customer administration level).

Figure 9-2
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, Restriction Codes, Permission Codes* These fields allow you to define the restriction/permission sets that are applied to various features such as Custom Revert and Remote Notification. You may create up to four sets of dialing codes (also referred to as restriction/permission sets). Each set must have a list name associated with it and can contain up to 10 restriction codes and 10 permission codes. The default names are "On Switch," "Local," "Long distance 1," and "Long distance 2." You may change these names, but the name field cannot be left blank.

The default names suggest the types of access codes you may want to group together. The "On Switch" set might be used to only allow calls to another number on the local switch. The "Local" set might be used to allow local calls but not long distance calls. "Long distance 1" and "Long distance 2" might be used to allow certain long distance calls but not others. For example, Feature 1 (Thru-Dialers) might need different long distance restrictions than Feature 2 (Custom Revert DN).

Procedure 9-2
Setting Voice Security Parameters

Starting point: The Voice Administration menu

1   Select Voice Security Options.

The Voice Security Options screen appears (Figure 9-2).

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.   Press [Save].

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

   b.   Press [Cancel].

   Changes are discarded. The Voice Administration menu reappears.

Voice Services Administration

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 menus and related services.

  (Note that these voice services are described in the *Voice Menus Application Guide* (NTP 555-7001-325).) These include

  — announcement definitions

    Announcement definitions are recorded announcements for playback within a voice menu, or as a stand-alone voice service.

  — thru-dial definitions

    Thru-dial definitions define call handling services to act as stand-alone services or to allow users to place calls to permitted numbers from a voice menu.

  — time-of-day control definitions

    Time-of-day control definitions define the activation of voice services according to the time and date at which a call arrives.

  — voice menu definitions

    Voice menu definitions define voice menus as sets of actions to be offered to the user. Each action corresponds to a key on the telephone keypad.

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

- Maintaining fax item definitions. See the *Fax on Demand Application Guide* (NTP 555-7001-327) for details.

  Note: If two administrators log on to the same VSDN Table (using the MAT feature), or Voice Services Profile, or the same voice service definition (announcement, voice menu, thru-dialer, time-of-day controller), the administrator who first accessed the table or definition has write access. All other administrators can only view the VSDN/definition.

Figure 9-3
The Voice Services Administration menu

```
                  Voice Services Administration


    1      Voice Services-DN Table

 *  2      Announcement Definitions

 *  3      Thru-Dial Definitions

 *  4      Time-of-Day Control Definitions

 *  5      Voice Menu Definitions

 ** 6      Fax Item Definitions




 _____

Select an item >

 ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
 │          │  │          │  │Set Display│  │          │  │Find Subset of│
 │   Exit   │  │          │  │Options ## │  │          │  │VSDNs/Services│
 └──────────┘  └──────────┘  └──────────┘  └──────────┘  └──────────┘
```

* These options only appear if the Voice Menus feature is enabled for at
least one customer group.
** This item is displayed only if Fax on Demand is enabled for the customer
group.
This softkey is not displayed on MATs.

ATTENTION

Do not perform user 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 at this time (modifying DNs in the VSDN
table, or modifying voice menu-related definitions and
fax item definitions) at this time. 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 2 hours if there have been many
changes (such as a lot of users or services being added or
modified).

Setting the display options

Note: You cannot set display options from MATs.

When you press [Set Display Options] in the Voice Services Administration menu (Figure 9-3), the Set Display Options screen appears (Figure 9-4) allowing 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 according to service description ("Voice Menu Service").

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

Figure 9-4
The Set Display Options screen

```
                       Voice Services Administration


  Set Display Options

  Default sort order for:                        by:
     VSDN Table data menu:                       [DN]  Comment
   * Service Definition data menu:               [ID]  Title

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

  Display Choice of Services/Menu Actions in:
     VSDN Table DN Information form:           No    [Yes]
   * Voice Menu Definition form:               No    [Yes]
     Find form:                                No    [Yes]




  _____

  Select a softkey >

      Save            Cancel
```

The following fields are displayed:

- *Default sort order for VSDN Table data menu*   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, and so on.

  — *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 Menu*   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. 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, and so on.

  — *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, and the Add or 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* or *Choice of 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*   You can selectively turn
  the display of the *Choice of Services* or *Choice of Menu Actions* list on or
  off for the following screens:

  — VSDN Table DN Information form (in the View/Modify and Delete
    DN Information screens)

  — Voice Menu Definition form (in the View/Modify and Delete a Voice
    Menu Definition screen)

  — Find form

  The default for all three screens is "Yes." Once you become more famil-
  iar 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 9-3
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.   Press [Save].

        The changes are saved and you are returned to the Voice Services Admin-
        istration menu.

   b.   Press [Cancel].

        Changes are discarded and you are returned to the Voice Services Admin-
        istration 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.

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, and so on), 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 exact 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 (Figure 9-5). This allows you to switch between different service definitions and DN definitions without having to sort through a hierarchy of menus. Since there is no restriction on the order in which objects (DNs, announcements, thru-dialers, and so on) 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 "phonetic match"—a match between names that sound the same. 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, and so on.

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 9-5
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
  FI    Fax Info Service       FIM   Fax Item Maintenance     GS    Greeting Service
  ACC   Meridian ACCESS        NW    Meridian Networking      PM    Prompt Maintenance
  RA    Remote Activation      TD    Time-of-Day Controls     TS    Thru-Dial Service
  TR    Transcription Service  VF    Voice Forms Service      MS    Voice Menu Service
  VM    Voice Messaging


    Customer Number:  123+        Customer Name: _____

    Type:           [VSDN Entry] Announcement Thru-Dial TOD_Control Voice_Menu Fax_Item&

  * DN:             233+_____

  * Service:        MS

  * Comment         _____

  ** ID:            _____

  ** Title:         _____
  _____

  Select a softkey >

   ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
   │          │  │  Cancel  │  │   Find   │  │  Print   │  │          │
   │          │  │          │  │Selection │  │Selection │  │          │
   └──────────┘  └──────────┘  └──────────┘  └──────────┘  └──────────┘
```

```
 *  These fields are displayed if Type is VSDN Entry.
 ** These fields are displayed if Type is not VSDN Entry.
 &  Fax_Item is displayed only if Fax on Demand is enabled.
```

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 preselected 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 fields that appear on the Find Subset of VSDNs/Services screen can vary depending on whether or not "VSDN Entry" is selected in the *Type* field. The following sections "General fields on Find Subset of VSDNs/Services screen," "VSDN Entry fields on Find Subset of VSDNs/Services screen," and "Fields on Find Subset of VSDNs/Services screen for non-VSDN Entry" describe all of the fields that can appear on this screen.

General fields on Find Subset of VSDNs/Services screen

The following fields appear on the Find Subset of VSDNs/Services form:

- *Choice of Services*   This is 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 or Fax on Demand is 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-Dial
  — TOD_Control (Time-of-Day Control)
  — Voice Menu
  — Fax Item (if Fax on Demand is enabled)

VSDN Entry fields on Find Subset of VSDNs/Services screen

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.

Fields on Find Subset of VSDNs/Services screen for non-VSDN Entry

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 9-4
Finding or printing a subset of VSDNs or services

Starting Point: The Voice Services Administration menu

1   Press [Find Subset of VSDNs/Services].

   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 [Find Selection].

      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 [Print Selection].

You are prompted to verify that the printer is ready and the following set of softkeys are displayed:

	Cancel Printing		Continue Printing	

Select a softkey >
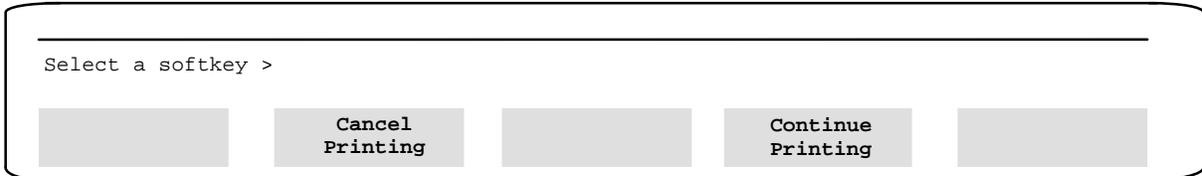
Press [Continue Printing] to go ahead with printing.

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 [Cancel].

The search is not performed, and the Voice Services Administration menu is displayed.

4   If you have retrieved a subset of DNs or services, you can select one of them and then press [View/Modify] or [Delete].

The Voice Services-DN Table

The Voice Services-DN (VSDN) Table (Figure 9-6) 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 DNs so that when the MSM 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 voice 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* for information about adding DNs.

VSDNs for UCD or line 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 PBX/switch. See Chapter 4, "Configuring Meridian Mail MSM services."

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 PBX/switch, 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 PBX/switch (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.

At the very least, you must define a DN for Voice Messaging. This is the DN that users dial to log on to the MSM 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.

Optional VSDNs

The other DNs are essentially optional. However, the following DNs are commonly configured:

- at least one Express Messaging DN (if MMUI is enabled)
- if the Voice Menus feature is enabled, a DN for both Remote Activation and Voice Prompt Maintenance
- DNs for any directly dialed voice services such as Announcements, Thru-Dialers, Time-of-Day Controllers, Voice Menus, and Voice Forms (if enabled).

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 9-6
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 #*   This is the number of the customer group to which the service belongs.

- *DN*   (Directory Number) This is the DN for the voice service.

  Note: If the SMDI link is set to 10-digit messaging, the full 10-digit DN (including the area code) will be shown.

- *Service*   The service that is reached when the corresponding DN is dialed. Voice services display a corresponding ID number.

- *Comment*   This is the 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 9-22.

Procedure 9-5
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 9-6).

2 Choose 2a to view or 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 "Viewing and modifying DN information" section 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 [Delete].

   The Delete DN Information screen appears. Refer to the "Deleting DN information" section later in this chapter for details.

   c. Press [Find].

   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 9-22 for more information about the Find function.

   d. Press [Exit].

   The Voice Services Administration menu is redisplayed.

Note: For DNs with Voice Menu Service (MS), Time-of-Day Controls (TD), Fax Information Service (FI), or Fax Item Maintenance (FIM) displayed in the *Service* field, the [Session Profile Detail] softkey is displayed. Press this softkey to update the session profile information for these Service types. For more information about updating the session profile information, refer to the "Defining the custom session profile values for new or existing DNs" section.

Note: Meridian ACCESS is not available for VMUIF systems.

Note: Meridian Networking is not available for VMUIF systems.

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 (Figures 9-7 through 9-11).

Depending on the service that is specified, additional fields may appear on this screen. (The field that is displayed depends on the service.) Figure 9-11 displays an entry for each type of service and the associated fields that are displayed.

Note: Figure 9-11 is for illustrative purposes only and cannot be displayed by the system.

Figure 9-7
The View/Modify DN Information screen excluding MS, FI, FIM, and TD service types

```
                        Voice Services Administration


View/Modify DN Information

Choice of Services:
AN   AMIS Networking         AS   Announcement Service     EM   Express Messaging
FI   Fax Info Service        FIM  Fax Item Maintenance     GS   Greeting Service
ACC  Meridian ACCESS         NW   Meridian Networking      PM   Prompt Maintenance
RA   Remote Activation       TD   Time-of-Day Controls     TS   Thru-Dial Service
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:     AS            Announcement ID:     6054

Comment:     Personnel Division



_____
 Select a softkey >

    Save            Cancel
```

Figure 9-8
The View/Modify DN Information screen for MS and TD service types

```
                    Voice Services Administration


View/Modify DN Information

Choice of Services:
AN   AMIS Networking        AS   Announcement Service     EM   Express Messaging
FI   Fax Info Service       FIM  Fax Item Maintenance     GS   Greeting Service
ACC  Meridian ACCESS        NW   Meridian Networking      PM   Prompt Maintenance
RA   Remote Activation      TD   Time-of-Day Controls     TS   Thru-Dial Service
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_____

**Session Profile:    Custom   Full_Multimedia+ [Full_Voice]   Basic

Comment:    Personnel Division_____



_____

 Select a softkey >

 ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐
 │              │  │              │  │   Session    │  │              │  │              │
 │    Save      │  │    Cancel    │  │   Profile    │  │              │  │              │
 │              │  │              │  │   Detail**   │  │              │  │              │
 └──────────────┘  └──────────────┘  └──────────────┘  └──────────────┘  └──────────────┘
```

* The Choice of Services will vary depending on the features that are enabled on your system.
+ This option appears only if FOD is enabled.
**This field and softkey are displayed only if the service type is MS, TD, FI, or FIM.

Figure 9-9
The View/Modify DN Information screen for the FI service type

```
                    Voice Services Administration

View/Modify DN Information

Choice of Services:
AN    AMIS Networking        AS    Announcement Service      EM    Express Messaging
FI    Fax Info Service       FIM   Fax Item Maintenance      GS    Greeting Service
ACC   Meridian ACCESS        NW    Meridian Networking       PM    Prompt Maintenance
RA    Remote Activation      TD    Time-of-Day Controls      TS    Thru-Dial Service
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:    FI           Fax Item ID:   6054

**Session Profile:    Custom    [Full_Multimedia]   Full_Voice

Comment:    Personnel Division
```

Select a softkey >

| Save | Cancel | Session Profile Detail** | | |

**This field and softkey are displayed only if the service type is MS, TD, FI, or FIM.

Figure 9-10
The View/Modify DN Information screen for the FIM service type

```
                     Voice Services Administration

 View/Modify DN Information

 Choice of Services:
 AN   AMIS Networking        AS   Announcement Service    EM   Express Messaging
 FI   Fax Info Service       FIM  Fax Item Maintenance    GS   Greeting Service
 ACC  Meridian ACCESS        NW   Meridian Networking     PM   Prompt Maintenance
 RA   Remote Activation      TD   Time-of-Day Controls    TS   Thru-Dial Service
 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:    FIM            Language of Service:     [American_English]
                                                     Canadian_French

 **Session Profile:    Custom    [Full_Multimedia]

 Comment:    Personnel Division

 ──────────────────────────────────────────────────────────────────

  Select a softkey >

                                      Session
      Save            Cancel          Profile
                                      Detail**
```

**This field and softkey are displayed only if the service type is MS, TD, FI, or FIM.

Figure 9-11
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
│   FI   Fax Info Service      FIM  Fax Item Maintenance    GS   Greeting Service
│   ACC  Meridian ACCESS       NW   Meridian Networking     PM   Prompt Maintenance
│   RA   Remote Activation     TD   Time-of-Day Controls    TS   Thru-Dial Service
│   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
│   Service:     AS      Announcement ID:        344_____
│   Service:     EM      Mailbox ID:            _____
│                        +or Expansion digits:  _____
│                        +  Enforce Prefix:      No  [Yes]
│   Service:     GS
│   Service:     ACC     Class:   _____
│                        Revert DN:  _____
│   Service:     NW
│   Service:     PM      Language of Service:    [American_English]
│                                                Canadian_French
│   Service:     RA      Password:              _____
│   Service:     TS      Thru-Dial ID:          _____
│   Service:     TD      Time-of-Day Control ID: _____
│   Service:     TR      Voice Form ID:         _____
│   Service:     VF      Voice Form ID:         _____
│   Service:     VM      +Expansion digits:     _____
│                        +Enforce Prefix:        No  [Yes]
│   Service:     MS      Voice Menu ID:         _____
│   **Session Profile:   Custom   Full_Multimedia  [Full_Voice]   Basic
│   Service:     FI      Fax Item ID:           _____
│   **Session Profile:   Custom   [Full_Multimedia] Full_Voice
│   Service:     FIM             Language of Service:    [American_English]
│                                                        Canadian_French
│   **Session Profile:   Custom   [Full_Multimedia]
│
│   Comment:  _____
│   ───────────────────────────────────────────────────────────────────────
│
│   Select a softkey >
│
│   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│   │          │   │          │   │ Session  │   │          │   │          │
│   │   Save   │   │  Cancel  │   │ Profile  │   │          │   │          │
│   │          │   │          │   │ Detail** │   │          │   │          │
│   └──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
└─────────────────────────────────────────────────────────────────────────
```

* 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.

** This field and softkey are displayed only if the service type is MS, TD, FI, or FIM.

+ These fields are displayed only if the System Addressing Length field in the General Options screen is set to a value that is greater than 0 (zero).

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 PBX/switch. 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 Meridian Mail Access Number, required by users to log on to the MSM 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.** No other fields are displayed when this service is selected.

  AS   **Announcement Service.** 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.)

  Announcement ID   The ID specifies which announcement to retrieve when the access DN is dialed.

EM   **Express Messaging.** When you specify Express Messaging, three additional fields—*Mailbox ID*, *Expansion Digits* and *Enforce Prefix*—may be 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.

This field is only displayed if the system addressing length is defined (that is, is a value greater than zero).

This feature allows you to make it more convenient for users to enter mailbox numbers when using Express Messaging by allowing them to dial a mailbox number that is shorter than the system addressing length.

Note: To enter a value in this field, both the system addressing length and the local addressing lengths must be specified. The system addressing length is specified in the General Options screen at the system administration level. The local addressing lengths are defined in the Voice Messaging Options screen.

For example, the system addressing 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 (if any residential customer groups have MMUI, 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 addressing length using the expansion digits in this field.

Continuing with this example, you would enter six expansion digits for a centrex customer group (416598 in this example) 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 Prefix This field is displayed only if you have entered expansion digits in the previous field, and the system addressing length is specified (that is, greater than 0).

Enforce Prefix ensures that addressing is done within a defined set of expansion digits (in the case of Express Messaging), and it ensures that login is done within a defined set of expansion digits (in the case of Voice Messaging).

If expansion digits are implemented, users can still enter a 10-digit DN. However, if *Enforce Prefix* is implemented, they will not be allowed to enter a DN that conflicts with the expansion digits. For example, if *Enforce Prefix* 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 Prefix* is set to "Yes," the message would not be sent 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 log in 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 VMUIF is enabled. This service allows users to update their greetings in a manner that requires no keypad input. A DN should be created for this service to allow users without digitone phones (that is, those with rotary phones) to directly connect to the Greetings Service by dialing the specified Access DN. Once connected, the service prompts the user to speak at certain times and requires no keypad input. This can also be provided to users 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 users, you need to define a DN in the VSDN table.

ACC   **Meridian ACCESS** This service accesses a voice application. The following additional fields are displayed.

    Class   This field identifies which ACCESS application should be started for an incoming call to the service DN. The application will use this same class value to identify which calls it wants to handle.

    Revert DN   This field specifies the DN to which calls are transferred if the Meridian ACCESS application has gone off-line.

NW   **Meridian Networking** This DN is used to establish a network connection for message transmission. No other fields are displayed when this service is selected.

PM   **Prompt Maintenance** This service is used to update prompts in voice menus and related services by a remote phone. The following field is displayed if multiple languages are installed on the system.

    Language of Service   The selection made here determines the language in which system prompts are played to users of the service.

RA   **Remote Activation** This service is used to call into the system from an off-site phone and assign a different service (such as an autoattendant or announcement) to a particular DN.

    Password   This password must be defined. The Remote Activation service cannot be accessed without a password.

    Note: If the password field is left blank, Remote Activation is disabled.

TS   **Thru-Dial Service** This service allows a caller to place a call (limited by restriction/permission codes).

Thru-Dial ID   This field is mandatory. This is the ID of the thru-dial service to be accessed when the access DN is dialed.

TD　**Time-of-Day Control Service** This service directs calls to different services based on the time-of-day (and day of the week) that the call is received.

Time-of-Day Control ID   This is the ID of the time-of-day control service to be accessed when the access DN is dialed.

Session Profile   Select "Full_Multimedia," "Full_Voice," or "Basic" to use a default session profile or "Custom" to create a customized profile. The session profile can be viewed by pressing the [Session Profile Detail] softkey. To view a default profile, make sure one of the above defaults is selected. To create a customized profile, make sure "Custom" is selected before pressing [Session Profile Detail].

TR　**Transcription Service** This service allows a transcriber to log into a voice form and listen to and transcribe the recorded responses.

Voice Form ID   This field is optional. If you enter an ID, the associated voice form will automatically be retrieved for the transcriber. If you do not enter an ID, the transcriber will have to enter the ID of the form he or she wants to transcribe. If you want to provide transcribers with automatic logon to particular voice forms, you will need several DNs for TR. You should also create a DN that does not reference a particular form, so that it can be used as a general access to the transcription service.

VF　**Voice Forms Service** This service connects a caller to the specified voice form. The voice form then asks the caller a series of questions to which the caller responds with spoken answers.

Voice Form ID   This is the ID of the voice form service to be retrieved when the access DN is dialed. This ID is defined when the voice form is created in the Add a Voice Form Definition screen.

MS　**Voice Menu Service** This service provides callers with a series of options from which they can make a selection by pressing the appropriate key on their telephone keypad (provided they have DTMF capability). The following additional fields are displayed.

Voice Menu ID   This is the ID of the top-level voice menu service to be retrieved when the access DN is dialed. This ID is defined when the voice menu is created in the Add a Voice Menu Definition screen.

Session Profile Select "Full_Multimedia," "Full_Voice," or "Basic" to use a default session profile or "Custom" to create a customized profile. The session profile can be viewed by pressing the [Session Profile Detail] softkey. To view a default profile, make sure one of the above defaults is selected. To create a customized profile, make sure "Custom" is selected before pressing [Session Profile Detail].

VM **Voice Messaging** Two additional fields, *Expansion Digits* and *Enforce Prefix*, may be displayed.

Expansion Digits This is an optional field, and is only displayed if the system addressing length is a value greater than zero.

This feature allows you to make it more convenient for users to enter mailbox numbers when logging on to the MSM by allowing them to dial a mailbox number that is shorter than the system addressing length.

Note: To enter a value in this field, both the system addressing length and the local addressing lengths must be specified. The system addressing length is specified in the General Options screen at the system administration level. The local addressing lengths are defined in the Voice Messaging Options screen.

For example, the system addressing length is 10 digits. (An example of a full 10-digit DN is 416-598-2011). For one customer group, the local DN length would be 4, and for another customer group, the local DN length could be 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 the first customer group) or the 7-digit DN (for the second customer group). The shortened DN is expanded out to the full system addressing length using the expansion digits in this field.

Continuing with this example, you would enter six expansion digits for the first customer group (416598, in this example) since the local DN length is 4. For the second customer group, you would enter 3 expansion digits (416, in this example) because the local DN length is 7. When a user belonging to the first customer group specifies the DN 2339, it is expanded to 4165982339.

Enforce Prefix This field is displayed only if you have entered expansion digits in the previous field, and the system addressing length is defined (that is, is a value greater than 0).

Note: Enforce prefix for Voice Messaging applies only to log on, not message addressing.

If expansion digits are implemented, a user can enter a 10-digit mailbox number to log on to his or her mailbox. However, if *Enforce Prefix* is implemented, the user will not be allowed to enter a mailbox number that conflicts with the expansion digits.

Enforce Prefix ensures that addressing is done within a defined set of expansion digits (in the case of Express Messaging), and it ensures that login is done within a defined set of expansion digits (in the case of Voice Messaging).

For example, if *Enforce Prefix* is set to "No," a user could specify a mailbox number of 416-575-2115 to log on. If, however, *Enforce Prefix* is set to "Yes," the user would not be allowed to log on since 416575 conflicts with the expansion digits (416598).

FI   **Fax Information Service** This service allows a caller to retrieve one specific fax item as identified by the fax item ID. Two additional fields are displayed when FI is the selected service.

Fax Item ID   This ID specifies which fax item is to be retrieved when the access DN is dialed. This ID is defined when the fax item is created in the Add a Fax Item Definition screen.

Session Profile   Select "Full_Multimedia" or "Full_Voice" to use a default session profile or "Custom" to create a customized profile. The session profile can be viewed by pressing the [Session Profile Detail] softkey. To view a default profile, make sure one of the above defaults is selected. To create a customized profile, make sure "Custom" is selected before pressing [Session Profile Detail].

FIM   **Fax Item Maintenance Service** This service allows an administrative delegate to maintain fax items. The following two additional fields are displayed.

Language of Service   This field is displayed if more than one language is installed. The selection made here determines the language in which modifying and deleting system prompts are played to the caller.

Session Profile   Select "Full_Multimedia" to use the default session profile or "Custom" to create a customized profile. The session profile can be viewed by pressing the [Session Profile Detail] softkey. To view the default profile, make sure "Full_Multimedia" is selected. To create a customized profile, make sure "Custom" is selected before pressing [Session Profile Detail].

- *Comment*   This field is optional and can be used for descriptive purposes. The following, characters cannot be used in this field: "?," "+," and "_." These are reserved wildcard characters (used when specifying search criteria for retrievals). 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 screen.

Procedure 9-6
Modifying DN information

Starting point: The Main Menu

1   Select Voice Administration.

2   Select Voice Services Administration.

3   Select Voice Services-DN Table.

4   Move the cursor to the voice service you want to view or modify, and press <Space Bar> to select it.

5   Press [View/Modify].

The View/Modify DN Information screen appears (Figure 9-11).

6   Change the *Access DN* if necessary.

7   Change the associated service if necessary.

8   Fill in any additional fields that appear (if necessary). See the field descriptions on the preceding pages.

9   Enter any comments that you may have.

10 If this is a voice menu, fax information service, fax item maintenance service, or time-of-day controller service DN, modify the customized session profile if necessary.

    a.   Move the cursor to the *Session Profile* field.

    b.   Select "Custom."

    c.   Press [Session Profile Detail].

    d.   Modify the Session Profile as required.

    e.   When finished, press [Return to Previous Form].

11 Choose step 10a to save the changes or 10b to cancel.

    a.   Press [Save].

    The changes are saved, and you are returned to the Voice Services-DN Table.

    b.   Press [Cancel].

    The changes are not saved, and you are returned to the Voice Services-DN Table.

Defining the custom session profile values for new or existing DNs

For DN information screens that pertain to a *Service* type of for Voice Menu Service (MS), for Fax Information Service (FI), for Fax Item Maintenance service (FIM), or for Time-of-Day Control service (TD), the [Session Profile Detail] softkey allows you to view or update the session profile information for new or existing DNs. Depending on the service type that is selected and the value that is currently selected for the *Session Profile* field, different screens are displayed. Table 9-1 lists the screens that appear for different combinations of service types and session profile field values.

Table 11-1 in Chapter 11, "System Status and Maintenance," identifies the port requirements for each Meridian Mail MSM service. Use this table to help you determine the appropriate session profile for the service you are configuring.

Table 9-1
Matrix of Session Profile screens and Service Types

Value in Service field	Value in Session Profile field	Figure number of screen displayed
MS	Custom	Figure 9-14, 9-15
MS	Full_Multimedia	Figure 9-12
MS	Full_Voice	Figure 9-14 (read-only)
MS	Basic	Figure 9-15 (read-only)
FI	Custom	Figure 9-14
FI	Full_Multimedia	Figure 9-12
FI	Full_Voice	Figure 9-14 (read-only)
FIM	Custom	Figure 9-16
FIM	Full_Multimedia	Figure 9-13
TD	Custom	Figure 9-14, 9-15

Figure 9-12
Session Profile screen for MS, FI, or TD and Full_Multimedia

```
                        Voice Services Administration


   Session Profile

!  Channel Capability Required:          FullMultiMedia  Full_Voice  Basic

   Session Time Limit (minutes):         10

   Maximum Number of Invalid Selections: 10

*# Maximum Number of Fax Selections:     5

*  Page Limit for Fax Selections:        40

*  Fax Activity Revert DN:

*  Sender Fax Number:

*  Sponsor Fax Item ID:

*  Billing DN:

*  Page Transmission Error Handling:     Quit    Continue

*  Fax Delivery Option:                  Call_Back    Same_Call    Caller_Choice

*  Call Back Extension Prompt:           No    Yes

*  Call Back Number Area Code Translation: None    North_American_Plan

*  Call Back International DDD:           Not_Allowed Required    Optional

*  Automatic Cover Sheet:                No    Yes

+* Sender Name Display:

*  Call Back Dialing Restrictions:       Custom    On_switch    Local
                                         Long_distance_1   Long_distance_2



   Select a softkey >

     Return to
   Previous Form
```

* These fields are displayed only if Fax on Demand is enabled.
\# For FI, this field is set to 1.
\+ This field is displayed only if Automatic Cover Sheet is set to "Yes."
! The "Basic" choice does not appear for FI.

Figure 9-13
Session Profile screen for FIM and Full_Multimedia

```
┌─────────────────────────────────────────────────────────────────────┐
│                   Voice Services Administration                      │
│                                                                      │
│  Session Profile                                                     │
│                                                                      │
│  Channel Capability Required:              Full_MultiMedia          │
│                                                                      │
│  Sender Fax Number:                                                  │
│                                                                      │
│  Billing DN:                                                         │
│                                                                      │
│  Page Transmission Error Handling:        Quit    Continue          │
│                                                                      │
│  Call Back Dialing Restrictions:          Custom    On_switch    Local  │
│                                           Long_distance_1   Long_distance_2 │
│                                                                      │
│                                                                      │
│                                                                      │
│  ─────────────────────────────────────────────────────────────     │
│  Select a softkey >                                                  │
│                                                                      │
│  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐ │
│  │ Return to│  │          │  │          │  │          │  │          │ │
│  │Previous Form│ │        │  │          │  │          │  │          │ │
│  └──────────┘  └──────────┘  └──────────┘  └──────────┘  └──────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 9-14
Session Profile screen for MS, FI, or TD and Custom

```
                         Voice Services Administration


      Session Profile

  %   Channel Capability Required:          Full_MultiMedia [Full_Voice] Basic

      Session Time Limit (minutes):         10

      Maximum Number of Invalid Selections: 10

  *#  Maximum Number of Fax Selections:      5

  *!  Page Limit for Fax Selections:        40

  *!  Fax Activity Revert DN:               _____

  *!  Sender Fax Number:                    _____

  *!  Sponsor Fax Item ID:                  _____

  *!  Billing DN:                           _____

  *!  Page Transmission Error Handling:     Quit   [Continue]

  &*! Fax Delivery Option:                  Call_Back   Same_Call   Caller_Choice

  *!  Call Back Extension Prompt:           No   [Yes]

  *!  Call Back Number Area Code Translation: None   [North_American_Plan]

  *!  Call Back International DDD:           [Not_Allowed]  Required    Optional

  ^    IDDD Prefix:                         011

  *!  Automatic Cover Sheet:                No   [Yes]

  *!+ Sender Name Display:                  _____

  *!  Call Back Dialing Restrictions:       Custom  On_Switch [Local]
                                            Long_Distance_1   Long_Distance_2


  The Session Profile will be saved only if the Previous Form is saved.

    Return to
  Previous Form
```

```
* These fields are displayed only if Fax on Demand is enabled and
  Channel Capability Required is set to "Full_Voice" or "Full_Multimedia."
# For FI, this field is set to 1 and is read-only.
! If the Maximum Number of Fax Selections field is set to 0 for a voice menu (MS), these
  fields are not displayed.
^ This field is displayed only if the previous field, Call Back International DDD, is set
  to "Optional."
+ This field is displayed only if Automatic Cover Sheet is set to "Yes."
% This field does not show "Basic" for FI.
& This field is read-only and set to "Call_Back" when Channel Capability Required is set to
  "Full_Voice."
```
Note: All of the fields below Fax Delivery Option appear only if Fax Delivery Option is
   not set to "Same_Call."

Figure 9-15
Session Profile screen for MS or TD, and Custom

```
╭────────────────────────────────────────────────────────────────────╮
│  ┌──────────────────────────────────────────────────────────────┐  │
│  │                Voice Services Administration                  │  │
│  └──────────────────────────────────────────────────────────────┘  │
│                                                                     │
│   Session Profile                                                   │
│                                                                     │
│   *  Channel Capability Required:          Full_MultiMedia  Full_Voice   [Basic] │
│                                                                     │
│   *  Session Time Limit (minutes):         10                       │
│                                                                     │
│   *  Maximum Number of Invalid Selections:   10                     │
│                                                                     │
│                                                                     │
│                                                                     │
│                                                                     │
│                                                                     │
│  ─────────────────────────────────────────────────────────────     │
│                                                                     │
│   The Session Profile will be saved only if the Previous Form is saved. │
│                                                                     │
│   ┌──────────┐  ┌────────┐  ┌────────┐  ┌────────┐  ┌────────┐      │
│   │ Return to│  │        │  │        │  │        │  │        │      │
│   │Previous Form│ │       │  │        │  │        │  │        │      │
│   └──────────┘  └────────┘  └────────┘  └────────┘  └────────┘      │
╰────────────────────────────────────────────────────────────────────╯
```

* If Fax On Demand is not enabled, only these fields are displayed.

Figure 9-16
Session Profile screen for FIM, and Custom

```
╭────────────────────────────────────────────────────────────────────╮
│  ┌──────────────────────────────────────────────────────────────┐  │
│  │                Voice Services Administration                  │  │
│  └──────────────────────────────────────────────────────────────┘  │
│                                                                     │
│   Session Profile                                                   │
│                                                                     │
│   Channel Capability Required:          **Full_MultiMedia**         │
│                                                                     │
│   Sender Fax Number:                                                │
│                                                                     │
│   Billing DN:                           ──────────────────────────  │
│                                                                     │
│   Page Transmission Error Handling:     Quit    [Continue]          │
│                                                                     │
│   Call Back Dialing Restrictions:       Custom    On_switch   [Local] │
│                                         Long_distance_1  Long_distance_2 │
│                                                                     │
│                                                                     │
│  ─────────────────────────────────────────────────────────────     │
│                                                                     │
│   The Session Profile will be saved only if the Previous Form is saved. │
│                                                                     │
│   ┌──────────┐  ┌────────┐  ┌────────┐  ┌────────┐  ┌────────┐      │
│   │ Return to│  │        │  │        │  │        │  │        │      │
│   │Previous Form│ │       │  │        │  │        │  │        │      │
│   └──────────┘  └────────┘  └────────┘  └────────┘  └────────┘      │
╰────────────────────────────────────────────────────────────────────╯
```

The following fields appear in the Session Profile screens:

- *Channel Capability Required*   All services require either a Full_Voice, Full_MultiMedia or Basic service channel. Of the four service types that have session profiles (Voice Menu Service [MS], Fax Information Service [FI], Time-of-Day Controller Service [TD], and Fax Item Maintenance [FIM]), one can be assigned either to a full-service or basic-service channel. A voice menu service or time-of-day controller service can use basic service ports if it runs only voice menu functions (such as announcements, thru-dial services, time-of-day controllers, or other voice menu functions such as play prompt and return to main menu) and/or Meridian ACCESS applications. The other two (Fax Information, and Fax Item Maintenance) always require a full-service channel. If set to Basic, all fax-related services will not be shown on the Session Profile screen.

- *Session Time Limit (minutes)*   This is the maximum amount of time that a call session may last. For a Fax Information (FI) session, this time does not include the time taken by Same Call Fax Delivery. The valid range for this field is 1 to 99 minutes. The default is 10 minutes.

  Use this field to guard against misuse. The limit should be set high enough to accommodate only the longest session that your organization can tolerate.

- *Maximum Number of Invalid Selections*   Each time a user makes an invalid selection from a voice menu or fax menu, an error counter is incremented by 1. For fax menus, when this limit is reached, the caller receives the same treatment as for *Maximum Number of Fax Selections.* For regular voice menus, the session will be terminated. The value can be from 1 to 99, and the default is 10.

- *Maximum Number of Fax Selections*   This field determines the maximum number of faxes that a caller can select during one call session. If a caller reaches this maximum, the following message is played: *"You have made the maximum number of selections allowed in one call. If you would like to make additional selections, please call in again."*

  For a Fax Information (FI) service directly accessible by dialing a DN (in other words, a VSDN entry for FI), the maximum number of selections is one. Services that are not fax-related have this value set to zero. The value can be between 0 and 25. For fax menus, the default value is set to five. For fax items, the default value is set to one and cannot be changed.

- *Page Limit for Fax Selections* This field is displayed if the previous field, Maximum Number of Fax Selections, is greater than zero. If a caller makes a fax selection and the page count exceeds this value, the caller will not be able to make another selection. (The current selections, including the last selection which exceeded the page limit, will be delivered.) The valid range is 1 to 99. The default is 40.

- *Fax Activity Revert DN* This field defines the voice DN that a caller is transferred to if they encounter any difficulty while doing any fax-related activities, such as delivery setup, same call delivery initiation, and so on. For voice menus that use Fax Items, any revert operation required outside of the fax selections uses the DN specified for the Voice Menu Revert DN field in the voice menu. See the *Voice Menus Application Guide* (NTP 555-7001-325) for more information about this field.

  The maximum size of the value that can be given to the Voice Menu Revert DN field is 30 characters, and the default value is blank. When this field is left blank, the Customer's Attendant DN is assigned as the revert DN. If the Customer's Attendant DN is also blank, then the caller is informed that the call cannot be continued, and the call is disconnected. (The Attendant DN is configured in the General Options screen, which is described in Chapter 8, "General Administration.")

- *Sender Fax Number* This number defines the calling terminal ID and identifies the sending fax phone to the caller. This field can be assigned a number of up to 20 digits in length, and the default is blank.

  The Sender Fax Number is displayed in the trim tab unless this field is left blank. The trim tab is printed on each page of any transmission from the MSM. It includes the date of the transmission, the start time of the transmission, the sender number, the callback telephone number of the recipient (in the case of callback delivery), an optional extension number, the current page number, and the total number of pages.

- *Sponsor Fax Item ID* This field is for an optional Fax Information (FI) identifier that can be up to eight characters long. If a value is specified for this field, then this fax item is implicitly included before the first item selected by the caller. The expected use of this field is to provide a fax identifier after the system-generated cover page. The Sponsor Fax Item is not counted in the Maximum Number of Fax Selections or Page Limit for Fax Selections fields. This field is the internal Voice Service ID of the Fax Item.

  The default is blank which indicates that no identification information will be inserted after the system-generated cover page.

  A sponsor fax item can be used as a custom cover sheet (in place of, or in addition to the automatic cover sheet). For example, the automatic cover sheet is generated in English only. To create a cover page in

another language, you can create a special fax item for the cover page (the sponsor fax item), and then enter its service ID in this field. You can then turn off the automatic cover sheet, or you might want to create a custom cover sheet with your company logo on it.

- *Billing DN*   This field contains an optional DN for billing purposes. If a value is specified for this field, then any billable activities (such as Call Back Fax Delivery) will be reported against this DN.

  This field is blank by default. If it is left blank, the customer's billing DN is used. If this DN is also undefined, the call is billed to the VSDN that the caller dialed. The customer's billing DN is defined in the Voice Messaging Options screen which is described in the "Voice Administration" chapter.

- *Page Transmission Error Handling*   The option selected in this field controls how the system will respond to page transmission errors. This field can have two values: "Quit" (current delivery attempt), and "Continue" (with next page). The default is "Continue."

- *Fax Delivery Option*   If the value set for the *Maximum Number of Fax Selections* field is set to a number greater that 0, then the *Fax Delivery Option* field will have the following choices: "Call_Back," "Same_Call," and "Caller_Choice." The default value is "Call_Back" for "Custom" and "Full_Voice" session profiles. The default value is "Caller_Choice" for "Full_Multimedia" session profiles. This field is selectable only if *Channel Capability Required* is set to "Full_MultiMedia."

  — *Call_Back*   If callback delivery is selected, callers do not have to call the service from a fax phone. Callers will be prompted to enter a callback number (and optional extension number for routing) when a fax item is selected. A short time after the call session is terminated, the fax item(s) will be delivered to the specified number (as long as the number is not restricted). See the description of the *Call Back Dialing Restrictions* field on page 9-54.

    Fax delivery calls that are originated by the system (in other words, callback deliveries) are charged to the Billing DN.

  — *Same_Call*   If same call delivery is selected, callers must call the service from a fax phone. The fax item(s) will be delivered after the caller presses Receive on the receiving fax machine. With this setup, long distance charges, if applicable, will be billed to the calling phone.

— *Caller_Choice*   This option allows the caller to dial in from any phone (a fax phone or a regular phone). When a caller selects a fax item, he or she is prompted to choose the method of delivery (same call or call back). The caller hears the following prompt: *"If you are calling from a fax phone, press 1. To enter a fax number for later transmission, press 2."*

Fax delivery calls that are originated by the system (in other words, callback deliveries) are charged to the Billing DN. Same call fax deliveries are billed to the calling DN.

If you select "Call_Back" or "Caller_Choice," then the following six fields and associated subfields (up to and including the *Call Back Dialing Restrictions* field) apply and are displayed on the screen.

- **Call Back Extension Prompt**   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice." "Yes" indicates that the caller will be prompted for an extension number (in addition to a callback number) when arranging callback delivery. This extension is printed on the cover sheet. If another party receives the fax, an extension number makes it easier to contact the recipient of the fax item(s).

- **Call Back Number Area Code Translation**   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice." This field determines the format in which callers must enter a call back number. There are two options:

  — *None*   This indicates that the caller must enter the callback number as it is to be dialed. This option is meant for systems that are located in countries outside of North America because it handles numbers that are not 10 digits.

  — *North_American_Plan*   This indicates that the number of digits required is the North American set of digits (that is, 10 digits, in the format NPA-NXX- X). Note that "1s" are accepted when entered (as in 1-NPA-NXX- X) but are removed by the system.

  The default is North American Plan.

- **Call Back International DDD**   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice." This field specifies whether an international dialing prefix is not allowed, required, or optional. The default is "Not Allowed."

— *Not Allowed*   This indicates that only domestic dialing is allowed. (Note that only fixed-length domestic dialing plans are supported.) When entering a callback number, the caller is prompted for the area code and the number of the fax phone. The caller is not prompted for a country code. The following prompt is played to callers if this option is selected: *"Please enter the fax number, including the area code."*

Note that if fax services are provided within North America, long distance calling would be allowed between Canada and the United States since the country code ("1") is shared. However, call back numbers outside of Canada and the U.S.A. will not be allowed.

— *Required*   This indicates that the callback number is allowed to be outside the domestic dialing plan (that is, have a different country code) and that the caller will always be prompted (and required) to enter a country code in addition to the area code and fax phone number (even if the caller's number is within the same country code).

Callers hear the following prompt: *"Please enter the country code followed by number sign."* Once a valid country code is entered, the following prompt is played: *"Please enter the remainder of the number, including area code or city code. When you have finished, press number sign."*

— *Optional*   This indicates that the callback number is allowed to be outside the domestic dialing plan (that is, have a different country code). The country code is optional if the caller is within the same country code as the system.

The following prompt is played to callers: *"Please enter the fax number, including the area code. For an international number, dial <IDDD prefix> and wait for instructions."* The IDDD prefix that the system announces is taken from the following field.

If a caller does not enter the correct number of digits when entering the call back number, the following prompt is played: *"[error tone] A complete telephone number was not received. Please try again."*

- *IDDD Prefix*   This field is displayed only if Fax Delivery Option is set to "Call_Back" or "Caller_Choice," and if Call Back International IDDD is set to "Optional." This field is used to specify the digits that will be used to indicate IDDD dialing. If Call Back International DDD is set to "Optional," this prefix must be defined, and you will not be able to leave this screen if this field is blank. The default is 011. The maximum field size is five characters.

When the *Callback International DDD* field is set to "Optional," the following callback prompt is played to callers: *"Please enter the fax number, including the area code. For an international number, dial <IDDD prefix> and wait for instructions."*

If the caller enters a prefix that matches this field, the following prompt is played: *"Please enter the country code, followed by number sign."*

After the caller provides the digits, the system prompts for the remainder of the number: *"Please enter the remainder of the number, including area code or city code. When you have finished, press number sign."*

Note: In the above examples, the number sign is optional even though it is requested.

- *Automatic Cover Sheet*   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice." (In the case of caller choice, this field is used only if the caller selects call back delivery.) If "No" is selected, no cover sheet will be inserted before call back fax transmissions. If "Yes" is selected, a system-generated cover sheet is attached to all call back transmissions. If you are using a sponsor fax item (a customized cover sheet), you may want to suppress the automatic cover sheet. The default is "Yes."

Figure 9-17 shows the cover page that is transmitted when the caller enters an extension number. The cover page in Figure 9-18 is transmitted if the caller does not provide an extension number. (Note that in this release of Meridian Mail, only American English is available for the cover sheet.)

Figure 9-17
Callback cover page (with caller's extension number)

```
<trim tab>

FACSIMILE TRANSMISSION


TO:         THE PERSON AT EXTENSION  x
FAX#:       nnnnnnnnnn
FROM:       sendername ..............
            (AUTOMATED FACSIMILE SERVICE)
PAGES:      nn (INCLUDING THIS COVER PAGE)



IF THIS FACSIMILE IS NOT COMPLETELY READABLE OR IS
MISSING PAGES, PLEASE INFORM THE PERSON AT EXTENSION
 x; THEY WILL HAVE TO RE-REQUEST THE INFORMATION FROM
THIS SERVICE.
```

Figure 9-18
Callback cover page (without Caller extension number)

```
<trim tab>

FACSIMILE TRANSMISSION


TO FAX#:    nnnnnnnnnn
FROM:       sendername ..............
            (AUTOMATED FACSIMILE SERVICE)
PAGES:      nn (INCLUDING THIS COVER PAGE)



IF THIS FACSIMILE IS NOT COMPLETELY READABLE OR IS
MISSING PAGES, PLEASE INFORM THE PERSON WHO REQUESTED THE
INFORMATION; THEY WILL HAVE TO RE-REQUEST THE INFORMATION
FROM THIS SERVICE.
```

- *Sender Name Display*   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice," and if *Automatic Cover Sheet* is set to "Yes." If this field is set to "Yes," the name that you enter will appear on the cover sheet. (See the FROM: field in Figure 9-18). This field is blank by default, implying that the sender's name will not be displayed. You can enter a name of up to 20 characters.

- *Call Back Dialing Restrictions*   This field is displayed only if *Fax Delivery Option* is set to "Call_Back" or "Caller_Choice." These codes apply only if the delivery method used is call back since you will be billed for these calls. (Same call delivery is billed to the calling party.) You must, therefore, ensure that you apply the appropriate restriction/permission codes if callback delivery to certain country codes or area codes is not allowed. Perhaps all long distance dialing or international dialing is restricted for some fax items or fax menus, yet permitted for others.

  You can apply one of the already defined restriction/permission sets. (To review these sets, go to the Voice Security Options screen for the customer group.) Alternatively, you can create a custom set of codes that will apply to calls made to this VSDN only.

  To create a custom set of codes, select the "Custom" option. When you do so, additional fields are displayed in which you can define up to 10 restriction codes and 10 permission codes. Each dialing code can be up to five digits in length. Initially, all restriction code fields are prefilled with the digits 0 through 9, essentially restricting all callback numbers. This means that you must modify these fields for callback fax delivery to work. All permission code fields are blank by default.

  Restriction codes are used to identify the general rules, and permission codes are used to identify exceptions to the rule. For example, to restrict all long distance call back delivery, enter the long distance dialing prefix as a restriction code (91 for example). However, to allow long distance call-back delivery to two specific area codes (such as 504 and 205), enter 91504 and 91205 as permission codes.

  Note: For a more detailed discussion of restriction/permission codes, see the "System security" chapter.

Procedure 9-7
Defining custom session profile values

Starting point: The Main Menu

1   Select Voice Administration.

2   Select Voice Services Administration.

3   Select Voice Services-DN Table.

4   Press [View/Modify].

The Add or View/Modify DN Information screen appears.

5 Enter the Access DN.

6 Specify the service.

7 If you are defining a DN for a voice menu, time-of-day controller, fax information service, or fax item maintenance service, select the desired session profile if the default is not appropriate.

   a. Move the cursor to the Session Profile field.

   b. Select a session profile.

   c. Press [Session Profile Detail].

   d. Modify the session profile as required if you selected "Custom," or simply view it if you have not.

   e. Press [Return to Previous Form].

8 Choose step 8a to save the changes or 8b to cancel.

   a. Press [Save].

   The new or modified session profile is saved, and you are returned to the Voice Services-DN Table.

   b. Press [Cancel].

   The new or modified session profile is NOT saved, and you are returned to the Voice Services-DN Table.

Deleting DN information

Use the Delete DN Information screen (Figure 9-19) to delete Directory Numbers (DNs) from the Voice Services-DN Table. The fields on this screen are read-only. For a description of the fields used in the Delete DN Information screen, refer to the field descriptions for the Add DN Information screen in the *Customer Administration Guide*.

Figure 9-19
The Delete DN Information screen

```
                    Voice Services Administration


Delete DN Information

*Choice of Services:
AN   AMIS Networking       AS   Announcement Service   EM   Express Messaging
FI   Fax Info Service      FIM  Fax Item Maintenance   GS   Greeting Service
ACC  Meridian ACCESS       NW   Meridian Networking    PM   Prompt Maintenance
RA   Remote Activation     TD   Time-of-Day Controls   TS   Thru-Dial Service
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:    ACC           Class:       6054
                          Revert DN:   149

Comment:     Personnel Division


```

```
  OK to Delete          Cancel
```

* The Choice of Services list is optionally displayed by setting the display option in the
  VSDN Table DN Information form field to "No." The choices displayed vary depending
  on the features enabled on your system.

This field changes depending on the Service selected.

Procedure 9-8
Deleting DN information

Starting point: The Voice Services-DN Table

1 Select Voice Administration.

2 Select Voice Services Administration.

3 Select Voice Services-DN Table.

4 Move the cursor to the voice service you want to delete, and press
   <Space Bar> to select it.

5 Press [Delete].

   The Delete DN Information screen appears (Figure 9-19).

6 Choose step 6a to delete the service or 6b to cancel.

   a. Press [OK to Delete].

      The entry is deleted and you are returned to the Voice Services-DN Table.

b. Press [Cancel].

You are returned to the Voice Services-DN Table without the entry being deleted.

Announcement Definitions

When you select Announcement Definitions from the Voice Services Administration menu, the Announcement Definitions data screen is displayed. For more information about administering Announcement Definitions, refer to the *Voice Menus Application Guide* (NTP 555-7001-325).

An announcement is recorded information that is played to callers. It is the simplest type of voice service that you can create.

When a caller accesses an announcement directly, it is played twice. A "*Goodbye*" prompt is then played, and the call is disconnected. (Of course, the caller may hang up after hearing the announcement the first time.) The amount of time that the system waits before disconnecting is defined in the Voice Services Profile as the *Command Entry* time-out.

When a caller accesses an announcement through a voice menu, the announcement is played and the caller remains in the menu in order to select another menu action, if desired. No keypad input is required of a caller during the playback of an announcement.

Thru-Dial Definitions

When you select Thru-Dial Definitions from the Voice Services Administration menu, the Thru-Dial Definitions data screen is displayed. For more information about administering Thru-Dial Definitions, refer to the *Voice Menus Application Guide* (555-7001-325).

A thru-dial definition acts like a service and allows callers to dial (make their own call) from Meridian Mail. It is primarily used within a voice menu or automated attendant, but can be configured as a stand-alone service.

The "type" of thru-dial service you create is dependent on the way in which you configure the restriction/permission codes.

Each thru-dial service can be used as many times as you need within different applications. For example, any time you need to allow callers to place local calls from within an automated attendant or voice menu, simply refer to the appropriate thru-dial service.

Time-of-Day Control Definitions

When you select Time-of-Day Control Definitions from the Voice Services Administration menu, the Time-of-Day Control Definitions data screen is displayed. For more information about administering Time-of-Day Control Definitions, refer to the *Voice Menus Application Guide* (555-7001-325).

A time-of-day controller activates a particular service depending on the day (regular business day or holiday) and time of day (business hours or off-hours) at which a call is received.

A time-of-day control definition has three time periods: business hours, off-hours, and holidays. When you create a new time-of-day control definition, Monday to Friday are defined as business days by default, and Saturday and Sunday are defined as nonbusiness days. The default business hours are taken from the Voice Services Profile. The Voice Services Profile must be set up properly for a time-of-day controller to work since, in addition to containing the default business hours, the profile also defines the holidays for which the organization closes. See the section "The Voice Services Profile" in this chapter.

If a time-of-day controller is active when a call is received, the system first checks the Voice Services Profile to see if it is a holiday. If it is a holiday, the holiday service ID is looked up in the time-of-day control definition and the associated voice service is activated. If it is not a holiday, the time-of-day controller checks the defined business hours. If the call has arrived during business hours, the service associated with business hours is activated. If the call has arrived outside of the defined business hours, the service associated with the off-hours is activated.

Voice Menu Definitions

When you select Voice Menu Definitions from the Voice Services Administration menu, the Voice Menu Definitions data screen is displayed. For more information about administering Voice Menu Definitions, refer to the *Voice Menus Application Guide* (555-7001-325).

A voice menu offers callers choices. When a caller activates a voice menu, a courteous greeting is played followed by a list of options and the corresponding key that the caller must press to make a selection.

For example, *"Thank you for calling the University of Wallaballoo. To find out how to register for classes, press 1. To find out about our part-time programs, press 2. To speak with the student registrar, press 3. If you have any inquiries regarding your student records, press 4. To speak with the operator, press 0. If you do not have a touch-tone phone, please wait on the line and an operator will be with you shortly."* Callers make a choice by pressing the appropriate number on their telephone keypads. This means, of course, that callers require a DTMF (touch-tone) phone to use a voice menu.

A simple voice menu consists of only one voice menu (one layer). More complex applications involve creating several layers of voice menus and linking them together to create multilevel menus. Each voice menu service can have up to 20 submenus. With this capability, voice menu applications can become very complex, branching off in many directions. However, more common voice menu applications typically involve three layers or less.

Fax Item Definitions

When you select Fax Item Definitions from the Voice Services Administration menu, the Fax Item Definitions data screen is displayed. For more information about administering Fax Item Definitions, refer to the *Fax on Demand Application Guide* (555-7001-327).

The Fax Information Service (FI), if directly associated to a DN in the VSDN table, provides the ability to fax a single item of information to callers. No menu choices are available in this case.

Alternatively, a Fax Information Service can be associated with a menu related to a DN in the VSDN table. This configuration can provide a selection of fax item information available to callers.

You can define a fax item by filling in a Fax Item Definition form. Once Fax Item Definition forms have been created in the system, you will need to administer them. You can do the following Fax Item Definition administration functions:

- find
- view and modify
- delete

Outcalling Administration

When you select Outcalling Administration from the Voice Administration Menu, the Outcalling Administration screen is displayed. For more information about administering Outcalling, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

Outcalling is an optional feature which provides two types of external messaging:

- Remote Notification
- Delivery to Non-User

Remote Notification (RN) "monitors" a user's mailbox and, when a message is received, it informs the user of the new message by contacting a remote device such as a pager (voice, tone-only, or numeric), a paging service, or another telephone. For example, a user may wish to be informed of all new messages that arrive after business hours by being contacted at home.

The Delivery to Non-User feature allows users to create and send a message to someone who does not have a mailbox. The non-user may be someone else within the organization or someone at a remote location.

Voice Form Definitions

When you select Voice Form Definitions from the Voice Administration Menu, the Voice Forms screen is displayed. For more information about administering Voice Forms, refer to the *Voice Forms Application Guide* (NTP 555-7001-326).

A *voice form* is the electronic equivalent of a paper form. It is "filled out" by callers who dial a special number which connects them to the voice form. (Alternatively, callers can be connected to a voice form through a voice menu or time-of-day controller.) The form is made up of a series of questions that are played over the telephone to the caller. The caller listens to each question and responds by giving a verbal answer. If callers require assistance while responding to a form, they can press 0 to transfer to an operator. (This functionality can be enabled or disabled for each voice form.) The caller's *answers* are recorded and stored in the system as a *response*.

Voice forms are intended to help fulfill an organization's information-gathering needs. Voice forms can replace paper forms as well as certain information-gathering tasks that are currently carried out over the phone (such as order-taking).

Voice forms can be used to collect information from external sources (such as customers or potential clients) or from internal sources (employees).

Chapter 10: Hardware Administration

Hardware Administration allows you to view the contents of the hardware database in your MSM system. The hardware database is a system utility that maintains a current listing and description of the following:

- nodes
- cards
- T1 links
- T1 channels
- data ports
- DSP ports

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 557-7001-305).

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.

This chapter describes:

- The Hardware Administration menu
- Node configuration
- T1 link configuration
- Data port configuration
- how to print node or data port information.

The Hardware Administration menu

From the Hardware Administration menu (Figure 10-1) 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 10-1
The Hardware Administration menu

```
┌─────────────────────────────────────────────────────────────────┐
│                    Hardware Administration                        │
│                                                                   │
│                                                                   │
│         1  Node Configuration                                     │
│                                                                   │
│         2  T1 Link Configuration                                  │
│                                                                   │
│         3  Data Port Configuration                                │
│                                                                   │
│         4  Print All Node Information                             │
│                                                                   │
│         5  Print All Data Port Information                        │
│                                                                   │
│                                                                   │
│                                                                   │
│   ─────────────────────────────────────────────────────────────  │
│   Select an item >                                                │
│   ┌──────────┐ ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐        │
│   │   Exit   │ │        │ │        │ │        │ │        │        │
└───┴──────────┴─┴────────┴─┴────────┴─┴────────┴─┴────────┴────────┘
```
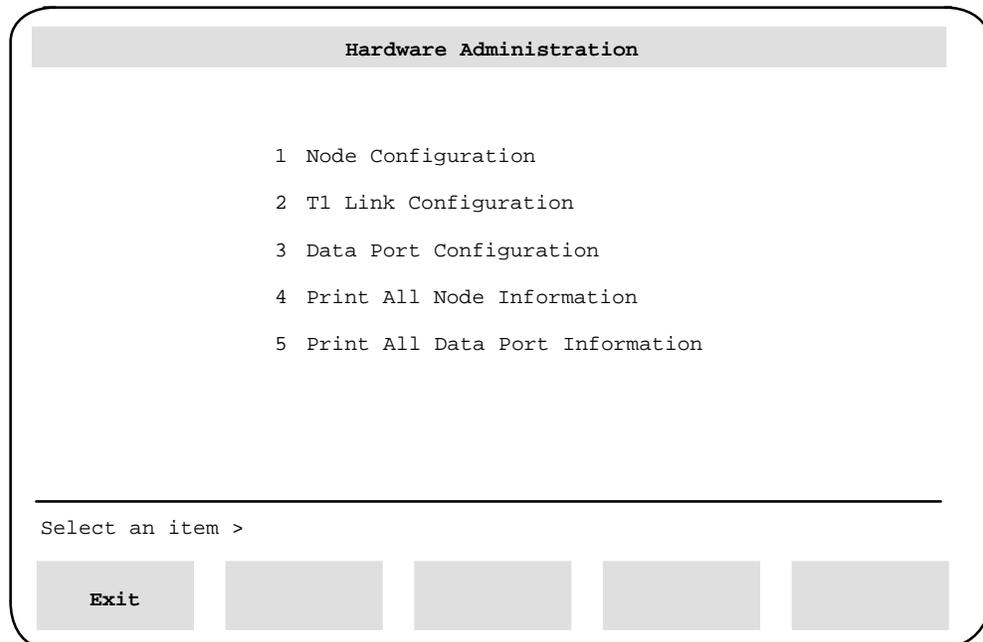
Procedure 10-1
Using the Hardware Administration menu

Starting point: The Main Menu

1   Select Hardware Administration.

The Hardware Administration menu appears (Figure 10-1).

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

The menu corresponding to your selection appears. See the following sections in this chapter 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"

3   Press [Exit] to return to the Main Menu.

Node configuration

The Node Configuration screen (Figure 10-2) is a summary listing of the cards found on all nodes in your system.

Figure 10-2
Node Configuration screen

```
                        Hardware Administration

  Node Configuration


  Node Card_1      Card_2      Card_3

  1    Empty       SBC         Bus
  2    Bus         Empty       SBC
  3    SBC         VP12        VP12
  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
```
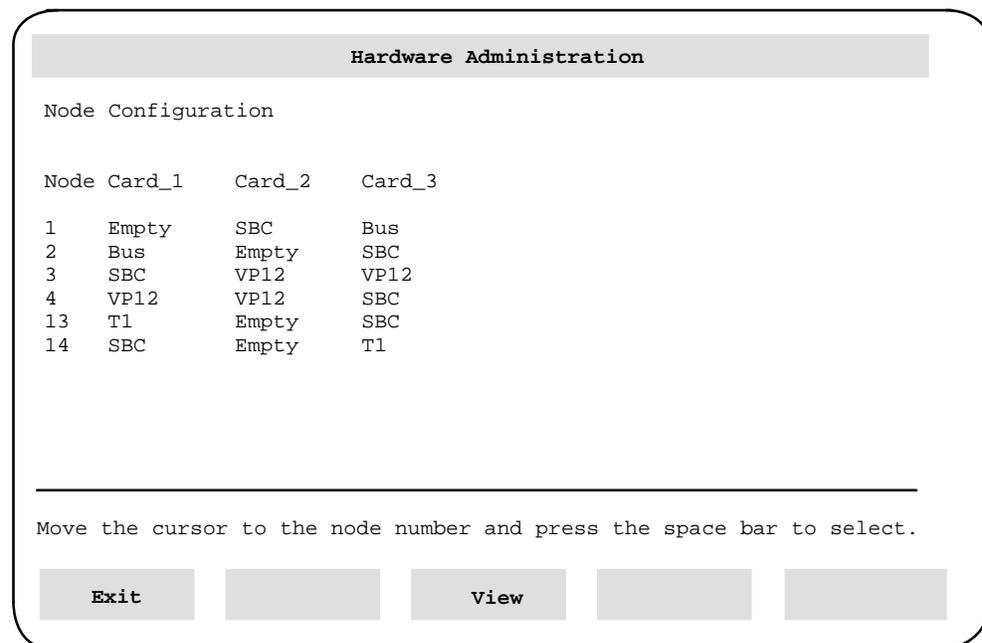
The following fields are displayed:

- *Node*   The node number.
- *Card_<number>*   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 10-2

Viewing node configurations

Starting point: The Hardware Administration menu

1 Select Node Configuration.

The Node Configuration screen appears (Figure 10-2).

2 Move the cursor to the node you want to view and press <Space Bar>.

Your selection is highlighted.

3 Choose step 3a to view the configuration information of the node, or 3b to return to the Hardware Administration menu.

a. Press [View].

The View Node screen appears; see the next section, "Viewing nodes".

b. Press [Exit].

The Hardware Administration menu is redisplayed.

Viewing nodes

The View Node screen (Figure 10-3) displays the cards and ports (and their attributes) that are installed on the node you selected in the Node Configuration screen.

Figure 10-3
View Node screen

```
                        Hardware Administration

View Node 1 (C=Card D=DSP P=Port)

C-D-P       Card_Type Port_Type   Attributes

1           Empty

2           SBC
2    1                 Data:       [Terminal] Printer NWModem MMLink AML/CSL SMDI PMS
                                      AdminPlus LIFNLink  Modem
2    2                 Data:       Terminal Printer NWModem MMLINK AML/CSL SMDI PMS
                                      AdminPlus LIFNLink  [Modem]
2    3                 Data:       [Terminal] Printer NWModem MMLINK AML/CSL SMDI PMS
                                      AdminPlus LIFNLink  Modem
2    4                 Data:       Terminal [Printer] NWModem MMLink AML/CSL  SMDI   PMS
                                      AdminPlus LIFNLink  Modem

3           Bus


     _____      MORE BELOW


        Exit
```

```
                        Hardware Administration            MORE ABOVE

View  Node 14 (C=Card D=DSP P=Port)

C-D-P       Card_Type Port_Type Attributes

1           SBC
1    1                 Data:       Terminal Printer NWModem  MMLink AML/CSL [SMDI] PMS
                                        AdminPlus LIFNLink  Modem
1    2                 Data:       Terminal Printer NWModem  MMLink AML/CSL [SMDI] PMS
                                        AdminPlus LIFNLink  Modem
1    3                 Data:       Terminal Printer NWModem  MMLink AML/CSL [SMDI] PMS
                                        AdminPlus LIFNLink  Modem
1    4                 Data:       Terminal Printer NWModem  MMLink AML/CSL [SMDI] PMS
                                        AdminPlus LIFNLink  Modem

2           Empty


3           T1

3    1                 Link
3    2                 Link
```

Note: 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.

View Node read-only fields

The screen displays the following read-only information about each card on the node:

- *C-D-P*   The hardware location (card, DSP, and port) as it pertains to the hardware database. For hardware components that are at levels above DSPs, or for hardware components that do not have DSPs and ports, only the card (C) identifier will appear. Components that do not have DSPs, but do have ports, will use the card-port (C-P) identifier.

- *Card Type*   The function of the card; see "Node configuration" on page 10-3 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. "Multi" indicates a multimedia port.

- *Attributes* *(for ports with port type = Data)*
    - *Terminal*   Indicates a connection to an administration terminal.
    - *Printer*   Printer serial connection.
    - *NWModem*   Connection to a modem used for networking calls.
    - *MMLink*   Meridian ACCESS Link. This is the communications channel for Meridian ACCESS.
    - *AML/CSL or Meridian Link*   This attribute does not apply to MSM, and cannot be selected.
    - *SMDI*   Simplified Message Desk Interface. This is the communications channel between MSM and the PBX/switch.
    - *PMS*   This attribute does not apply to MSM, and cannot be selected.
    - *AdminPlus*   Connection to a PC equipped with AdminPlus.
    - *LIFNLink*   This attribute does not apply to MSM and cannot be selected.
    - *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 MSM system.

Figure 10-4
T1 Link Configuration screen

```
                      Hardware Administration

T1 Link Configuration


               Primary Connection   Secondary Connection   T1 Clock Reference
T1 Link ID     (Node-Card-Span)     (Node-Card-Span)            Candidacy

    A             13-1-1                14-3-1                     Y
    B             13-1-2                14-3-2
    C             13-1-3                14-3-2
    D             13-1-4                14-3-4
    E             15-1-1                16-3-1                     Y
    F             15-1-2                16-3-2
    G             15-1-3                16-3-3
    H             15-1-4                16-3-4                     Y




  _____

  Move the cursor to the item and press the space bar to select.

  ┌──────────┬─────────────────┬─────────────────┬──────────┬──────────┐
  │          │  Modify T1 Chnl │  Modify T1 Link │          │          │
  │   Exit   │  Configuration  │      Setup      │          │          │
  └──────────┴─────────────────┴─────────────────┴──────────┴──────────┘
```

Note: The figures in this section do not necessarily represent actual hard-
ware 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 10-3

Viewing or Modifying T1 link configurations

Starting point: The Hardware Administration menu

1 Select T1 Link Configuration.

   The T1 Link Configuration screen appears (Figure 10-4).

2 Move the cursor to the T1 link you want to view or modify and press <Space Bar>.

   Your selection is highlighted.

3 Choose step 3a to modify the T1 channel configuration information of the link. Choose step 3b to modify the T1 link setup information. Choose step 2c to return to the Hardware Administration menu.

   a. Press [Modify T1 Chnl Configuration].

      The Modify T1 Channel Configuration screen is displayed (Figure 10-5). See the next section, "Modifying T1 channels".

   b. Press [Modify T1 Link Setup].

      The T1 Link Setup screen is displayed (Figure 10-6). See the section "Modifying the T1 link setup".

   c. Press [Exit].

      The Hardware Administration menu is redisplayed.

Modifying T1 channels

The Modify T1 Channel screen (Figure 10-5) displays the T1 Channel configuration for the link you select.

Figure 10-5
The Modify T1 Channel Configuration screen

```
                          Hardware Administration

Modify T1 Channel Configuration for Link ID A

Channel    Routing      Login   Logout    Agent      Not-ready    Link
Number     Address      Code    Code      ID Code    Deactivation ID
                                                     Code

    1       63-1        *85     *84       6020                     1
    2       63-2        *85     *84       6020                     1
    3       63-3        *85     *84       6020                     1
    4       63-4        *85     *84       6020                     1
    5       63-5        *85     *84       6020                     1
    6       63-6        *85     *84       6020                     1
    7       63-7        *85     *84       6020                     1
    8       63-8        *85     *84       6020                     1
    9       63-9        *85     *84       6020                     1
   10       63-10       *85     *84       6020                     1
   11       63-11       *85     *84       6020                     1
   12       63-12       *85     *84       6020                     1
   13       63-13       *85     *84       6020                     1
   14       63-14       *85     *84       6020                     1
   15       63-15       *85     *84       6020                     1
   16       63-16       *85     *84       6020                     1
   17       63-17       *85     *84       6020                     1
   18       63-18       *85     *84       6020                     1
   19       63-19       *85     *84       6020                     1
   20       63-20       *85     *84       6020                     1
   21       63-21       *85     *84       6020                     1
   22       63-22       *85     *84       6020                     1
   23       63-23       *85     *84       6020                     1
   24       63-24       *85     *84       6020                     1


   Save           Cancel
```

Note: The figures in this section do not necessarily represent an actual hardware configuration. They are presented for illustrative 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, the MSM 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 PBX/switch administrator for details.

- *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, the MSM 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 PBX/switch administrator for details.

- *Agent ID Code*   This ID must match the line number (SMDI_LINE_NO on the SL-100) of the UCD agent that is configured on the PBX/switch. On the SL-100, the SMDI_LINE_NO can either be configured through **servord** or through Table IBNFEAT by entering the SMDI option.

- *Not-ready Deactivation Code*   This field is not applicable to PBX/switch UCD environments (such as the SL-100 PBX uses) and should be left blank.

- *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 557-7001-310).

Procedure 10-4
Viewing or Modifying T1 Channel configurations

Starting point: The Hardware Administration menu

1   Select T1 Link Configuration.

The T1 Link Configuration screen appears (Figure 10-4).

2   Move the cursor to the T1 link you want to view or modify and press <Space Bar>.

Your selection is highlighted.

3   Press [Modify T1 Chnl Configuration].

The Modify T1 Channel Configuration screen is displayed (Figure 10-5).

4   Use the arrow keys to position the cursor where you want to make changes. Press the <Backspace> or <Delete> keys to make changes as required. Type in new information where required.

5   Choose step 5a to save the changes or step 5b to exit the Modify T1 Channel Configuration screen.

   a.   Press [Cancel] to undo the changes.

     The T1 Link Configuration screen reappears.

   b.   Press [Save] to save the changes.

     The T1 Link Configuration screen reappears. To put the changes into effect, follow the steps in Procedure 10-5.

Applying T1 channel modifications

When you have completed T1 channel modifications and the hardware database has been updated, you can apply the changes without rebooting by following Procedure 10-5.

The modifications will affect one or both pairs of T1 nodes, depending on which channels were changed. Procedure 10-5 must be applied to one or both of the following:

- Node 13 and 14 for spans with Link ID A-D
- Node 15 and 16 for spans with Link ID E-H

Procedure 10-5
Disabling and reenabling T1 nodes

Starting point: The Main Menu

1   Select System Status and Maintenance.

2   Select T1 Link Status.

3   Switch all "InService" T1 links using the [Switch Links] softkey.

4   Press [Exit].

The System Status and Maintenance menu is displayed.

5   Select SMDI Link Status.

6 Switch all "InService" SMDI links using the [Switch Links] softkey.

7 Press [Exit].

The System Status and Maintenance menu is displayed.

8 Select Node Status.

9 Press the [Disable Node] softkey.

You are prompted for the node number.

10 Enter the node number for the even T1 node and press <Return>.

The selected node will be disabled. Wait 3 to 5 minutes before reenabling it. When it has been successfully disabled, continue with the next step. If the disable is not successful, refer to Trouble-locating and Alarm-clearing Procedures (NTP 557-7001-503) for more information.

11 Press the [Enable Node] softkey.

You are prompted for the node number.

12 Enter the node number of the previously disabled node and press <Return>.

The selected node will be enabled. When it has been successfully enabled, continue with the next step. If the enable is not successful, refer to Trouble-locating and Alarm-clearing Procedures (NTP 557-7001-503) for more information.+

13 Press [Exit].

The System Status and Maintenance menu is displayed.

14 Repeat steps 2 through 13 for the T1 node.

15 Press [Exit].

The Main Menu is displayed.

Modifying the T1 link setup

Note: In a private customer installation, the MSM typically does not use a clock. In this situation, you have to put the system in free run mode. This is described in Procedure 11- on page 11-36. When you put your system in free run mode, the channel banks terminating equipment must also derive its timing reference from the MSM.

The T1 Link Setup screen (Figure 10-6) is used to modify the T1 clock reference candidacy of a T1 link, the T1 Line Code format, or the T1 debounce time. You may nominate one or more links to serve as the clock reference for the MSM. An external device in the network (such as the PBX/switch, for example) can serve as the reference provider.

The actual link that is used as the reference is defined in the T1 Link Status screen. (See Chapter 11 "System Status and Maintenance".) 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.

The system will also 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, or modify the T1 Line Code format or 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 Chapter 11 "System Status and Maintenance"). For more information, refer to "T1 link status" on page 11-33.

Figure 10-6
The Modify 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 fields are 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* Indicates the T1 Line Code format in 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 10-6
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 T1 number of the link you want to disable.

4 Enter the number of the T1 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 If you want to change the T1 Line Code Format, select the format that you want for the T1 link.

13 If you want to change the T1 Debounce Time, replace the old time with the new time.

14 Press [Save].

   The selected link is nominated/disqualified, the new T1 line code format is set (if you changed it), and the T1 Link Configuration screen is displayed.

15 Return to the T1 Link Status screen in System Status and Maintenance and reenable the link(s).

16 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" on page 11-33 for more information.

Data port configuration

The Data Port Configuration screen (Figure 10-7) summarizes the data ports on all nodes in your system. From this screen you can select a data port and view the configuration. The only data port that can be modified from Hardware Administration is NWModem (applicable only if Networking is enabled). The abbreviations used in the Data Port Configuration screen are described under "Node configuration" on page 10-3.

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 following tables. Table 10-1 lists the recommended data port uses.

The remainder of this section describes the Data Port Configuration screen, and the View Data Port screens.

Table 10-1
Recommended data port uses

Node	Port	Port type	Allowable uses
1 (MSP 1)	1	20 ma	Console (note 1)
1 (MSP 1)	2	Modem	Remote Access
1 (MSP 1)	3	20 ma	Maintenance Printer
1 (MSP 1)	4	20 ma	MAT (note 2)
2 (MSP 2)	1	20 ma	Console (note 1)
2 (MSP 2)	2	Modem	Remote Access
2 (MSP 2)	3	20 ma	
2 (MSP 2)	4	20 ma	MAT (note 2)
3 (SPN 1)	1	RS-232-C	Network, AdminPlus (note 3)
3 (SPN 1)	2	RS-232-C	Network, MAT (note 2)
3 (SPN 1)	3	RS-232-C	Network
3 (SPN 1)	4	RS-232-C	Network, MAT (note 2)
4 (SPN 2)	1	RS-232-C	Network
4 (SPN 2)	2	RS-232-C	Network
4 (SPN 2)	3	RS-232-C	Network
4 (SPN 2)	4	RS-232-C	Network, ACCESS (note 3)
—continued—			

Table 10-1
Recommended data port uses (continued)

Node	Port	Port type	Allowable uses
5 (SPN 3)	1	RS-232-C	Network
5 (SPN 3)	2	RS-232-C	Network
5 (SPN 3)	3	RS-232-C	Network
5 (SPN 3)	4	RS-232-C	Network
6 (SPN 4)	1	RS-232-C	Network
6 (SPN 4)	2	RS-232-C	Network
6 (SPN 4)	3	RS-232-C	Network
6 (SPN 4)	4	RS-232-C	Network, ACCESS (note 3)
7 (SPN 5)	1	RS-232-C	Network
7 (SPN 5)	2	RS-232-C	Network
7 (SPN 5)	3	RS-232-C	Network
7 (SPN 5)	4	RS-232-C	Network
8 (SPN 6)	1	RS-232-C	Network
8 (SPN 6)	2	RS-232-C	Network
8 (SPN 6)	3	RS-232-C	Network
8 (SPN 6)	4	RS-232-C	Network, ACCESS (note 3)
9 (SPN 7)	1	RS-232-C	Network
9 (SPN 7)	2	RS-232-C	Network
9 (SPN 7)	3	RS-232-C	Network
9 (SPN 7)	4	RS-232-C	Network
10 (SPN 8)	1	RS-232-C	Network
10 (SPN 8)	2	RS-232-C	Network
10 (SPN 8)	3	RS-232-C	Network
10 (SPN 8)	4	RS-232-C	Network, ACCESS (note 3)
13 (TIFN 1)	1	Modem	SMDI
13 (TIFN 1)	2	Modem	SMDI (note 4)
13 (TIFN 1)	3	Modem	SMDI (note 4)
13 (TIFN 1)	4	Modem	SMDI (note 4)
14 (TIFN 2)	1	Modem	SMDI or standby SMDI
14 (TIFN 2)	2	Modem	SMDI or standby SMDI (note 4)
14 (TIFN 2)	3	Modem	SMDI or standby SMDI (note 4)
14 (TIFN 2)	4	Modem	SMDI or standby SMDI (note 4)
—continued—			

Table 10-1
Recommended data port uses (continued)

Node	Port	Port type	Allowable uses
15 (TIFN 3)	1	Modem	SMDI
15 (TIFN 3)	2	Modem	SMDI (note 4)
15 (TIFN 3)	3	Modem	SMDI (note 4)
15 (TIFN 3)	4	Modem	SMDI (note 4)
16 (TIFN 4)	1	Modem	SMDI or standby SMDI
16 (TIFN 4)	2	Modem	SMDI or standby SMDI (note 4)
16 (TIFN 4)	3	Modem	SMDI or standby SMDI (note 4)
16 (TIFN 4)	4	Modem	SMDI or standby SMDI (note 4)
—end—			

Notes:

1   A relay on the I/O panel switches the terminal to MSP2 port 1 if MSP1 fails.

2   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 data port 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   The cumulative baud rate of ACCESS and AdminPlus dataports on a node cannot exceed 9600 bps.

4   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 MSM 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 MSM provisioned with 48 voice ports could support 6 SMDI links if no other feature required use of either SPN modem data port. MSMs provisioned with 48 ports will support up to 4 redundant SMDI ports (TIFN 1 and 2, ports 1 to 4) and 2 nonredundant SMDI ports (SPN 1 and 2, port 2).

Data Port Configuration screen

Figure 10-7 displays the Data Port Configuration screen.

Figure 10-7
Data Port Configuration screen

```
                        Hardware Administration


 Data Port Configuration

 Port Location      Description            Device Type      Status
    1-2-1           Node 1  SBC Port 1     Terminal         InService
    1-2-2           Node 1  SBC Port 2     Terminal         InService
    1-2-3           Node 1  SBC Port 3     Printer          InService
    1-2-4           Node 1  SBC Port 4     Printer          OutofService
    2-3-1           Node 2  SBC Port 1     Terminal         InService
    2-3-2           Node 2  SBC Port 2     Terminal         OutofService
    2-3-3           Node 2  SBC Port 3     Terminal         InService
    2-3-4           Node 2  SBC Port 4     Printer          InService
    3-1-1           Node 3  SBC Port 1     Terminal         InService
    3-1-2           Node 3  SBC Port 2     NWModem          InService
    3-1-3           Node 3  SBC Port 3     NWModem          InService
    3-1-4           Node 3  SBC Port 4     NWModem          InService
    4-3-1           Node 4  SBC Port 1     AdminPlus        InService
    4-3-2           Node 4  SBC Port 2     NWModem          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. The status can be one of the following:

    — *InService* indicates that the data port is operational.

    — *OutOfService* indicates that the data port is no longer operational be-cause the node has been disabled.

    — *Faulty* indicates that the system has detected an error in the data port.

    — *UnEquipped* indicates that the data port is not defined in the hard-ware database.

Procedure 10-7
Viewing data ports

Starting point: The Hardware Administration menu

1 Select Data Port Configuration.

The Data Port Configuration screen appears (Figure 10-7).

2 Move the cursor to the 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. Press [View/Modify].

The View Data Port screen is displayed for the selected device. (If NWModem was selected, the Modify Data Port screen is displayed.) These screens are described in the next section "Viewing and Modifying Data Ports".

b. Press [Exit].

The Hardware Administration menu appears.

Viewing and modifying data ports

The following sections describe the different data port screens that can be displayed or modified. 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].

Note: All screens, except the NWModem screen, are read-only and are for viewing only. Only the NWModem Data Port screen (Figure 10-12) can be modified.

Terminal data ports

The View Data Port screen for terminals (Figure 10-8) allows you to view information about the terminal connected to the selected port.

Figure 10-8
View Data Port screen (Console terminal)

```
                    Hardware Administration

View Data Port

Data Port Location:          1-1-1

Device Type:                 Terminal

Device Name:                 Console

Baud Rate:                   1200 [2400]  4800 9600

Parity:                      Even Odd  [None]

Number of Windows:           4

Window Width:                80

Window Height:               24
_____

Select a softkey >

   Exit
```
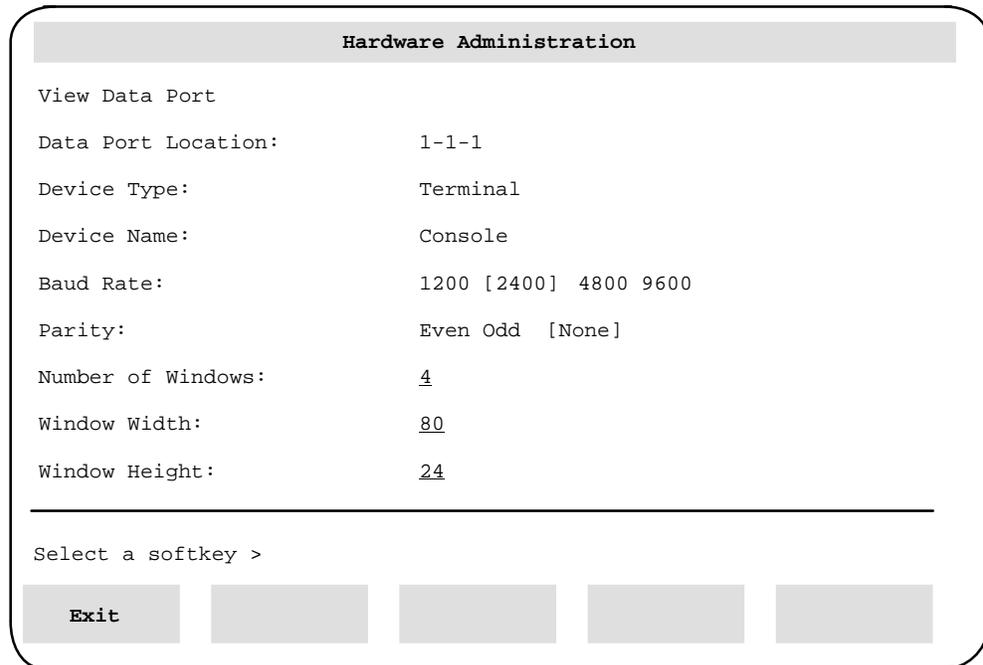
Figure 10-9
View Data Port screen (MAT)

```
                    Hardware Administration

View Data Port

Data Port Location:          1-1-1

Device Type:                 Terminal

Device Name:                 UAT0111

Baud Rate:                   1200 [2400]  4800 9600

Parity:                      Even Odd  [None]

Number of Windows:           4

Window Width:                80

Window Height:               24
_____

Select a softkey >

   Exit
```
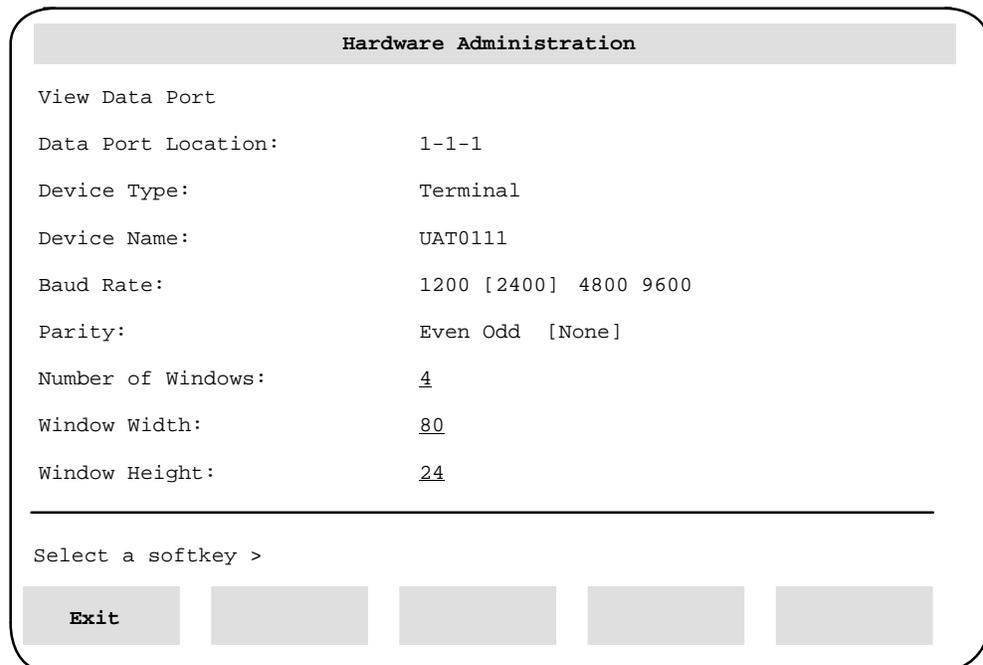
The following read-only fields are displayed in the screen:

- *Data Port Location*   The physical location of the port. A terminal must be located on node 1, SBC port 1.

- *Device Type*   "Terminal" will be displayed.

- *Device Name*   The name that identifies the terminal. For the MMI console, it will display "Console". For a MAT, it will display the appropriate terminal identity.

- *Baud Rate*   This setting depends on the current setup of the terminal on the port. It should be 2400 or 9600 for a MAT. For the MMI console, it will display 2400.

- *Parity*   The method by which data is communicated. This can be "Even", "Odd", or "None", depending on the current setup 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, and "1" for the MAT.

- *Window Width*   This field specifies the window width used.

- *Window Height*   This field specifies the window height used.

Procedure 10-8
Viewing the terminal data port

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

   The Data Port Configuration screen appears.

2   Move the cursor to the terminal data port you want to view.

3   Press the <Space Bar> to select it.

4   Press [View/Modify].

   The View Data Port screen (for the selected terminal) is displayed.

5   Press [Exit] to return to the Data Port Configuration screen.

Printer data ports

The View Data Port screen for printers (Figure 10-10) 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:   SEERs and Operational Measurement reports can be directed to a particular printer. If you choose to do this, specify the printer in the General Options screen (described in the "General Administration" chapter) and de-

fine the printer port using the "Modify hardware" tool (described in the *System Administration Tools* guide (NTP 557-7001-305).

Figure 10-10
View Data Port screen (Printer)

```
                        Hardware Administration

  View Data Port

  Data Port Location:           1-2-4

  Device Type:                  Printer

  Device Name:                  PRT0124

  Baud Rate:                    1200 [2400]  4800 9600

  Parity:                       Even Odd [None]




  _____


     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 setup of the printer connected to the port.
- *Parity*   The setting will depend on the current setup of the printer connected to the port.

Procedure 10-9
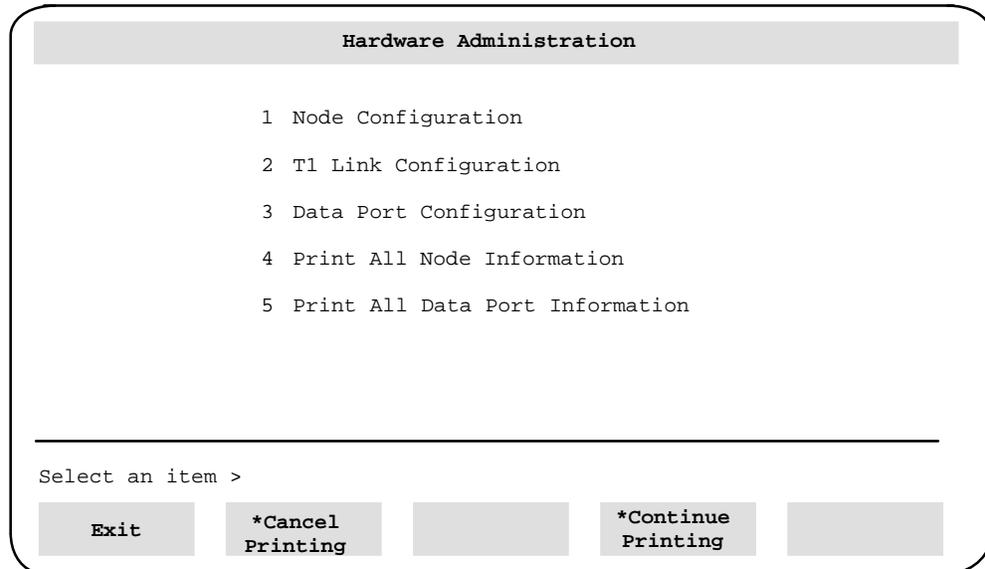**Viewing the printer data port**

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

   The Data Port Configuration screen appears.

2   Move the cursor to the printer data port you want to view.

3   Press the <Space Bar> to select it.

4   Press [View/Modify].

The View Data Port screen (for the selected printer) is displayed.

5   Press [Exit] to return to the Data Port Configuration screen.

MMLink data port

The View Modify Data Port screen for Meridian ACCESS Link (Figure 10-11) allows you to view link characteristics.

Figure 10-11
View Data Port screen (MMLink)

```
┌─────────────────────────────────────────────────────────────────────┐
│                      Hardware Administration                        │
│                                                                     │
│   View Data Port                                                    │
│                                                                     │
│   Data Port Location:          4-3-4                                │
│                                                                     │
│   Device Type:                 MMLink                               │
│                                                                     │
│   Device Name:                 ACC0132                              │
│                                                                     │
│   Baud Rate:                   4800 [9600]                          │
│                                                                     │
│   Parity:                      Even Odd [None]                      │
│                                                                     │
│                                                                     │
│                                                                     │
│                                                                     │
│   ─────────────────────────────────────────────────────────────    │
│                                                                     │
│   ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐  │
│   │  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. It will be set to "MMLink".
- *Device Name*   The name of the device.
- *Baud Rate*   Set this field to either "2400" or "9600" for MMLink.
- *Parity*   This field is not used for MMLink.

Procedure 10-10
Viewing the MMLink data port

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

The Data Port Configuration screen appears.

2 Move the cursor to the MMLink data port you want to view.

3 Press the <Space Bar> to select it.

4 Press [View/Modify].

The View Data Port screen (for the selected MMLink) is displayed.

5 Press [Exit] to return to the Data Port Configuration screen.

NWModem data port

The Modify Data Port screen for networking modems (Figure 10-12) allows you to specify the directory number (DN) of the modem connected to the selected port.

Note: The DN entered as the *Modem DN* in this screen is not translated using the values entered in the *Dialing Prefix for Outgoing Calls* and the *Customer DN Length* fields (described in the "The Voice Messaging Options screen" section in the "Voice Administration" chapter of the *Customer Administration Guide*). The *Modem DN* must be entered in a format that can be dialed from any switch customer group.

Figure 10-12
Modify Data Port screen (NWModem)

```
                       Hardware Administration


   Modify Data Port

   Data Port Location:              3-1-2

   Device Type:                     NWModem

   Device Name:                     MOD0312

   Network Modem DN:                 7924


   _____

      Save            Cancel
```

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 "NWModem".
- *Device Name*   The name of the device.
- *Network Modem DN*   The directory number (up to 8 digits) used to identify the modem connected to the port. This field can be modified.

Procedure 10-11
Modifying the NWModem data port

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

The Data Port Configuration screen appears.

2   Move the cursor to the NWModem data port you want to modify.

3   Press the <Space Bar> to select it.

4   Press [View/Modify].

The View Data Port screen (for the selected NWModem) is displayed.

5   Press [Save] to save any changes or [Cancel] to disregard any changes.

The Data Port Configuration screen is displayed.

SMDI data port

The View Data Port screen for SMDI (Figure 10-13) allows you to view the baud rate, parity, and transmit mode of the serial connection between the MSM and the PBX/switch at the selected port.

Figure 10-13
View Data Port screen (SMDI)

```
                    Hardware Administration

View Data Port

Data Port Location:         13-3-1

Device Type:                SMDI

Device Name:                SMDI1313

Baud Rate:                  1200 [2400]  4800 9600

Parity:                     [Even]  Odd  [None]

Transmit Mode:              Simplex [Duplex]

Link name:                  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 (NTIX89AA or NTIX89BA).

- *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 557-7001-305).

Procedure 10-12
Viewing the SMDI data port

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

   The Data Port Configuration screen appears.

2   Move the cursor to the SMDI data port you want to view.

3   Press the <Space Bar> to select it.

4   Press [View/Modify].

   The View Data Port screen (for the selected SMDI link) is displayed.

5   Press [Exit] to return to the Data Port Configuration screen.

Modem data port

The View Data Port screen for modems (Figure 10-14) allows you to view
the modem data port characteristics.

Figure 10-14
View Data Port screen (Modem)

```
                         Hardware Administration


    View Data Port

    Data Port Location:          1-2-2

    Device Type:                 Modem

    Device Name:                 CON0183

    Baud Rate:                   1200 [2400]  4800 9600

    Parity:                      Even Odd [None]



    _____


        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 setup of the modem connected to the port.

- *Parity*   The setting will depend on the current setup of the modem connected to the port.

Procedure 10-13
Viewing the Modem data port

Starting point: The Hardware Administration menu

1   Select Data Port Configuration.

    The Data Port Configuration screen appears.

2   Move the cursor to the Modem data port you want to display.

3   Press the <Space Bar> to select it.

4   Press [View/Modify].

    The View Data Port screen (for the selected Modem data port) is displayed.

5   Press [Exit] to return to the Data Port Configuration screen.

    The Data Port Configuration screen is displayed.

Printing node or data port information

The Print All Node Information and Print All Data Port Information options (shown in Figure 10-15) allow you to print a list of all the node or data port information contained in the hardware database. Procedure 10-14 describes how to use these options. A sample printout that was received after Print All Node Information was selected is shown in Figure 10-16.

Figure 10-15
The Hardware Administration menu

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  ┌─────────────────────────────────────────────────────────────┐     │
│  │                  Hardware Administration                     │     │
│  └─────────────────────────────────────────────────────────────┘     │
│                                                                       │
│            1  Node Configuration                                      │
│                                                                       │
│            2  T1 Link Configuration                                   │
│                                                                       │
│            3  Data Port Configuration                                 │
│                                                                       │
│            4  Print All Node Information                              │
│                                                                       │
│            5  Print All Data Port Information                         │
│                                                                       │
│                                                                       │
│  ──────────────────────────────────────────────────────────────      │
│                                                                       │
│  Select an item >                                                     │
│  ┌─────────┐  ┌──────────┐  ┌─────┐  ┌──────────┐  ┌─────┐            │
│  │  Exit   │  │ *Cancel  │  │     │  │ *Continue│  │     │            │
│  │         │  │ Printing │  │     │  │ Printing │  │     │            │
│  └─────────┘  └──────────┘  └─────┘  └──────────┘  └─────┘            │
└─────────────────────────────────────────────────────────────────────┘
```

   * The Printing softkeys appear after item 4 or 5 has been selected.

Procedure 10-14
Printing node and data port information

Starting point: The Hardware Administration menu

1   Select either Print All Node Information or Print All Data Port Information.

The following softkeys appear: [Continue Printing] and [Cancel Printing].

You are prompted to check that the printer is ready and on-line.

2   Choose step 2a to print the node or data port information or 2b to cancel.

   a.   Press [Continue Printing].

   The node or data port information begins printing. Figure 10-16 shows some sample output that was received when Print All Data Port Information was selected.

Figure 10-16
Sample output from Print All Data Port Information
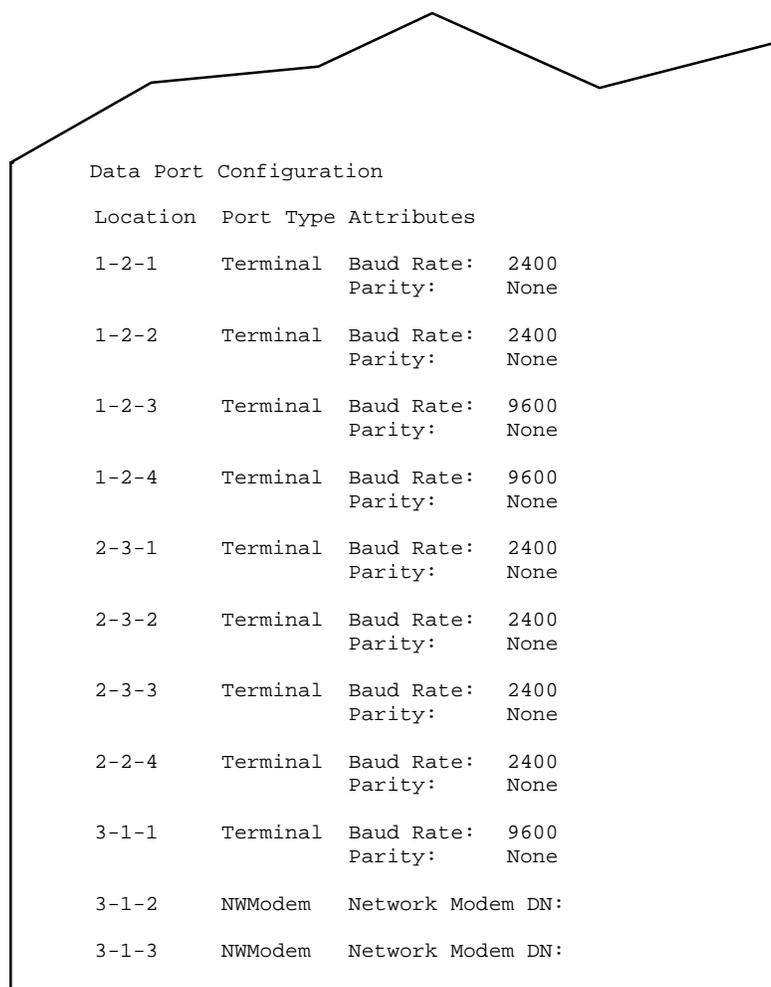
```
Data Port Configuration

Location   Port Type  Attributes

1-2-1      Terminal   Baud Rate:   2400
                      Parity:      None

1-2-2      Terminal   Baud Rate:   2400
                      Parity:      None

1-2-3      Terminal   Baud Rate:   9600
                      Parity:      None

1-2-4      Terminal   Baud Rate:   9600
                      Parity:      None

2-3-1      Terminal   Baud Rate:   2400
                      Parity:      None

2-3-2      Terminal   Baud Rate:   2400
                      Parity:      None

2-3-3      Terminal   Baud Rate:   2400
                      Parity:      None

2-2-4      Terminal   Baud Rate:   2400
                      Parity:      None

3-1-1      Terminal   Baud Rate:   9600
                      Parity:      None

3-1-2      NWModem    Network Modem DN:

3-1-3      NWModem    Network Modem DN:
```

Once printing is complete, the Hardware Administration menu and its soft-keys are redisplayed; you may stop printing at any time by proceeding to 2b.

b.   Press [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.

Chapter 11: System Status and Maintenance

This chapter describes:

- an overview of monitoring and maintaining your system
- the system maintenance actions that you can take to remove components from service
- the System Status and Maintenance menu
  - how to silence alarms
  - System Status
  - Node Status
  - Card Status
  - DSP Port Status
  - The Channel Allocation Table
  - T1 Link Status
  - T1 Channel Status
  - SMDI Link Status
  - MSM Cross Reference Table
  - Disk Maintenance
  - System Event and Error Reports (SEERs).

Overview

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
- 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.

System maintenance actions

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 does not disrupt any calls in progress.

The following system maintenance actions can be taken:

- System courtesy down

  System courtesy down is for broad maintenance activities, such as recon-figuring the Circuit Switching Equipment (CSE), which refers to an SL-100, or an AT&T or ROLM PBX. This reconfiguration necessitates a power shutdown on the MSM system.

- Courtesy disable ports or (forced) disable node

  Whichever of these maintenance actions you choose is dependent on the nature of the work to be carried out, and the state of the node. You can obtain information about the state of a node through the System Status and Maintenance screens described in this chapter.

- Card disable

  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

  These actions are used before performing tests on a port.

- Courtesy disable or (forced) disable of T1 channels

  These are used before performing maintenance on a T1 channel.

- Disk maintenance

  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 11-1) provides several options. You can view the status of the system, nodes, cards, DSP ports, T1 links and channels, SMDI links, and System Event and Error Reports (SEERs). You can also access the Channel Allocation Table (CAT), MSM cross reference table, and perform disk maintenance.

Figure 11-1

The System Status and Maintenance menu

```
                    System Status and Maintenance

         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  MSM Cross Reference Table
        10  Disk Maintenance
        11  System Event and Error Reports




Select an item >

                                            Silence
     Exit                                     Alarm
```
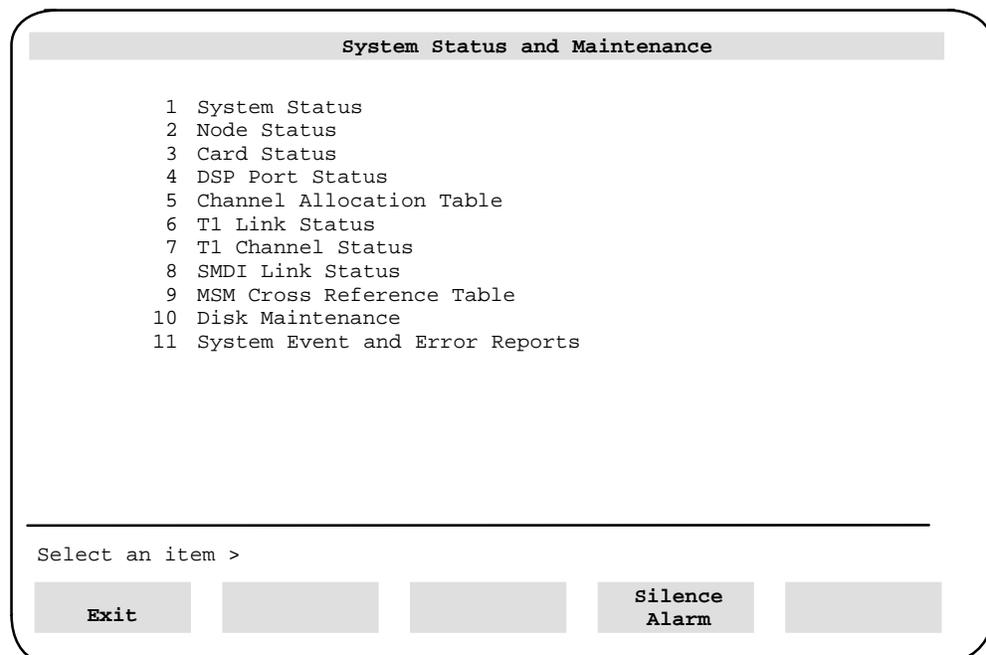
Procedure 11-1

Using the System Status and Maintenance menu

Starting point: The Main Menu

1 Select System Status and Maintenance.

The System Status and Maintenance menu appears (Figure 11-1).

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> "System status"
    <2> "Node status"
    <3> "Card status"
    <4> "DSP port status"
    <5> "Displaying the Channel Allocation Table screens"
    <6> "T1 link status"
    <7> "T1 channel status"
    <8> "SMDI link status"
    <9> "MSM cross reference table"
   <10> "Disk maintenance"
   <11> "System Event and Error Reports (SEERs)"

3 Press [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 11-2 are displayed.

Figure 11-2
Alarm softkeys
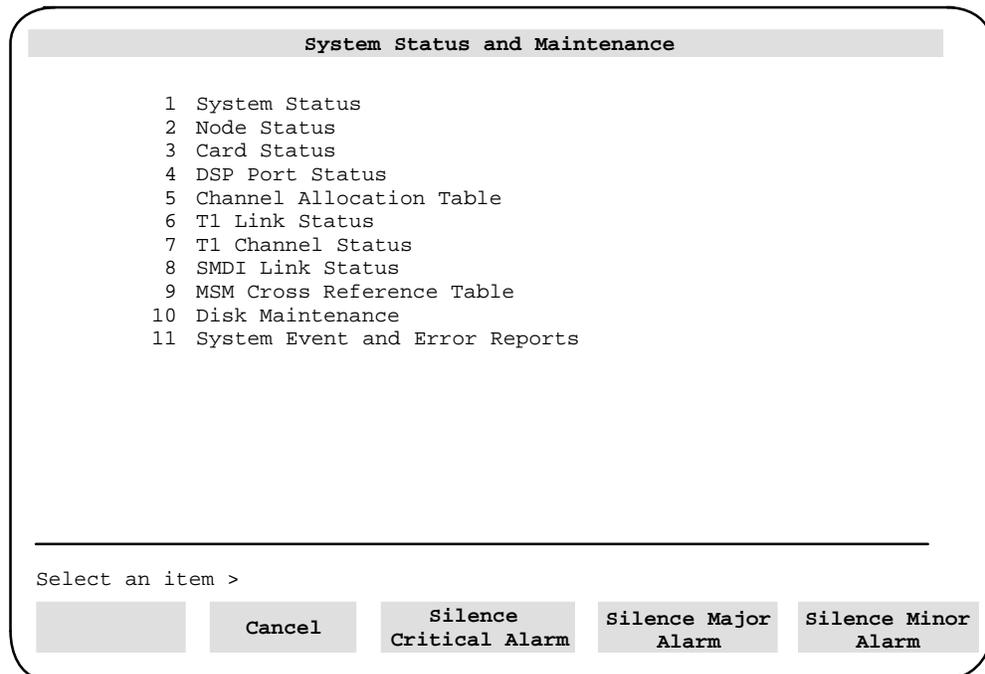
```
┌─────────────────────────────────────────────────────────────────┐
│           System Status and Maintenance                          │
│                                                                  │
│        1  System Status                                          │
│        2  Node Status                                            │
│        3  Card Status                                            │
│        4  DSP Port Status                                        │
│        5  Channel Allocation Table                               │
│        6  T1 Link Status                                         │
│        7  T1 Channel Status                                      │
│        8  SMDI Link Status                                       │
│        9  MSM Cross Reference Table                              │
│       10  Disk Maintenance                                       │
│       11  System Event and Error Reports                        │
│                                                                  │
│                                                                  │
│  ──────────────────────────────────────────────────────────     │
│                                                                  │
│  Select an item >                                                │
│  ┌────────┐ ┌────────┐ ┌──────────┐ ┌────────────┐ ┌───────────┐│
│  │        │ │ Cancel │ │ Silence  │ │Silence Major│ │Silence Minor││
│  │        │ │        │ │Critical  │ │   Alarm    │ │   Alarm    ││
│  │        │ │        │ │  Alarm   │ │            │ │            ││
│  └────────┘ └────────┘ └──────────┘ └────────────┘ └───────────┘│
└─────────────────────────────────────────────────────────────────┘
```

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. It is suggested that you 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.) See the next section "System status" for a description of alarm statuses.

System status

The System Status screen (Figure 11-3) 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 11-3
System Status screen

```
                         System Status and Maintenance


System Status:   InService                 Alarm Status:  Critical=On Major=Off Minor=Off
Last Event: 41-46 DevReport Info Message, DevType=T1LH DevEvent=ISO4/12   01:59

                                  DSP  Port  Status                       Storage  Used
Node Type    Status        Active Idle OutSv Faulty Pending Others         Voice   Text
  1   MSP    InService
  2   MSP    InSvStandby
  3   SPN    InService       0    24    0      0      0      0              43%      5%
  4   SPN    InService      24     0    0      0      0      0              30%     24%
  5   SPN    InService       0    24    0      0      0      0              30%     32%
  6   SPN    OutOfService    6    18    0      0      0      0              17%     40%
  7   SPN    ShuttingDown    0     0   12      0     11      1              48%     32%
  8   SPN    Faulty          0     0   24      0      0      0              56%     35%
  9   SPN    Loading         0    15    8      0      1      0              12%     10%
 10   SPN    InService       0    24    0      0      0      0              26%     18%




_____

Select a softkey >

┌──────────────┐ ┌──────────────┐ ┌──────────────┐ ┌──────────────┐ ┌──────────────┐
│              │ │              │ │              │ │ Next Set of  │ │ Courtesy Down│
│    Exit      │ │              │ │              │ │   Nodes      │ │   System*    │
└──────────────┘ └──────────────┘ └──────────────┘ └──────────────┘ └──────────────┘
```

* When the system is down, 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 11-4. Note in Figure 11-4 that the [Next Set of Nodes] softkey is changed to [Previous Set of Nodes].

Figure 11-4

System Status—Next Set of Nodes

```
                        System Status and Maintenance

System Status:    InService                 Alarm Status:  Critical=On Major=Off Minor=Off
Last Event: 41-46 DevReport Info Message, DevType=T1LH DevEvent=ISO4/12  01:59

                                 DSP Port/Channel Status                  Storage Used
Node Type    Status       Active Idle OutSv  Faulty     Pending Others    Voice    Text
 13  TIFN    InService
 14  TIFN    InService
 15  TIFN    InSvStandBy
 16  TIFN    OutOfService








_____

Select a softkey >

   ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────────┐  ┌──────────────┐
   │          │  │          │  │          │  │ Previous Set │  │Courtesy Down │
   │   Exit   │  │          │  │          │  │  of Nodes    │  │  System*     │
   └──────────┘  └──────────┘  └──────────┘  └──────────────┘  └──────────────┘
```

* When the system is down, this softkey becomes [Activate 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/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.

- *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.
  — *MSP* or Multi-Server Processor
  — *SPN* or Signal Processing Node
  — *TIFN* or Telephony Interface 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 the node is running and accepting calls. For the MSP node, it indicates that node is running.

— *InSvStandBy* is used for the redundant MSP and TIFN nodes. It indicates the connection is not currently taking calls, but is ready to accept calls for the paired connection on the node.

— *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.

— *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/Channel 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.

— *Others* indicates that the port is temporarily unavailable. This usually occurs while the system is booting up. The status remains as "Others" while the software is loading. Once fully loaded, the status automatically becomes "Idle". The status may also appear as "Others" when you reenable 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 each SPN. (If the disk on a node is bad, percentages are not displayed.) You can see the percentages in the columns:

  — *Voice*

  — *Text*

Procedure 11-2

Courtesying down the system

Starting point: The System Status and Maintenance menu

1   Select System Status and Maintenance.

The System Status screen appears (Figure 11-3).

2   Choose step 2a to courtesy down the system, or 2b to return to the System Status and Maintenance menu.

a.   Press [Courtesy Down System].

You are prompted as to whether or not you want to Courtesy Down the system.

b.   Replace No with Yes, and press <Return> to continue.

[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 "Courtesy Deactivating System..." 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 reenabled at any time during the process by using [Activate System].

If a T1 channel does not reenable, enable it by following the procedures described under "T1 channel status".

c.   Press [Exit] to return to the System Status and Maintenance menu.

Node status

The Node Status screen (Figure 11-5) 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 in the system.

Figure 11-5
Node Status screen

```
                   System Status and Maintenance


  Node Status

  System Status: InService  Alarm Status: Critical=On Major=Off Minor=On

  Type    Node   Status                          Paired Node  Status
   MSP      1    Inservice                            2       InSvStandby
   SPN      3    InService                            4       InService
   SPN      5    InService                            6       InService
   TIFN    13    InSvStandby                         14       InService




 _____

*Select a softkey >

  ┌──────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────┐
  │          │  │              │  │              │  │   Courtesy   │  │          │
  │   Exit   │  │ Enable Node  │  │ Disable Node │  │ Disable Ports│  │          │
  └──────────┘  └──────────────┘  └──────────────┘  └──────────────┘  └──────────┘
```
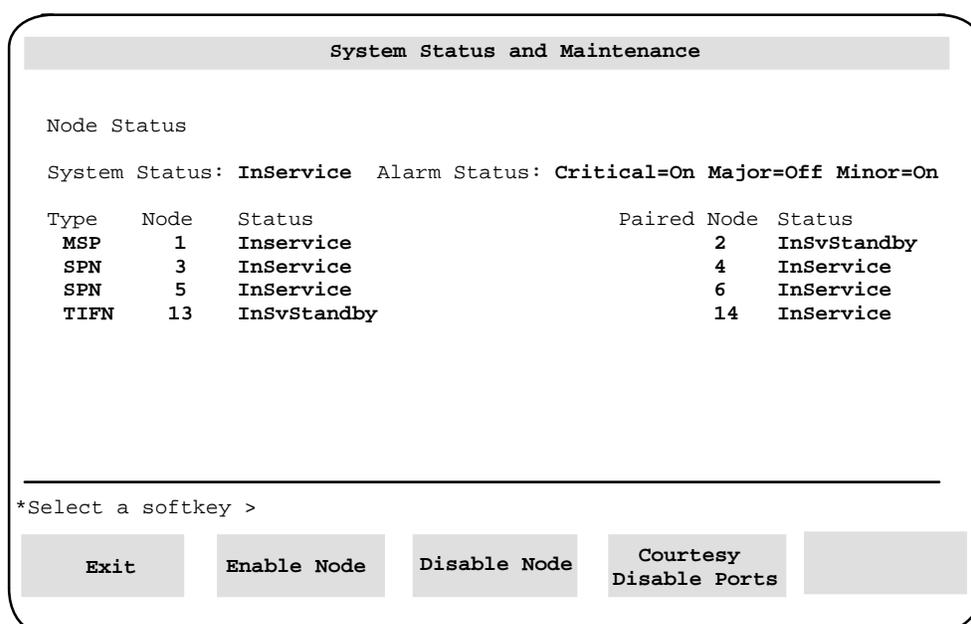
* "Enter the number of the node you want to enable" appears when [Enable
  Node] is used.
  "Enter the number of the node you want to disable" appears when [Disable
  Node] is used.
  "Enter the number of the node you want to Courtesy Disable Ports" appears
  when [Courtesy Disable Ports] is used.

The following fields are displayed on the Node Status screen:

- *System Status*   This field displays the current system status. See the section "System status" section on page 11-7 for details.

- *Alarm Status*   This field indicates whether there are any critical, major or minor alarms. See the section "System status" section on page 11-7 for details.

- *Type*   The type of node. See the description of the *Type* field in the "System status" section on page 11-7 for details.

- *Node*   The node number to which the following measurements apply.

- *Status*   The status of the primary nodes in the system. See the description of the *Type* field in the "System status" section on page 11-7 for details.

  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 11-12).

- *Paired Node*   The number of the node that is paired with the original node.

- *Status*   The status of the paired node. See the description of the *Type* field in the "System status" section on page 11-7 for details.

Procedure 11-3
Enabling and disabling nodes and disabling the system

Starting point: The System Status and Maintenance menu

1   Select System Status and Maintenance.

 The Node Status screen appears (Figure 11-5).

2   Choose step 2a to enable a node, 2b to disable a node, 2c to courtesy disable ports on a node, and 2d to return to the System Status and Maintenance menu.

 a.   Press [Enable Node].

  You are prompted for the node number.

  Enter the required number followed by <Return>.

 b.   Press the [Disable Node] softkey.

  After you press [Disable Node], you are prompted for the node number.

  Enter the node number followed by <Return>.

 c.   Press [Courtesy Disable Ports].

  You are prompted for the number of an in-service node.

  Enter the node number followed by <Return>.

 d.   Press [Exit] to return to the System Status and Maintenance menu.

Card status

The Card Status screen (Figure 11-6) displays the operational status of the cards in your system. The softkeys displayed on this screen are used to enable and disable voice processor 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 11-6
The Card Status screen

```
┌─────────────────────────────────────────────────────────────┐
│              System Status and Maintenance                   │
│                                                               │
│   Card Status for Node 1                                      │
│                                                               │
│   System Status: InService    Alarm Status:Critical=On Major=Off Minor=On │
│                                                               │
│   Card#    Location     Description                  Status   │
│    1       1-1-*        Enhanced Single Board Computer  InService │
│    2       1-2-*        Empty                         Unequipped │
│    3       1-3-*        High Speed Bus                InService │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│   ─────────────────────────────────────────────────────────  │
│                                                               │
│   Select a softkey >                                          │
│                                                               │
│   ┌────────┐  ┌───────────┐ ┌────────────┐ ┌──────┐ ┌──────────┐ │
│   │  Exit  │  │Enable Card&│ │Disable Card!│ │      │ │OutOfService│ │
│   │        │  │           │ │            │ │      │ │Diagnostics#│ │
│   └────────┘  └───────────┘ └────────────┘ └──────┘ └──────────┘ │
└─────────────────────────────────────────────────────────────┘
```
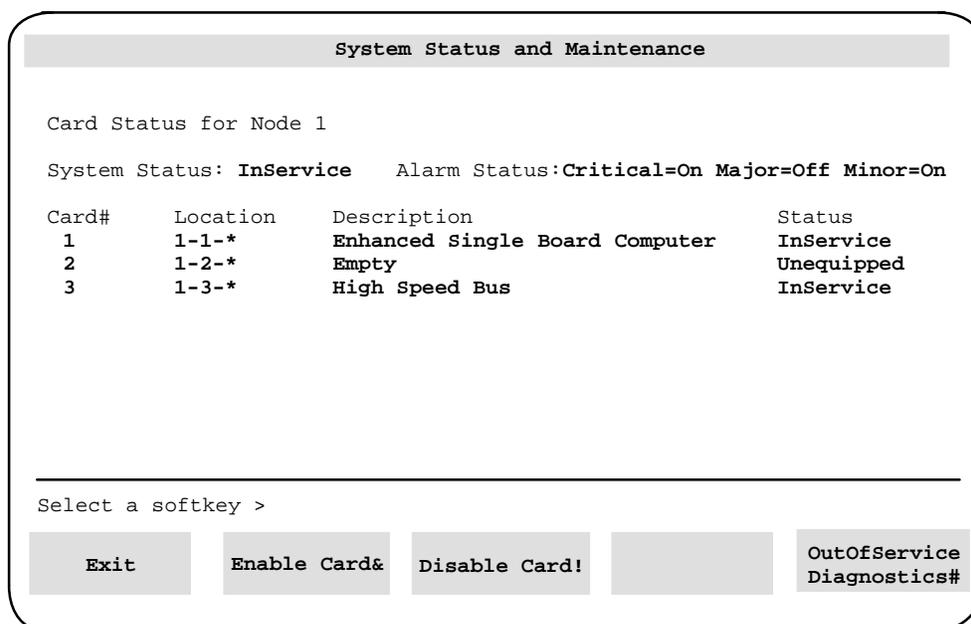
& The prompt "Enter the number of the card you want to enable" appears
  when [Enable Card] is used.
! The prompt "Enter the number of the card you want to disable" appears
  when [Disable Card] is used.
The prompt "Enter the number of the OutofService card for diagnostics"
  appears when [OutofService Diagnostics] is used.

The following fields are displayed on the Card Status screen:

- *System Status*   See the description in the section "System status" on
  page 11-5.

- *Alarm Status*   See the description in the section "System status" on
  page 11-5.

- *Card#*   The number of each card on the selected node.

- *Location*   The location (node-card) of each card on the selected node.

- *Description*   Function of each card. The descriptions that can appear in
  this field are:

  — *Enhanced Single Board Computer*

  — *Empty*

  — *High Speed Bus*

  — *Voice Processor*

  — *T1*

- *Status*   The current state of each card on the selected node.

— *UnEquipped* indicates that either the card slot is empty but defined in the 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 11-4

Enabling and disabling cards

Starting point: The Main Menu

1   Select System Status and Maintenance.

The System Status and Maintenance menu appears (Figure 11-1).

2   Select Card Status.

You are prompted for the node number. Continue with step 3.

3   Enter the number of the node on which the card resides.

The Card Status screen is displayed (Figure 11-6).

4   Choose step 4a to enable a card, 4b to disable a card, 4c to activate diagnostics on an out-of-service card, or 4d to return to the System Status and Maintenance menu.

  a.   Use [OutOfService Diagnostics] before enabling a faulty card or a card with faulty DSP ports. For more information, see step 4c.

Next, press [Enable Card].

Note 1: Only voice processor or T1 cards can be enabled from this screen. To enable other cards press [Enable Node] in the System Status screen. See the previous section, "System status" on page 11-5.

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. A message will be displayed during this interval.

  b.   Press [Disable Card].

Note: Only voice processor or T1 cards can be disabled from this screen. To disable other cards, press [Disable Node] in the System 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. A message will be displayed during this interval.

  c.   Press [OutOfService Diagnostics].

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 running diagnostics. A message will be displayed during this interval.

>   ***Note 1:*** *If the OutOfService Diagnostics fail, the statuses of the card will change to faulty.*
>
>   ***Note 2:*** *If the card status was already faulty and you run OutOfService diagnostics and the card passes, the card is put into the OufOfService state.*

    d. Press [Exit] to return to the System Status and Maintenance menu.

DSP port status

The DSP Port Status screen (Figure 11-7) allows you to view the operational status of the DSP ports on a node, manipulate their status, and courtesy disable individual ports when necessary.

Note: Because the number of DSP ports on MSM systems should equal the number of T1 channels, when you are disabling DSP ports for a long period of time, you should also disable an equal number of T1 channels. For more information, refer to Procedure 11-5 on page 11-15.

Figure 11-7
The DSP Port Status screen

```
                    System Status and Maintenance

 DSP Port Status for Node 3 (C=Card D=DSP P=Port)

 System Status: InService   Alarm Status:Critical=Off Major=Off Minor=Off

 C-D-P           DSP Port Status

 2-1-*           1-Idle          2-Active        3-Idle
 2-2-*           4-Faulty        5-Faulty        6-Faulty
 2-3-*           7-OutOfService  8-OutOfService 9-Idle
 2-4-*           10-Faulty       11-Faulty       12-Active

 3-1-*           13-Loading      14-Loading      15-Active
 3-2-*           16-Idle         17-Idle         18-Idle
 3-3-*           19-OutOfService 20-OutOfService 21-OutOfService
 3-4-*           22-UnEquipped   23-UnEquipped   24-UnEquipped
 _____

  Select a softkey >

                                          Courtesy       Change to
    Exit       Enable Port   Disable Port Disable Port   Range Mode#
```

 # 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" on page 11-5.

- *Alarm Status*   See the description in the section "System status" on page 11-5.
- *C-D-P*   This field represents the card, DSP, and port location as it pertains to the hardware database. For example, "23-Active" indicates that the 23rd DSP port on the 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).
  - *NoResource* 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 11-5. If you are in range mode, follow Procedure 11-6.

Procedure 11-5
Enabling and disabling DSP ports in single mode

Starting point: The System Status and Maintenance menu

1   Select DSP Port Status.

You are prompted for a node number:

Enter the node number for port status > __

2   Enter the number of the node on which the port resides.

The DSP Port Status screen appears. (See Figure 11-7.)

3 Choose step 3a to enable a DSP port, 3b to disable a DSP port, 3c to courtesy disable a DSP port, or 3d to toggle between range mode or single mode, or 3e to exit the DSP Port Status screen.

a. Press [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.

While the port is being enabled, its status will change to Loading and then to Idle.

b. Press [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.

While the port is being disabled, its status will change to POutOfService and then to OutOfService.

c. Press [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 courtesy disable the DSP port since it waits for the port to become idle before disabling it. The system displays a message to inform you that the DSP port is being courtesy disabled.

While the port is being disabled, its status will change to POutOfService and then to OutOfService.

d. Press [Change to Range Mode].

The DSP Port Status screen changes to range mode, and this softkey changes to [Change to Single Mode].

In range mode, you can enable, disable, or courtesy disable a range of port numbers at one time. In single mode, you can only enable, disable, or courtesy disable one port at a time. For more information about working with ports in range mode, refer to Procedure 11-6 (the next procedure).

e. Press [Exit] to return to the System Status and Maintenance menu.

Procedure 11-6

Enabling and disabling DSP ports in range mode

Starting point: The System Status and Maintenance menu

1 Select DSP Port Status.

You are prompted for the node number.

Enter the node number for port status > __

2 Enter the number of the node on which the DSP port resides.

The DSP Port Status screen is displayed (Figure 11-7).

3 Choose step 3a to enable a range of DSP ports, 3b to disable a range of DSP ports, 3c to courtesy disable a range of DSP ports, or 3d to exit the DSP Port Status screen.

a. Press [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 system also displays a message to inform you of the number of ports successfully enabled, and the number of ports that could not be enabled.

b. Press [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 system also displays a message to inform you of the number of ports successfully disabled, and the number of ports that could not be disabled.

c. Press [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. While the ports are being disabled, their status will change to POutOfService and then to OutOfService.

The system also 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. Press [Exit] to return to the System Status and Maintenance menu.

The Channel Allocation Table

The Channel Allocation Table (CAT) (Figure 11-11 on page 11-28) should only be configured by those who are knowledgeable about programming the switch. Normally, you will not have to configure this table. When the Meridian Mail software is installed, the installation technician configures the switch to match the Channel Allocation Table. This is also true when you perform a channel expansion (to add new agents). You generally do not have to modify the CAT because it is updated with the information that was provided during the expansion. However, when you move agents from one queue to another (in order to dedicate them to a particular service), you will have to modify the CAT to reflect the Primary DN with which the agent is now associated as well as the service to which it is dedicated.

The Channel Allocation Table associates each agent on the switch with a voice channel (T1 channel) on an MSM T1 card(s). Agents are identified by a Terminal Number (Routing Address) and Directory Number on the switch. Each T1 channel must be associated with an existing UCD agent in the PBX/switch (e.g., SL-100) to handle the queuing of calls coming into the MSM and to handle dial-out features such as remote notification and delivery to non-users. For more information about how to configure the Channel Allocation Table, refer to the section "Displaying the Channel Allocation Table screens" in this chapter.

The Channel Allocation Table also lists the maximum number of voice ports and minimum number of multimedia ports that you can configure, and how the different port types are currently allocated. The [Display Choice of Services] softkey also allows you to view the services (features) installed on your system. (In Figure 11-11 on page 11-28, the [Display Choice of Services] softkey has been pressed, which displays *Choice of Services* field and changes the [Display Choice of Services] softkey to [Hide Choice of Services].)

What is a T1 channel?

A T1 channel may be shared by all services, or be dedicated to a specific service. Dedicating T1 channels may reduce the overall efficiency of the system since dedicated T1 channels cannot be used by any other service, even when the dedicated T1 channel is not in use. Also, when a T1 channel is dedicated to an outbound service, that service is restricted to those T1 channels (i.e., the service cannot use a T1 channel configured for "ALL" services). Therefore, most of your T1 channels should be shared by all services.

However, depending on the level of traffic you expect certain features to generate, or perhaps because you need to ensure that a T1 channel is always free for a particular service, you may want to dedicate some T1 channels. See the section "Decide whether you need a dedicated or shared configuration" in Chapter 4 "Configuring Meridian Mail MSM services" for instructions and tips on dedicating channels.

Also, the capability and type of T1 channel determines what features can be dedicated to that T1 channel. Basic service T1 channels support Meridian ACCESS, Voice Menus, Thru-Dial Announcements, and the [Voice] softkey. Full service T1 channels support all voice services. Full service multimedia T1 channels support all services including fax services.

Note: To dedicate lines to a particular service in a configuration involving a third-party PBX (AT&T or ROLM), you need a VoiceBridge unit. For more information about using Meridian Mail with a VoiceBridge, refer to the section "Configuring PBXs from other vendors" in Chapter 4 "Configuring Meridian Mail MSM services".

The number of T1 channels on a system may be very large. Therefore, when you choose to view the CAT, you are presented with a data menu from which you select a link. The CAT screen then displays information for that link.

Prohibiting incoming calls on dedicated T1 channels

When a T1 channel is dedicated to a service in the CAT, incoming calls from the switch are still accepted on that T1 channel. This is because the switch, not the MSM, is in control of incoming calls. For each dedicated T1 channel for which you want to prohibit incoming calls from using a dedicated T1 channel, make sure that there is one agent that has not been assigned to any UCD queue and that the agent is associated with that T1 channel.

For example, your system has a total of 12 agents. To dedicate two T1 channels to outcalling so that those T1 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 T1 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 routing address corresponds to an agent that is not assigned to a queue.)

In Figure 11-8 the top ten T1 channels are set to "ALL" in the CAT and the bottom two T1 channels are reserved as outgoing T1 channels for an outbound calling service.

Figure 11-8

Diagram showing incoming calls prohibited on dedicated T1 channels
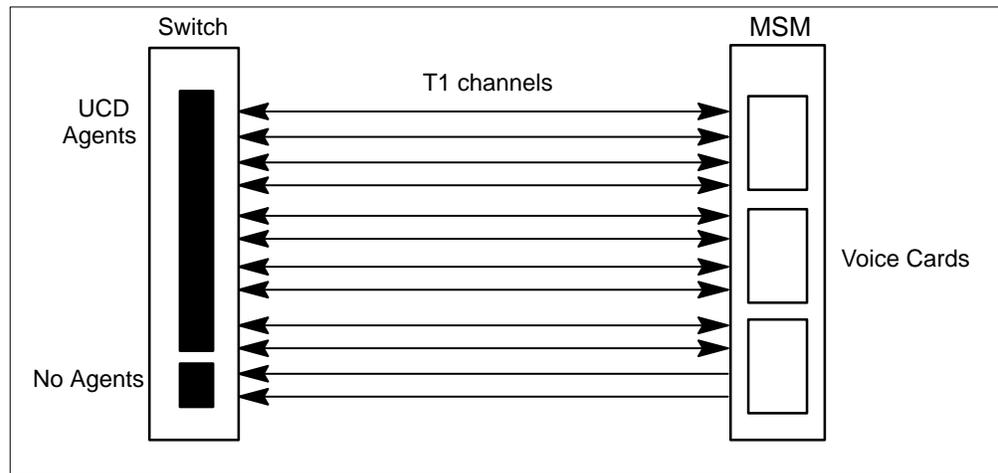
Types and capabilities of T1 channels

T1 channels can be one of two types:

- voice
- multimedia

A voice T1 channel is capable of supporting all voice-related activities such as compression, recording, decompression, playback, and tone detection.

T1 channels can have one of two capabilities:

- basic service
- full service

These types and capabilities can be combined during configuration to create three distinct kinds of T1 channels:

- basic service voice
- full service voice
- full service multimedia

Deciding how types and capabilities should be assigned

The types and capabilities are shown on the Channel Allocation Table. When you set up UCD queues and line DNs, make sure that all of the channels that serve the same queue have the same type and capability. If members of the same queue or line DN have a mismatch, a warning message is issued when returning to the System Status and Maintenance menu.

Basic service voice T1 channels

Basic service voice T1 channels can be used to run:

- custom IVR applications that are created using Meridian ACCESS
- voice menus that do not invoke voice services requiring full service voice T1 channels, or that do not invoke fax services requiring full service voice or full service multimedia T1 channels

Full service voice T1 channels

Full service voice T1 channels are required to run all other Meridian Mail applications, such as, voice messaging, express messaging, networking services, outcalling or call back fax applications. If the fax items you are going to add to your voice menus require the user to enter a fax number only, then full service voice T1 channels are required.

Note 1: If an MSM is upgraded from Meridian Mail, Release 8, all existing T1 channels on the system are converted to full service voice T1 channels.

Note 2: A full service voice T1 channel can handle services that require basic service voice or full service voice capabilities.

Full service multimedia T1 channels

Note: If the fax items you are going to add to your voice menus also require the use of fax services (i.e., the user has requested a fax in the current calling session), then full service multimedia T1 channels are required. "Same Call" and "Caller Choice" fax applications are not supported on full service voice T1 channels, but instead, these types of fax applications require full service multimedia T1 channels. Multimedia Full Service T1 channels are required to run all Meridian Mail fax applications which receive fax messages on the same call.

Full service multimedia T1 channels are required to run all Meridian Mail fax applications that receive fax messages on the same call. The following services require full service multimedia T1 channels:

- The Fax Item Maintenance service (FIM)
- The Fax Information service (FI), if fax delivery is "Same Call" delivery only or "Caller Choice".

  If the fax delivery transmission is to be limited to "Call Back" delivery only, the FI service can be implemented using full service voice T1 channels.
- A Voice Menu that invokes fax items (if fax delivery is set to "Same Call" only or "Caller Choice") or the fax item maintenance service.

Note: A multimedia T1 channel can handle services that require either voice or multimedia T1 channels.

Multimedia T1 channels are configured during installation or expansion. The type associated with the T1 channel is modifiable from the CAT. If a modification is made that results in a combination of voice and multimedia T1 channels that is different than the distribution of voice or multimedia DSP ports, a warning and a SEER will be issued highlighting this mismatch. Once the mismatch is corrected, a SEER will be issued highlighting the "back in synchronization" condition.

T1 channel requirements

Table 11-1 identifies the T1 channel requirements for each MSM service.

Table 11-1
Acceptable T1 channel assignments

Service	T1 channel Capability	T1 channel Type
ACC ACCESS (including custom Meridian IVR applications)	Basic	Voice
AS Announcement Service	Basic	Voice
TS Thru-dial Service	Basic	Voice
PM Voice Prompt Maintenance	Basic	Voice
RA Remote Activation	Basic	Voice
MS Voice Menus or TD Time-of-Day Controller		
Invokes only voice menu applications (AS, TD, TS, MS) and/or ACCESS applications	Basic	Voice
Invokes other voice services such as VM or EM, but no Fax on Demand applications	Full Service	Voice
Invokes a fax item and the fax delivery mode is call back only	Full Service	Voice
Invokes a fax item and the delivery mode is same call or caller choice	Full Service	Multimedia
Invokes the fax item maintenance service ***Note:*** The TD service does not appear on the CAT, however, it still requires the specific T1 channel types and capabilities listed here.	Full Service	Multimedia
–continued–		

Table 11-1
Acceptable T1 channel assignments (continued)

Service	T1 channel Capability	T1 channel Type
VM Voice Messaging	Full Service	Voice
EM Express Messaging	Full Service	Voice
OC Outcalling	Full Service	Voice
CO Post Checkout Mailbox	Full Service	Voice
VF Voice Forms Service	Full Service	Voice
TR Transcription Service	Full Service	Voice
NW Meridian Networking	Full Service	Voice
AN AMIS Networking	Full Service	Voice
FI* Fax information service (i.e., standalone fax application) The fax delivery mode is call back The fax delivery mode is same call or caller choice **Note:** The FI service requires the FOC service listed on the CAT.	Full Service Full Service	Voice Multimedia
FIM* Fax Item Maintenance	Full Service	Multimedia
–end–		

*   These services are not listed directly in the Channel Allocation Table.
Instead there is an entry for FOC (Fax Outcalling). FOC requires full
service multimedia capabilities which provide support for transmitting/receiving
Fax Items.

Assigning T1 channels

T1 channels are designated as basic service or full service when they are
installed. You can consult the CAT table to determine how many full service
T1 channels have been installed on the system and how many of them have
already been allocated to voice services. T1 channel designations can be
changed from the Channel Allocation Table (CAT). This will be necessary if
you want to dedicate certain T1 channels to a particular service. The service
to which T1 channels are dedicated is indicated in the *Outbound* field.

How calls should terminate on channels

To avoid blocking problems, an incoming call must terminate on a channel
that accommodates all of the services that will be invoked by that call. The
Voice Services-DN (VSDN) Table (Figure 9-6 on page 9-27) determines the
initial service, based on the originally dialed DN. In many cases, a single
service remains in effect for the duration of the call. However, a call to a
voice menu application, or Time-of-Day controller, may switch between
services depending on the caller's action.

In the general case of a voice menu or Time-of-Day controller, the call must terminate on a channel that meets all of the requirements for the services that can be reached from that menu or Time-of-Day controller. For example, the call needs to terminate on a full service multimedia channel if any branch of any menu or Time-of-Day controller requires a full service multimedia channel.

Example of services terminating on T1 channels

Figure 11-9 shows two scenarios in which a UCD queue on the PBX/switch has been configured to support the Voice Messaging feature. In Scenario A, the service terminates on the wrong kind of T1 channel: basic service voice T1 channels. The Voice Messaging service requires full service voice T1 channels. Scenario B depicts a correct configuration.

Figure 11-9
Terminating a service on the correct MSM ports
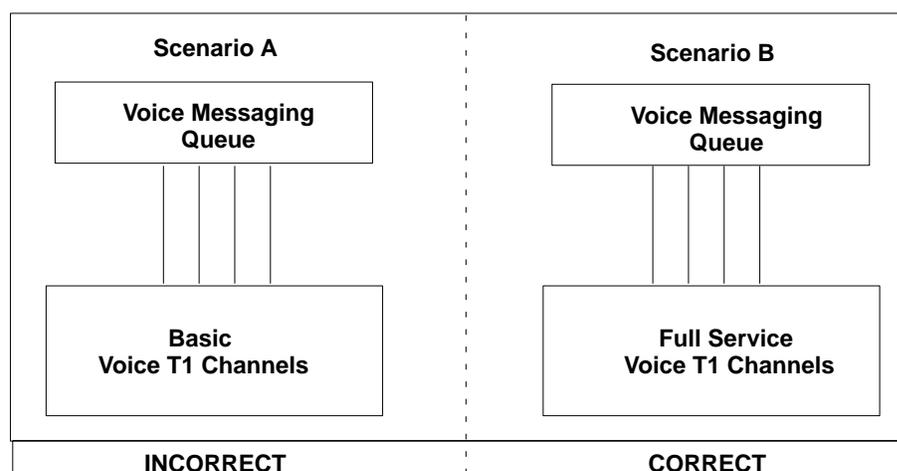
If a caller dials a DN that invokes a service that requires a full service T1 channel, but the call terminates on a basic service T1 channel as in Scenario A, the system denies service and the following occurs:

- An announcement is played to the caller.
    — If the customer group revert DN is defined, the following announcement is played: *"Your call cannot be completed at this time. Transferring to an attendant."*
    — If the customer group revert DN is not defined, the following announcement is played: *"Your call cannot be completed at this time. Please try again later. Goodbye."*
- The call is transferred to the customer group revert DN (or terminated if this is not available).

- A SEER is generated, recording the details (original dialed DN, T1 channel ID).

The same sequence will occur if a call has terminated on a basic service T1 channel, but is attempting to switch to a full service application (e.g., invoking a voice form or fax item from a voice menu).

Rules for assigning T1 channels

Since T1 channels are not tied to DSP ports on the MSM, the following rules apply when you are assigning T1 channels:

1   T1 channels can be changed only after the T1 channel has been disabled.

2   The number of voice T1 channels cannot exceed the maximum number of voice DSP ports configured.

3   The number of full service T1 channels cannot exceed the maximum number of full service DSP ports configured.

4   The number of voice DSP ports does not have to equal the number of voice T1 channels; the number of multimedia DSP ports does not have to equal the number of multimedia T1 channels.

   Under this condition, an "Out of synchronization" SEER will be issued.

5   All channels in the same channel group must have the same type and capability.

   For more information about channel types and capabilities, refer to the section "Types and capabilities of T1 channels".

   Note: Fax on Demand is the only service that requires multimedia T1 channels, if they are going to require the user to do more than just enter a fax number (i.e., receive a fax). (Otherwise the Fax on Demand service only requires full service voice T1 channels.) However, multimedia T1 channels can also be used for voice services, if you want.

Disabling DSP ports

On an MSM system, the total number of DSP ports should equal the total number of T1 channels. This ensures that every call presented to a T1 channel can be answered and handled immediately by a DSP port.

If, for any reason, some DSP ports are disabled, some calls presented to T1 channels may not be answered by MSM until a DSP port becomes available. Under most circumstances, this would be acceptable, and has minimal impact on system operation. No further action is required other than to eventually bring the disabled DSP ports back into service.

However, when a large number of DSP ports are left disabled for long periods of time, the administrator can disable a corresponding number of T1

channels. This will prevent calls from being presented to the disabled channels, and will allow the switch to handle all of the calls appropriately.

For more information about how to disable DSP ports, refer to the section "DSP port status" in this chapter. For more information about disabling T1 channels, refer to the section "T1 channel status" in this chapter.

Rules for disabling DSP ports

When disabling DSP ports, the following rules apply:

1   If a full service multimedia DSP port has been disabled, then a full service multimedia T1 channel should be disabled.

2   If a full service voice DSP port has been disabled, then a full service voice T1 channel should be disabled.

3   If a basic service voice DSP port has been disabled, then a basic service voice T1 channel should be disabled.

T1 channel attributes can be determined by viewing the Channel Allocation Table.

Displaying the Channel Allocation Table screens

The Channel Allocation Table will be configured during installation to ensure consistency between the PBX/switch and the MSM. After installation, however, it may be necessary to alter this table if, for example, it is decided that certain services require dedicated channels for effective performance or if channels are added to the system.

Note: You should not configure the Channel Allocation Table (CAT) unless you are knowledgeable about programming the switch.

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 11-10. 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 (see Figure 11-11).

Figure 11-10

The Selectable Channel Allocation Table data menu

```
                    System Status and Maintenance


  Channel Allocation Table

                       Primary Connection      Secondary Connection
  T1 Link ID             (Node-Card-Span)        (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 space bar to select.

   ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
   │   Exit   │ │          │ │View/Modify│ │          │ │          │
   └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘
```

Procedure 11-7
Viewing and modifying the Channel Allocation Table

Starting Point: The Main Menu.

1   Select System Status and Maintenance.

   The System Status and Maintenance menu appears.

2   Select Channel Allocation Table.

   The Channel Allocation Table data menu appears (Figure 11-10).

3   Move the cursor to the T1 Link ID that you want to view or modify and press
   <space bar> to select it.

4   Press [View/Modify].

   The Channel Allocation Table appears (Figure 11-11).

   *Rows that are displayed in bold type on the CAT represent disabled channels
   and are modifiable; modifiable fields within modifiable rows are underlined;
   selectable fields are in reverse video.*

   Press the [Hide Choice of Services] or [Display Choice of Services] softkey to
   toggle between hiding or displaying the Choice of Services descriptions.

> **5**   Make any changes to the Channel Allocation Table.
>
>   The routing address can only be modified from the Tools menu (Modify hardware) described in the *System Administration Tools* guide (NTP 557-7001-305).
>
>   **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 which is accessed from the System Status and Maintenance menu.
>
> **6**   Choose step 6a to save your changes or step 6b to exit the Channel Allocation Table.
>
>   a.   Press [Save] to save any changes you have made to the Channel Allocation Table.
>
>   b.   Press [Exit] to discard any changes you have made and leave the Channel Allocation Table.

Figure 11-11

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            AN   AMIS Networking      AS   Announcement Service
  EM  Express Messaging       FOC  Fax Outcalling       ACC  Meridian ACCESS
  NW  Meridian Networking     PM   Prompt Maintenance   RA   Remote Activation
  OC  RN/DNU Outcalling       TS   Thru-Dial Service    TR   Transcription Service
  VF  Voice Forms Service     MS   Voice Menu Service   VM   Voice Messaging
  VS  Voice Softkey

  Limit; MaxVoice MinMulti; MaxFull;                      - - - - Allocated - - - -
   48      48        0        48                          M/F: 12   V/F: 24  V/B: 0


  Chan#   Rout.Addr      PrimaryDN   ChannelDN      Type        Capability     Outbound

  1       63-1           6020        6401         Voice Multi    Full    Basic  ACC Class:
  2       63-2           6020        6402         Voice Multi    Full    Basic  ACC Class:
  3       63-3           6021        6403          Voice [Multi] [Full] Basic   FOC
  4       63-4           6022        6404         [Voice] Multi  Full   [Basic] ALL



  _____

  Select a softkey >
```

Save	Cancel			Hide Choice of Services

Note: To change the Primary DN, Channel DN, Type, Capability, or Outbound service, you must first disable the T1 channel from the T1 Channel Status screen which is accessed from the System Status and Maintenance menu. Rows that are displayed in bold type on the CAT represent disabled T1 channels. The underlined fields and the *Type* and *Capability* fields for the disabled ports can be modified. The routing address can only be modified from the Tools menu ("Modify hardware") described in *System Administration Tools* guide (NTP 555-7001-305).

The following fields are displayed in the Channel Allocation Table:

- *Primary Conn.*   This is the location of the primary T1 connection in the system. This represents the node-card-span location.

- *Secondary Conn.*   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. Refer to the section "Configuring PBXs from other vendors" in Chapter 4 "Configuring Meridian Mail MSM services" 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 available only if Voice Menus is installed:

  — AS (Announcement Service)
  — PM (Prompt Maintenance)
  — RA (Remote Activation)
  — TS (Thru-Dial Service)
  — MS (Voice Menu Service)

  Greeting Change Service (GS) is only available if Voice Messaging (VMUIF) is enabled. Express Messaging (EM) is available only if Voice Messaging (MMUI) is enabled.

  Transcription Service (TR) and Voice Forms Service (VF) are available only if the Voice Forms feature is enabled.

  Meridian Networking (NW), Meridian ACCESS (ACC), AMIS Networking (AN), RN/DNU Outcalling (OC), and Fax Outcalling (FOC) appear only if the feature is enabled.

- *Limit*   The number of physical port locations on the system from which voice and multimedia ports are derived.

- *MaxVoice*   The maximum number of voice ports (basic and full) allowed on the system. This number plus the *MinMulti* number is the maximum number of ports allowed on the system.

- *MinMulti*   The minimum number of multimedia T1 channels required on the system. The system will not allow you to reduce the number of multimedia T1 channels on the system to below the *MinMulti* value.

- *MaxFull*   The maximum number of full service T1 channels (full service voice or multimedia) allowed on the system.

- *Allocated*   How the T1 channels are currently allocated between full service multimedia, full service voice, and basic service voice.

  — **M/F**   The number of full service multimedia T1 channels on the system.

  — **V/F**   The number of full service voice T1 channels on the system.

  — **V/B**   The number of basic service voice T1 channels on the system. Basic-service T1 channels must also be voice T1 channels.

  Note: Multimedia T1 channels require full service capability, so basic service multimedia T1 channels are not available.

- *Chan.*   The channel number. This is a read-only field relative to the node-card-span of the T1 link.

- *Rout. Addr.*   This is a read-only field specifying the location of the corresponding agent in the switch connected by an SMDI link. 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).

  Typically, systems with SMDI links are set up 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. This field can hold up to 8 digits, even though it may still be a 7-digit DN.

- *Type*   This field could show "Voice" or "Multi". "Voice" indicates a T1 channel that can provide voice services (e.g., voice menus, announcements, RN/DNU outcalling, etc.). "Multi" indicates a T1 channel that can provide multimedia related services (e.g., fax outcalling).

  Note that all basic services can also be run on full service T1 channels. Refer to Table 11-1 on page 11-22 for a list of the services available and their associated T1 channel types and capabilities.

- *Capability*   This field indicates the range of services supported on this T1 channel. The two ranges are "Basic" and "Full". The services provided by each are listed below. Note that all basic services could also run on full service T1 channels.

  Note: Outcalling (OC) supports remote notification (RN) and delivery to non-user (DNU) features. Fax Outcalling (FOC) supports Fax-on-Demand same-call delivery and fax call-back delivery.

Basic		Full	
ACC	Meridian ACCESS	VM	Voice Messaging
AS	Announcement Service	EM	Express Messaging
MS	Voice Menu Service	AN	AMIS Networking Agent
PM	Prompt Maintenance	OC	RN/DNU Outcalling
RA	Remote Activation	GS	Greeting Services
TS	Thru-Dial Service	VF	Voice Forms Service
VS	Voice Softkey	TR	Transcription Service
		NW	Meridian Networking
		FOC	Fax Outcalling
		Plus all Basic services	

- *Outbound*   The service to which the T1 channel and agent are dedicated. The column is titled *Outbound* because it is relevant mainly for services that make outbound calls (e.g., RN/DNU Outcalling). The entry in this field should be "ALL", which indicates a shared T1 channel, unless you are dedicating that T1 channel to one of the following services:
  — RN/DNU Outcalling (OC)
  — Fax Outcalling (FOC)
  — Meridian Networking (NW)
  — Meridian ACCESS (ACC)
  — Voice Softkey (VS)

It is unlikely that you would find a need to dedicate a T1 channel for the [Voice] Softkey. However, if you did, you would need to enter VS in the *Outbound* column for that T1 channel.

Note also that it is not necessary to dedicate a T1 channel for these services in order for them to function properly. For example, a multimedia T1 channel can have the entry "ALL" in the *Outbound* column and it will still be able to process fax calls.

However, if you have decided to dedicate a T1 channel to Fax Outcalling, then you must enter FOC in the *Outbound* column and also follow the procedures for dedicating a T1 channel as described in the section "Configuring PBXs from other vendors" in Chapter 4 "Configuring Meridian Mail MSM services". The "Determining service requirements" chapter in the *Planning and Engineering* guide (NTP 557-7001-100) discusses how you can achieve optimum traffic capacity for fax calls on a multimedia T1 channel by dedicating the T1 channel to Fax Outcalling and then using only the Fax Call Back method of delivery.

If you enter ACC (Meridian ACCESS) in the *Outbound* column, a second field, *Class*, is displayed. For information and examples on how to configure ACCESS applications (e.g., Meridian IVR), refer to the "Configuration examples" chapter in the Meridian ACCESS Configuration Guide (NTP 555-7001-315).

Note 1: To dedicate a T1 channel, you must first create a UCD queue and move one or more agents to the new queue. The agent(s) in this queue can then be dedicated to a particular service.

Note 2: You must disable the T1 channel before changing the service associated with it.

Procedure 11-8

Modifying the Channel Allocation Table

Starting point: The Main Menu.

Note: Update the Channel Allocation Table only when the system is idle, or during low traffic periods. You must first disable the channels that will be updated. This procedure tells you how.

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 Link ID of the channel you want to disable.

Note: You can also select [Range Mode], which allows you to enter a starting and ending T1 channel number.

4 Enter the Link ID(s) of the channel(s) you want to disable and press <Return>.

You are prompted to enter the number of the channel you want to disable.

5 Enter the channel number.

A message appears indicating that the channel is being disabled, and an "O" appears as the status when the channel has been successfully disabled.

6 Select [Exit] to return to the System Status and Maintenance menu.

7 Select Channel Allocation Table.

The Selectable Channel Allocation Table data menu appears. See Figure 11-10.

8 Select the T1 link you wish to modify.

9 Select View/Modify.

The Channel Allocation Table data menu appears. See Figure 11-11 as an example.

10 For each disabled channel, you may modify the Primary DN, Channel DN, type, capability, and service (*Outbound* column) if the channel is being re-allocated.

11 Choose step 11a to save the changes, or 11b to cancel.

a. Press [Save].

The changes are saved and you are returned to the selectable Channel Allocation Table data menu.

b. To cancel any changes to the link, press [Cancel].

You are returned to the selectable Channel Allocation Table data menu.

12 Go to the T1 Channel Status screen and enable any T1 channels that you previously disabled.

T1 link status

The T1 Link Status screen (Figure 11-12) 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 11-12

The T1 Link Status screen

```
                        System Status and Maintenance


T1 Link Status

System Status: InService    Alarm Status: Critical=On Major=Off Minor=On

                        Primary Connection            Redundant Connection
Link       Clocking     T1        T1                  T1    T1
ID    Cand Mode         Number    Location Status     Number Location  Status
 A     Y                1         13-1-1   InService    5    14-3-1    InService
 B                      2         13-1-2   InService    6    14-3-2    OutOfService
 C                      3         13-1-3   InService    7    14-3-3    Standby
 D                      4         13-1-4   OutOfService 8    14-3-4    InService
 E         R            9         15-1-1   InService   13    16-3-1    InService
 F                      10        15-1-2    Faulty     14    16-3-2    InService
 G                      11        15-1-3   InService   15    16-3-3    Standby
 H     Y                12        15-1-4   InService   16    16-3-4    Faulty



Select a softkey >

                                                  Change T1
    Exit           Enable T1       Disable 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" on page 11-5.

- *Alarm Status*   See the description in the section "System status" on page 11-5.

- *Link ID*   An alphabetic designation used to identify the T1 link in your system. This corresponds to the T1 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 Chapter 10 "Hardware Administration" 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 11-9. 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 MSM 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 Tools* guide (NTP 297-7001-305).

  — *Faulty* indicates that a hardware problem has been detected on the connection.

  — *InSvYelAlarm* 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 local 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*.

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

  — 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 MSM clock is used instead of an external reference).

- *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 1: Active calls on the T1 link will be dropped when a Switch Link is performed.

  Note 2: Only one of the paired T1 connections can be InService at any one time.

Procedure 11-9

Enabling, disabling and switching T1 links

Starting Point: The System Status and Maintenance menu

1   Select T1 Link Status.

    The T1 Link Status screen is displayed (Figure 11-12).

2   Choose step 2a to enable a T1 connection, 2b to disable a T1 connection, 2c to change the T1 clock reference, 2d to switch the T1 link, or 2e to exit the T1 Link Status screen.

    a. Press [Enable T1].

        You are prompted for the T1 number of the link that you want to enable.

        Enter the T1 number followed by <Return>.

        The system may take some time in enabling the T1 connection. When it is enabled, the status will appear as InService or InSvStandBy.

    b. Press [Disable T1].

        You are prompted for the T1 number of the link you want to disable.

        Enter the T1 number followed by <Return>.

        The system may take some time in disabling the T1 connection.

    c. Press [Change T1 Clocking Mode].

        You are prompted for the T1 clock reference ID you want to change to.

        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. Press [Switch Link].

You are prompted for the Link ID of the link to which you want to switch.

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. Press [Exit] to return to the System Status and Maintenance menu.

T1 channel status

The T1 Channel Status screen (Figure 11-13) 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 11-13
The T1 Channel Status screen

```
                     System Status and Maintenance

 T1 Channel Status

 System Status:    InService     Alarm Status:  Critical=Off Major=Off Minor=Off

         Channels
 Link   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  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 >

                                   Disable         Courtesy          Change to
    Exit       Enable Channel      Channel      Disable Chan       Range Mode *
```

* When this softkey is pressed, it changes to [Change to Single Mode].

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

- *System Status*   See the description in the section "System status" on page 11-5.
- *Alarm Status*   See the description in the section "System status" on page 11-5.
- *Link*   The ID of the T1 link. This is an alphabetic character.
- *Channels*   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.
    — *Out Of Service* 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 557-7001-305).
    — *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 toggle to range mode, this softkey changes to [Change to Single Mode].

If you are in single mode, follow Procedure 11-10. If you are in range mode, follow Procedure 11-11.

Procedure 11-10

Enabling and disabling T1 channels in single mode

Starting point: The System Status and Maintenance menu

1 Select T1 Channel Status.

The T1 Channel Status screen appears (Figure 11-13).

2 Choose step 2a to enable a channel, 2b to disable a channel, 2c to courtesy disable a channel, or 2d to exit the T1 Channel Status screen.

a. Press [Enable Channel].

You are prompted for the LINK of the channel you want to enable.

Enter the letter designation of the link followed by <Return>.

You are prompted for the number of the out-of-service channel you want to enable.

Enter the channel number followed by <Return>.

The system may take some time in enabling the channel. A message is displayed indicating that the channel is being enabled. The status displayed on the screen changes from "L" to "." (dot).

b. Press [Disable Channel].

You are prompted for the LINK of the channel you want to disable.

Enter the letter designation of the link followed by <Return>.

You are prompted for the number of the in-service channel you want to disable.

Enter the channel number followed by <Return>.

The system may take some time in disabling the channel. A message is displayed indicating that the channel is being disabled. When the channel is disable, an "O" will appear on the screen as the status.

c. Press [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 in-service channel that you want to courtesy disable.

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. A message is displayed indicating that the channel is being courtesy disabled. When the channel is disabled, an "O" will appear on the screen as the status.

d. Press [Exit] to return to the System Status and Maintenance menu.

Procedure 11-11

Enabling, disabling and switching T1 channels in range mode

Starting Point: The System Status and Maintenance menu

1 Select T1 Channel Status.

The T1 Channel Status screen is displayed (see Figure 11-13).

2 Choose step 2a to enable a range of T1 channels, 2b to disable a range of T1 channels, 2c to courtesy disable a range of T1 channels, or 2d to exit the T1 Channel Status screen.

    a. Press [Enable Channel].

       You are prompted for the LINK ID for the channels you want to enable.

       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. A message is displayed indicating that the channels are being enabled, and the status displayed on the screen changes from "L" to "." for each channel that is successfully enabled.

       The system also displays a message to inform you of the number of channels successfully enabled, and the number of channels that could not be enabled.

    b. Press [Disable Channel].

       You are prompted for the LINK ID for the channels you want to disable.

       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. A message is displayed indicating that the channels are being disabled, and the status displayed on the screen changes from "P" to "O" for each channel that is successfully disabled.

       The system also displays a message to inform you of the number of channels successfully disabled, and the number of channels that could not be disabled.

c. Press [Courtesy Disable Channel].

You are prompted for the LINK ID for the channels that you want to courtesy disable.

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. A message is displayed indicating that the channels are being disabled, and the status displayed on the screen changes from "P" to "O" for each channel that is successfully disabled.

The system also displays a message to inform you of the number of channels successfully disabled, and the number of channels that could not be disabled.

d. Press [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 connections on those links.

Figure 11-14
The SMDI Link Status screen

```
                    System Status and Maintenance


SMDI Link Status

System Status: InService    Alarm Status: Critical=Off Major=Off Minor=Off

          Primary Connection                    Redundant Connection
Link    SMDI    SMDI                        SMDI      SMDI
 ID    Number Location Status               Number  Location* Status
 A        1     13-3-1  InService             5      14-1-1   InSvStandby
 B        2     13-3-2  InService             6      14-1-2   OutOfService
 C        3     13-3-3  InService             7      14-1-3   InSvStandby
 D        4     13-3-4  OutOfService          8      14-1-4   InService
 E        9     15-3-1  InSvStandby          13      16-1-1   InService
 F       10     15-3-2  Faulty               14      16-1-2   InService
 G       11     15-3-3  InService            15      16-1-3   InSvStandby
 H       12     15-3-4  InService            16      16-1-4   Faulty


  Select a softkey >

                                          Next Set**
    Exit       Enable SMDI   Disable SMDI   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" on page 11-5.
- *Alarm Status*   See the description in the section "System status" on page 11-5.
- *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 MSM. There may be two SMDI connections (one redundant) associated with each SMDI link.

The following fields appear for the primary and redundant connections:

- *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 557-7001-305).

— *Faulty* indicates that a hardware problem has been detected on the port.

— *InSvYelAlarm* indicates that the SMDI port is in service but has lost the modem connection.

— *InSvRedAlarm* indicates that the SMDI port has lost signaling with the MSM 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.

Actions you can take on SMDI links

You may perform the following actions on SMDI links:

• *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).

• *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 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, de- pending on how the UCD group is datafilled, calls can be routed for al- ternative treatment. For example, if the system has multiple SMDI links, calls could be routed to another UCD group. If you use this method, en- able the associated channels before re-enabling the SMDI port.

- *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 ports.

- *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.

Procedure 11-12

Enabling, disabling and switching SMDI Links

Starting Point: The System Status and Maintenance menu

1   Select SMDI Link Status.

   The SMDI Link Status screen is displayed (Figure 11-14).

2   Choose step 2a to enable an SMDI link, 2b to disable an SMDI link, 2c to switch the SMDI link, 2d to display the next set of SMDI links, or 2e to exit the SMDI Link Status screen.

   a.   Press [Enable SMDI].

      You are prompted for the number of the SMDI link.

      Enter the SMDI number followed by <Return>.

      A message appears that the SMDI link is being enabled.

      The system may take some time to enable the port. When the link has been successfully enabled, the status will be InService or InSvStandBy.

   b.   Press [Disable SMDI].

      (If necessary, disable the associated channels first. See the description of the field 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>.

      A message appears that the SMDI link is being disabled.

      The system may take some time to disable the port. When the link has been successfully disabled, the status will be OutOfService.

   c.   Press [Switch Link].

      You are prompted for the Link ID of the link to which you want to switch.

      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.   If you have more than nine links to view, press [Next Set of Links] to see the next set of SMDI links.

   e.   Press [Exit] to return to the System Status and Maintenance menu.

MSM cross reference table

The MSM Cross Reference Table screen (Figure 11-15) allows you to look up the card number (part number), shelf and slot for each card in the system.

Figure 11-15
The MSM Cross Reference Table

```
                    System Status and Maintenance


MSM Cross Reference Table

Node Card    Cardtype    CardNumber    Shelf      Slot
  1    1     Filler      NT9X19AA       26         7F
  1    2     SBC         NTGX05AA       26         8F
  1    3     Bus         NTGX10AA       26         9F
  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 11-15 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.

Procedure 11-13
Viewing the MSM cross reference table

Starting Point: The Main Menu

1 Select System Status and Maintenance.

The System Status and Maintenance menu appears.

2 Select MSM Cross Reference Table.

The MSM Cross Reference Table appears, displaying information about the cards being used on the system.

Disk maintenance

Disks are added to the MSM 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.

Replacing a failed disk

To replace a failed disk:

1 Disable the disk (if not already in "No Access" state). This disables the disk and puts it in "No Access" state so that it can be replaced or repaired. See Procedure 11-14

2 Replace the failed disk.

3 Resynchronize the disks. See Procedure 11-15.

 For more information about replacing failed disks, refer to the section "Disks" in the *Trouble-locating and Alarm-clearing Procedures* manual (557-7001-503).

The Disk Maintenance screen

The Disk Maintenance screen (Figure 11-16) 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 synchronization.

Figure 11-16
The Disk Maintenance screen

```
                        System Status and Maintenance


Disk Maintenance

System Status: InService  Alarm Status: Critical=On Major=Off Minor=On

Pair Number        NodeType         Status

   1               MSP              InSynch
   2               SPN              Synchronizing     34% done
   3               SPN              OutofSynch
   4               SPN              Insynch
   5               SPN              InSynch
   6               SPN              InSynch
   7               SPN              InSynch
   8               SPN              InSynch
   9               SPN              InSynch



 ─────────────────────────────────────────────────────────────────

 Select a softkey >

      Exit         View Disk Pair
```

The following fields are displayed on this screen:

- *System Status*   This field displays the current system status. See the section "System status" on page 11-5 for a description of possible system states.

- *Alarm Status*   This field indicates whether or not there are any Critical, Major or Minor alarms. See the section "System status" on page 11-5 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 are synchronized with each other.

  — *Synching* indicates that the disks are currently synchronizing (i.e., after pressing [Enable] in the Disk Pair Status screen). The system also indicates the percentage of synchronizing done so far.

  — *OutofSynch* indicates that one of the disks is "No Access" and consequently out of synchronization with its shadowed pair. This happens if the system puts a bad disk in the "No Access" state, 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:

    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 the Node Status screen which is accessed from the System Status and Maintenance menu.

    5   Disable and then re-enable one of the nodes the disk pair belongs to.

    6   Return to Disk Maintenance and try synchronizing the disk pair again.

Viewing disk pairs

When you press [View Disk Pair], the system prompts for the disk pair number, and then displays the screen shown in Figure 11-17.

Figure 11-17
The Disk Pair Status screen

```
┌─────────────────────────────────────────────────────────────┐
│              System Status and Maintenance                   │
│                                                              │
│ Disk Pair Status for Pair 1                                  │
│                                                              │
│ System Status: InService  Alarm Status: Critical=On Major=Off Minor=On │
│                                                              │
│ Node    Prime Status    Shadow Status                        │
│   1     ReadWrite       ReadWrite                            │
│   2     ReadWrite       ReadWrite                            │
│                                                              │
│                                                              │
│                                                              │
│ ──────────────────────────────────────────────────────────  │
│  Select a softkey >                                          │
│                                                              │
│    Exit          Enable Disk    Disable Disk                 │
└─────────────────────────────────────────────────────────────┘
```
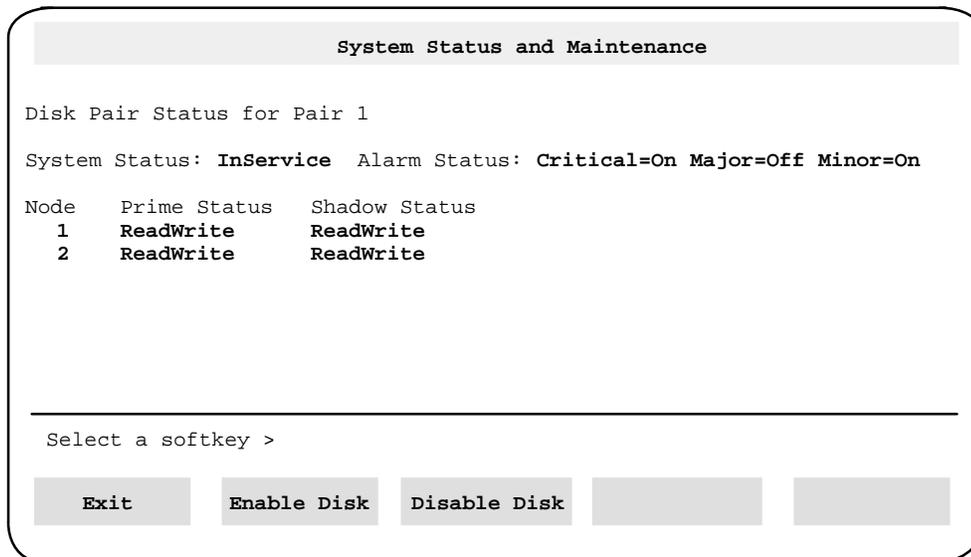
The following fields are displayed on this screen:

- *System Status*   The current system status. See the section "System status" on page 11-5 for a description of possible system states.

- *Alarm Status*   Indicates whether there are any critical, major or minor alarms. See the section "System status" on page 11-5 for a description of possible alarm states.

- *Node*   The node on which the disk resides.

- *Prime Status*   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 disk synchronization, indicates that the disk is the source of a disk synchronization.

  — *SynchDest,* during disk synchronization, indicates that the disk is the destination of a disk synchronization.

  — *NoView,* during disk synchronization, indicates that the disks cannot be seen from the node because no operating system exists on the node.

•   *Shadow Status*   This field indicates the status of the shadowed disk. See the field description for *Prime Status* above for a list of the possible statuses.

Disabling disk drives that have failed

If a disk drive fails on your system, it should not cause immediate problems because the redundant node (disk drive) will take over. However, the disk drive will still have to be replaced. This section describes how to disable the disk drive and the next section "Synchronizing failed disks" describes how to put it back into synchronization with its paired disk.

Procedure 11-14
Disabling disk shadowing

Starting point: The 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 11-17). 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.

Synchronizing failed disks

If you have replaced a failed disk, follow Procedure 11-15 to resynchronize the replacement drive.

Procedure 11-15
Synchronizing a disk

Starting point: The Main menu

1   Select System Status and Maintenance.

2   Select Disk Maintenance.

3   Press the [View Disk Pair] softkey.

    You are prompted for a disk pair number.

4   Enter the number of the pair you want to view or synchronize.

The Disk Pair Status screen appears (Figure 11-17).

5   Press the [Enable Disk] softkey.

A message is displayed asking for the number of the node whose disk should be synchronized.

6   Enter the number of the node, then press <Return>

The disk synchronization is started. The synchronization will take at least 45 minutes, depending on the amount of data you have stored on these disks.

The system determines the source of the synchronization by choosing the disk that is in ReadWrite mode. The status of this disk will change to SynchSource during the synchronization. The status of the destination disk will change to SynchDest during the synchronization. When the synchronization is completed, the status for both disks will change to ReadWrite.

7   Press [Exit] twice to return to the System Status and Maintenance menu.

System Event and Error Reports (SEERs)

System Event and Error Reports (SEERs) collect statistics on every system event and error reported by MSM 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.

How to use SEERs

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.

Figure 11-18 shows a typical SEER that would be printed with a mainte-nance action category. For more details on SEERs and for a list of SEERs, refer to the *Maintenance Messages (SEERs)* manual (NTP 555-7001-510).

Figure 11-18
Parts of a SEER
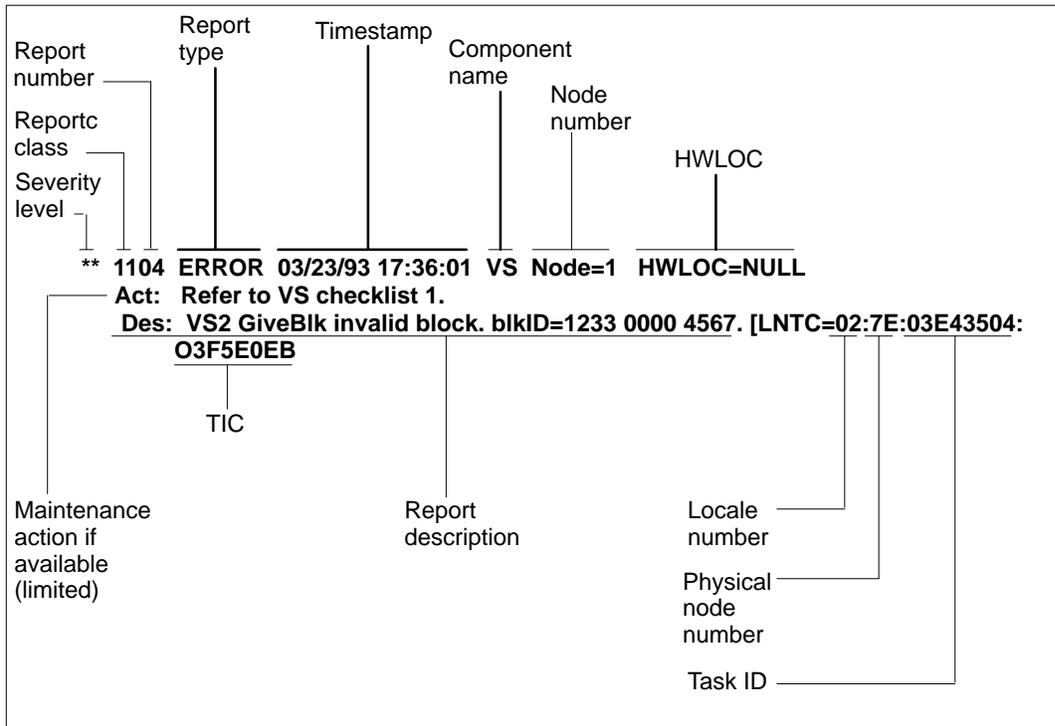
SEERs can be classified by:

- severity
- type.

For a more detailed description of SEERs and their interpretation, see
Maintenance Messages (SEERs) manual (NTP 557-7001-510).

Severities of SEERs

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.

- *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, the malfunction of a minor feature such as the recording of spoken names or administrative functions, a nearly full volume, 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 expiration/violation), successful backups, and the forwarding of non-users to voice messaging.

Types of SEERs

Each SEER can also be one of several types.

- *Error* indicates an error that requires the attention of a trained technician.

- *Admin* Indicates an error that 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 noted. For example, a successful audit or Operational Measurement collection. This does not sound an alarm.

- *Debug* indicates unexpected software conditions which do not impact service. This information is only of interest to MSM designers. If you encounter a problem and Debug SEERs are being generated, keep a record of them to show to the Northern Telecom support organization, should they want to see them.

Determining which SEERs to report

The System Event and Error Reports screen (Figure 11-19) 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: The MSM filters SEERs at different levels for printing. 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 (SEERs)* manual (NTP 557-7001-510). To reset the SEER filtering level, contact your Northern Telecom Support organization.

Figure 11-19
The System Event and Error Reports screen

```
                     System Status and Maintenance

 System Event and Error Reports

 SEER Class: ____

 Severity Level:  Critical  Major   Minor   [All]

 SEER Type:       Error     Admin   System  [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 that 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 (SEERs)* manual (NTP 557-7001-510). 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 section "Severity of SEERs".

    — *Critical* retrieves only those SEERs classified as Critical.

    — *Major* retrieves those SEERs classified as Major plus the SEERs that belong to the higher severity level (Critical).

    — *Minor* retrieves those SEERs classified as Minor plus the SEERs that belong to all of the higher severity levels (Major and Critical).

    — *All* causes SEERs at all levels of severity to be displayed in the report, including 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 that 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, and indications that a hardware error may develop. When the filtering level is set to Error, only the Error-level SEERs are displayed or printed.

    — *Admin*   Administration-level SEERs are those that indicate system problems or configuration difficulties that are likely to be handled by the system administrator without external assistance. For example, when a disk nears its full capacity, an Admin SEER is issued to notify what the system administrator can do to free up more disk space. When the filtering level is set to Admin, the Error-level SEERs are also displayed or printed.

    — *System*   System-level SEERs are those that indicate normal system behaviour, and others that do not require action. For example, a System SEER is issued when nightly system audits begin and end. When the filtering level is set to System, the Error- and Admin-level SEERs are also displayed or printed.

— *All*   When All is selected, all SEER types are displayed or printed.

- *Report Start*   This field 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*   This field 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 nor end day and time are specified, all SEER data currently stored in the buffer will be included in the report.

Viewing or printing SEER reports

Once you have filled in the System Event and Error Reports screen, you can do either of the following:

- View the report on screen.
- Print 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, a screen similar to Figure 11-20 is displayed.

Figure 11-20
The SEER Report screen

```
                        System Status and Maintenance

SEER Period from Beginning of SEER Data to End of SEER Data.

Error   Date Time    Type    Severity  Node Location, Action, Description

 35-0  4/12 22:07  System Inf      1     Null
Des: OpenSeer : new SEER file being created.
 35-0  4/12 22:07  System Inf      1     Null
Des: SEER registered and active
 35-0  4/12 22:07  System Inf      2     Null
Des: BKUP SEER registered and on standby
 60-99 4/12 22:08  System Inf      1     Null
Des: OS loaded successfully 2
 60-28 4/12 22:08  System Inf      2     Null
Des: PRM2(Backup) Bus Controller Diags: Program Completed, PASS 0
 64-2  4/12 22:08  System Inf      2     Null
Des: BCInt(2): UpdClk: Backup setting to FreeRun




    _____

    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**   Indicates 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 112). This classification system is described in the introduction to the *Maintenance Messages (SEERs)* manual (NTP 557-7001-510). 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**   Indicates the SEER type, which can be one of: Error, Admin, System, All. For a description of the SEER types, refer to the *SEER Type* field description on page 11-55.

- **Severity**   Indicates the SEER severity level ('***' = Critical, '**' = Major, '*' = Minor, and 'Inf' = Info).

- *Node*   Indicates the node on which the error occurred.
- *Location*   Indicates the system number, node, card, DSP, and port where the problem or event occurred, if applicable. If there is no DSP< then only four numbers are shown, with the fourth digit being the port number. If this information is not applicable, the word "Null" appears in this field.
- *Action*   Gives a suggested action to correct the cause of the event or error.
- *Description*   Gives a brief explanation of the event, or the cause for the error.

Procedure 11-16
Viewing SEER reports

Starting point: The System Status and Maintenance menu

1   Select System Event and Error Reports.

The System Event and Error Reports screen appears (Figure 11-19).

2   Enter the class of SEERs that you want to retrieve. If you want to retrieve all SEER classes, leave the *Class* field blank.

3   Select a severity level. (To view SEERs at all severity levels, select "ALL".)

4   Select a SEER (error) type.

5   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.

6   Choose step 6a to view the report on the terminal, or 6b to cancel.

   a.   Press [View Reports].

   The report is displayed (Figure 11-20).

   Press [Next Page] to view subsequent pages of the report.

   b.   Press [Exit].

   The System Event and Error Reports screen appears.

Printing SEER reports

An alternative method of obtaining SEER information is to monitor the MSM SEER printer (if there is one) and view SEERs as they occur. To have SEERs print as they occur, SEER printing must be enabled in the General Options screen (the 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:

Type of additional information	Description
RC xxxx	where xxxx is a number signifying a Return Code. These codes provide further information about the SEER and can be found in Appendix A of the *Maintenance Messages (SEERs)* manual (NTP 557-7001-510).
Serv. File <filename>	where the <filename> refers to a voice service ID.

Procedure 11-17 describes how to print SEER reports.

Procedure 11-17
Printing SEER reports

Starting point: The System Status and Maintenance menu

1   Select System Event and Error Reports.

    The System Event and Error Reports screen appears (Figure 11-19).

2   Enter the class of SEERs that you want to retrieve. If you want to retrieve all SEER classes, leave the *Class* field blank.

3   Select a severity level. (To view SEERs at all severity levels, select "ALL".)

4   Select an error type.

5   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.

6   Choose step 6a to print the report on the terminal, or 6b to cancel.

    a.   Press [Print Reports].

         You are prompted to make sure your printer is ready and on-line.

         Press [Continue Printing] to continue printing, or press [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.

    b.   Press [Exit].

         The System Event and Error Reports System screen appears.

Chapter 12: Operational Measurements

This chapter describes

- what operational measurements are
- how to interpret OM reports
- the Operational Measurements menu
- Operational Measurement Options
- OM traffic reports
- OM user usage reports
- how to use OM to detect or investigate system problems
- how to use OM as a capacity planning tool
- the disk space required for OM data storage
- the Outcalling Audit Trail Report
- the Fax Audit Trail Report

Introduction

The Operational Measurement (OM) reports allow the administrator to study how an MSM 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 the MSM. For example, if overall traffic on the system is higher than was originally anticipated, a channel expansion may be necessary.

OM reports also show which features are being used frequently and which 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 the MSM'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.

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

$$CCS = \frac{60\ minutes}{interval\ (in\ minutes)} \text{ x } \frac{total\ call\ seconds}{100\ seconds}$$

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:

$$CCS = \frac{60\ minutes}{30\ minutes} \text{ x } \frac{320\ seconds}{100\ seconds} = 2 \text{ x } 3.2 = 6.4 \approx 6$$

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:

$$CCS = \frac{60\ minutes}{60\ minutes} \text{ x } \frac{320\ seconds}{100\ seconds} = 1 \text{ x } 3.2 = 3.2 \approx 3$$

When interpreting the OM reports, also keep the following points in mind:

- Look at not only 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.

  Smaller systems will be much more sensitive and will have higher traffic levels 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. For example, does your system need

  — voice messaging only?

  — auto attendant?

  — menus?

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?
  - Is it an election day?
  - 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 detail report provides much more detail about a single service. Know what reports a system can produce and 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 several MSM systems, remember that each MSM system is unique in its application and user base.

  Make sure you apply all of the above points separately to each system.

The Operational Measurements menu

The items listed in the Operational Measurements menu (Figure 12-1) allow you to access screens that are used to view and set parameters related to the collection and storage of data, and to view and print traffic reports and outcalling and fax audit trail reports.

Figure 12-1

The Operational Measurements menu

```
                        Operational Measurements


          1  Operational Measurement Options

          2  Traffic Reports

      *   3  Outcalling Audit Trail Report

      **  4  Fax Audit Trail Report




     _____

     Select an item >

        Exit
```
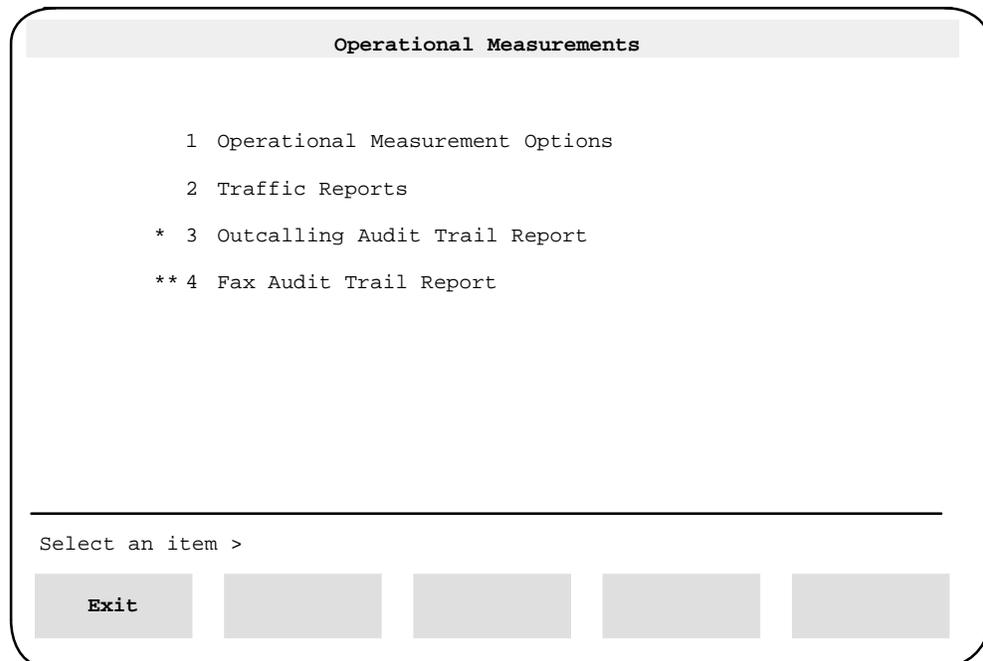
```
*   This item appears only if Outcalling is enabled.
**  This item appears only if Fax on Demand is enabled.
```

Note: Only a general description of the Outcalling Audit Trail Report and the Fax Audit Trail Report are provided at the end of this chapter. For more information about using the Outcalling Audit Trail Report, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323). For more information about using the Fax Audit Trail Report, refer to the *Fax on Demand Application Guide* (NTP 557-7001-327).

Procedure 12-1

Using the Operational Measurements menu

Starting point: The Main Menu

1   Select Operational Measurements.

The Operational Measurements menu appears (Figure 12-1).

2   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>   "OM traffic reports" (for viewing and printing reports)

    <3>   "Collecting outcalling audit trail data," or the Outcalling Application Guide for more information about outcalling administration and how to use this menu choice

    <4>   "Collecting fax audit trail data," or the Fax on Demand Application Guide for more information about fax administration and how to use this menu choice

3   Press [Exit] to return to the Main Menu.

Operational Measurement Options screen

Operational Measurement Options (Figure 12-2) 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/Session Trace 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 cannot 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 12-2
The Operational Measurement Options screen

```
                          Operational Measurements

Operational Measurement Options

Collect Traffic Data:                      Disabled  [Enabled]

Traffic Period Start (hh:mm):              01:00

Traffic Period End (hh:mm):                01:00

Traffic Commit Interval (hh:mm):           01:00

Number of Days of Traffic Data Stored:      8

Collect User Usage/Session Trace Data:     Disabled  [Enabled]

Number of Days of User Usage Data Stored:  31

Collect Audit Trail Data:                  Disabled  [Enabled]

Number of days of Audit Data Stored:        7

Shutdown Audit Trail at Volume Full (%):   85

OM Collection ACCESS Class                 256


Select a softkey >

     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 voice disk space usage will be collected and stored on disk. The default is "Enabled."

- *Traffic Period Start (hh:mm)*   This is 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, and so on. The default is "01:00."

- *Traffic Period End (hh:mm)*   This is 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, and so on. To continuously collect traffic data, set the *Traffic Period Start* equal to the *Traffic Period End* (that is, *Traffic Period Start* = 01:00 and *Traffic 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)*   This is 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 00:00 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, the message >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 during system audits at 1:20 a.m. each morning.

- *Collect User Usage/Session Trace Data*   This field controls the collection and storage of data recording user activity with respect to the voice messaging, express messaging, and call answering. This field also controls the enabling or disabling of session trace data for these services. The default is "Enabled."

  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 "OM user usage reports" section in the chapter "Operational Measurements" in the *Customer Administration Guide*.

- *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.

- *Collect Audit Trail Data*   When this field is set to "Enabled," Outcalling Audit Trail Reports are generated by the system. These reports can be used to obtain information about a specific user name, mailbox, or phone number. The reports give you either summary or detailed information about the number of calls, the start time and duration of calls, the numbers called, whether the RN or DNU service was used, and the status of calls. The default is "Enabled." See the "Collecting outcalling audit trail data" section on page 12-42 for more information.

- *Number of Days of Audit Trail Data Stored*   This field is used if *Collect Audit Trail Data* is set to "Enabled." 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.

- *Shutdown Audit Trail at Volume Full (%)*   This field is used if *Collect Audit Trail Data* is set to "Enabled." When the volume on which audit trail data is stored meets this percentage, collection of audit trail data is disabled. (Note that this is a percentage of text space, not voice space.) The default is 85%.

- *OM Collection ACCESS Class*   This field indicates the class number of the ACCESS application for which Operational Measurements should be collected. The valid range for this number is 0 to 8999. It is primarily intended to be used to collect messenger desktop access of Meridian Mail ports.

Procedure 12-2
Setting Operational Measurement parameters

Starting point: The Operational Measurements menu

1   Select Operational Measurement Options.

   The Operational Measurement Options screen appears (Figure 12-2).

2   Set the parameters as required.

3   Choose step 3a to save the changes or 3b to cancel.

   a.   Press [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. This action will also create an irregular time period (the time up to the save) which will appear on the traffic reports. Also, a SEER is issued to indicate that the changes have taken effect.*

b. Press [Cancel].

Any changes you have made are discarded; the Operational Measurements menu is redisplayed.

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, the number of times a user logs in to Meridian Mail or accesses particular features such as Voice Messaging, Voice Menu applications, and Outcalling. The following traffic reports are available:

- Voice Service Summary
- Voice Messaging Detail
- Channel Usage Detail
- Voice Menu Detail (if enabled)
- AMIS Networking Detail (if enabled)
- Meridian Networking Detail (if enabled)
- Outcalling Detail (if enabled)
- Fax Delivery Detail (if enabled)
- Disk Usage Detail
- T1 Link Handler Detail

The traffic reports are described in more detail later in this chapter.

Traffic Reports screen

The Traffic Reports screen appears when Traffic Reports is selected from the Operational Measurements menu.

Figure 12-3
The Traffic Reports screen
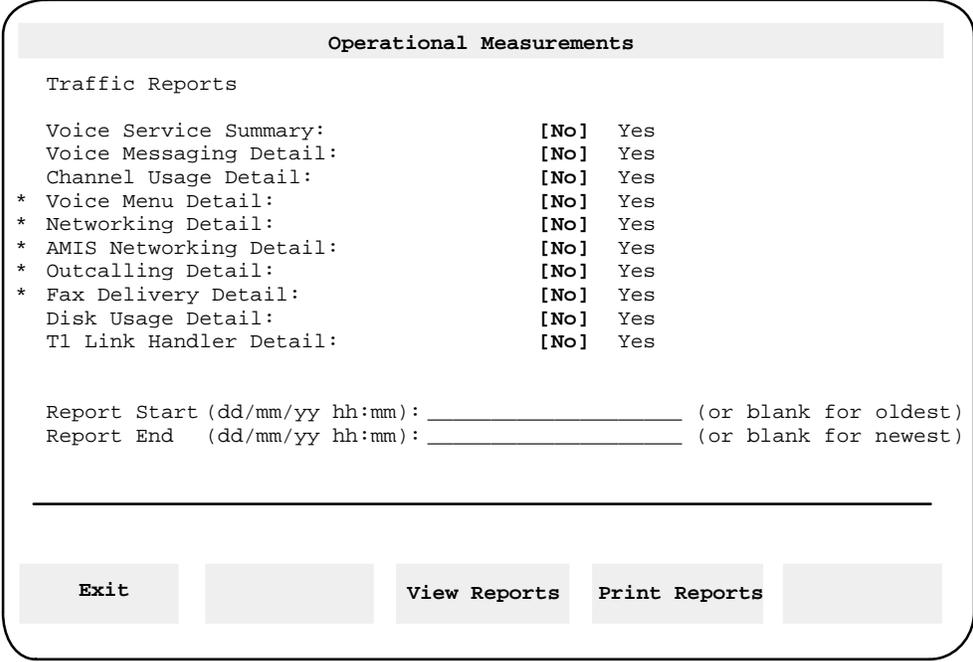
```
                        Operational Measurements

    Traffic Reports

    Voice Service Summary:                    [No]   Yes
    Voice Messaging Detail:                   [No]   Yes
    Channel Usage Detail:                     [No]   Yes
  * Voice Menu Detail:                        [No]   Yes
  * Networking Detail:                        [No]   Yes
  * AMIS Networking Detail:                   [No]   Yes
  * Outcalling Detail:                        [No]   Yes
  * Fax Delivery Detail:                      [No]   Yes
    Disk Usage Detail:                        [No]   Yes
    T1 Link Handler Detail:                   [No]   Yes


    Report Start (dd/mm/yy hh:mm): _____ (or blank for oldest)
    Report End   (dd/mm/yy hh:mm): _____ (or blank for newest)
    _____



      Exit                        View Reports   Print Reports
```

* Indicates optional features. The report will not appear if the feature
  is not enabled.

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, average session length, and voice mail usage in centa call seconds (CCS) for the services that are enabled 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, session lengths, 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 Menu Detail*   This report displays statistics for voice menus, announcements, and fax items. The report also displays the number of times that each voice menu option, in the specified voice menu application, has been used within the specified reporting period.

- *AMIS Networking Detail*   This line appears only if AMIS Networking is enabled. This report displays information about the number of non-delivery notifications (NDNs); economy, standard, and urgent messages sent and received by the system; and connection statistics.

- *Networking Detail*   This line appears only if Meridian Networking is installed. This report displays information about the number of economy, standard, urgent, non-delivery notification, and acknowledged networking messages sent and received at the remote sites, as well as connection statistics.

- *Outcalling Detail*   The Outcalling Detail report displays statistics for Remote Notification and Delivery to Non-Users activity.

- *Fax Delivery Detail*   This line appears only if Fax on Demand is enabled. This report displays statistics on the number of fax delivery requests, successful connections, retries, unreachable calls, and waiting times.

- *Disk Usage Detail*   This report summarizes how much voice space and text space have been used for each 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 12-3
Viewing and printing Traffic Reports

Starting point: The Operational Measurements screen

1   Select Traffic Reports.

   The Traffic Reports screen appears (Figure 12-3).

2   Select the reports you wish to view.

   a.   Move the cursor to the report you want to view.

   b.   Using the right or left cursor, set the view option to "Yes."

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. Press [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.

Press [Next Page] to view subsequent pages of the current report.

b. Press [Print Reports].

You are prompted to ensure the printer is ready and on-line.

Press [Continue Printing] to print the reports, or press [Cancel Printing] at any time to cancel printing. (There may be some delay before control is re-turned to the screen because it waits for the printer to stop printing.)

c. Press [Exit].

The Operational Measurements menu is redisplayed.

Voice Service Summary report

The Voice Service Summary report provides statistics for each of the voice services enabled in your system (Figure 12-4). 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 12-4
Voice Service Summary report screen

```
                        Operational Measurements

Voice Service Summary

                                               Average   Voice
                                   Number of    Length   Mail Usage
Interval Start-End    Service Name  Accesses  (in seconds)(in CCS)

04/22   09:00-10:00   Thru-Dial          53         7         4
                      Voice Menus        301        12        36
                      Voice Messaging   1022        65       664
                      Call Answering    1437        29       416
                      Meridian ACCESS      0         0         0
                      AMIS                 0         0         0
                      Express Messaging   86        49        42
                      Voice Announcements 31       111        34
                      Networking          80       350       124
                      Voice Administration 0         0         0
                      Voice Prompt Admin   0         0         0
                      Time of Day Control 53         0         0
                      Delivery to Non-User 0         0         0
                      Remote Notification 26        42        11
                      Remote Activation    0         0         0
                      Voice Forms          0         0         0
                      Transcription Service 0         0         0
                      Fax Same Call        5       300        15
                      Fax Call Back        5       300        15
                      Fax Info Service     5        42         2
                      Fax Maint Service    1       300         3

 Select a softkey >

 ┌────────┐  ┌────────┐  ┌────────┐  ┌────────┐  ┌────────┐
 │  Exit  │  │  Next  │  │        │  │  Next  │  │        │
 │        │  │ Report │  │        │  │ 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 date and time 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 00:00 to 23:59), 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*   This displays the name of the service that was accessed.

- *Number of Accesses*   This displays the number of direct calls (peg count) made to the corresponding service.

- *Average Length (in seconds)*   This displays the average length of the corresponding voice service sessions during the specified interval.

- *VoiceMail Usage (in CCS)*   This displays the amount of time that the service was active in the defined interval. The value is given in hundred call-seconds (CCS), a traffic measurement statistic. One CCS is equal to 100 seconds of call connection time per hour.

Voice Service Summary report analysis

The second line in the sample report shows that 301 calls, with an average length of 12 seconds, were placed to the Voice Menu service for a total of 3612 seconds (301 x 12), or 36 CCS in the one hour interval. The CCS count is computed for the one hour interval as follows:

$$CCS = \frac{3612\ seconds}{100\ seconds} = 36.12 \approx 36$$

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. Also, 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 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 level 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. Refer to Chapter 4, "Configuring Meridian Mail MSM services" for more information about dedicating channels. 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, in menus, place the popular items first so that users do not need to stay on the line as long before hearing the item they want to select. 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 the MSM 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 set up to see if the OM data is 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 Meridian Mail 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 12-5) 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 12-5
The Voice Messaging Detail report

```
                        Operational Measurements


Voice Messaging Detail (VM Logon, Call Answering and Express Messaging)

                     Number    Number of    Session   Messages    Message
                     of Calls  Sessions     Length    Created     Length
Interval Start-End   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    4    32    14   14
10/28   11:00-12:00  17   1      1     17   478  624    1    20    20   20




  Select a softkey >

    Exit         Next                        Next Page*
               Report
```

* The "Next Page" softkey appears when the information fills more
   than one screen.

The following fields are displayed:

- *Interval Start-End*   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field description for the Voice Service Summary report on page 12-13.

- *Number of Calls*   This is the number of voice messaging, call answering, or express messaging calls made. More specifically

  — *Int*   This indicates the number of calls made from inside the PBX/switch during the specified interval.

  — *Ext*   This indicates the number of calls made from outside the PBX/switch during the specified interval.

- *Number of Sessions*   This is the number of sessions in the interval.

  — *EM/Ans*   This indicates the number of sessions used for express messaging and call answering services.

  — *Log*   This 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)*   This is the average length and maximum length (in seconds) of call answering, express messaging, and logon sessions for the interval.

- *Messages Created*   This is the number of messages created during the interval.
    — *EM/Ans*   This indicates the number of messages left during express messaging and call answering services.

    — *Log*   This indicates the number of messages that were created (using the compose, forward or reply command) during the interval.

- *Message Length (Avg and Max)*   This is 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.

Voice Messaging Detail report analysis

The first line in the sample report shows that eighteen calls were placed to the MSM. Sixteen were logon sessions (for example, to compose, forward, or listen to messages). Two calls accessed the 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 the MSM. If the high number of calls is from internal logon sessions and the level of voice space used is not high (as shown in the Disk Usage Detail report on page 12-34), 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 displays details about channel activity for incoming and outgoing calls, including average session lengths and CCS (hundred call-seconds) statistics.

Figure 12-6
Channel Usage Detail report

```
                          Operational Measurements


Channel Usage Detail

                        Number of   Number of   Incoming    Outgoing     Voice
                        Incoming    Outgoing   Avg Length  Avg  Length  Mail Usage
Interval Start-End  Channel  Calls    Calls    (in seconds)(in seconds) (in CCS)

04/22  09:00-10:00     1    44         0          42           0          18.5
                       2    43         0          47           0          20.2
                       3    40         0          49           0          19.6
                       4    46         0          40           0          18.4
                       5    48         1          35          30          17.1
                       6    47         1          39          31          18.6
                       7    45         1          38          30          17.4
                       8    47         2          36          33          17.6
                       9    43         0          47           0          20.2
                      10    46         0          40           0          18.4
                      11    44         0          42           0          18.5
                      12    49         0          40           0          19.6



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  │  Exit   │  │ Report  │  │         │  │ Page*   │  │         │
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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*   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field description for the Voice Service Summary report on page 12-13.

- *Channel*   This is the channel being monitored.

- *Number of Incoming Calls*   This is the number of calls incoming during the interval.

- *Number of Outgoing Calls*   This is the number of calls outgoing during the interval. (This value is 0 for services which do not use thru-dialers, Outcalling RN or DNU, AMIS, fax outcalls, or call sender to external callers.)

- *Incoming Avg Length (in seconds)*   This is the average length of incoming calls during the interval.

- *Outgoing Avg Length (in seconds)*   This is the average length of outgoing calls during the interval.

- *Voice Mail Usage (in CCS)*   This represents the amount of time in terms of hundred call-seconds (CCS) that an MSM 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 report screen (Figure 12-4 on page 12-13). 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.

Channel Usage Detail report analysis

The CCS for each channel gives an indication of how busy each channel is. With Uniform Call Distribution (UCD), the traffic (measured in CCS) should be evenly distributed across all channels over a lengthy period (for example, 12 hours).

Channels with short durations will have a higher number of calls than channels with long durations, but the average amount of traffic (for example, 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 the MSM (for example, callers are getting a ringback or busy signal), check if the dedicated channel appears 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 Menu Detail report

The Voice Menu 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, announcements, and fax. 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 12-7
The Voice Menu Detail report

```
                         Operational Measurements

Voice Menu Detail


   Interval      Start-End
                  Service    For each menu item, number of accesses are:
Cust#     ID      Accesses     1   2   3   4   5   6   7   8   9  0*   #

9/30  9:00-10:00
1         M 5009      167    41 116   0   0   0   0   0   0   0   0  0 0
1         M 5004       43     0   0   0   0   0   0   0   0   1   0  0 0
2         A 1003      110     0   0   0   0   0   0   0   0   0   0  0 0
9/30  9:00-10:00
29        M 4058        1     0   0   0   0   0   0   0   0   0   0  0 0
4         M 5003        1     0   0   0   0   0   0   0   0   0   0  0 0
2         M 5013       21     0   4   6   0   4   0   0   0   0   1  0 0
9/30  11:00-12:00       5     0   0   1   0   0   1   0   2   0   0  0 0
1         M 1011        2     0   0   0   0   0   0   0   0   0   0  0 0
1         M 4023        2     0   0   0   1   0   0   0   0   0   0  0 0
1         F 3001        2     0   0   0   0   0   0   0   0   0   0  0 0

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 │   Exit   │  │  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:

- *Interval Start-End*   This field specifies the date and time intervals into
  which the data is divided. For more information, refer to the field
  description for the Voice Service Summary report on page 12-13.

- *ID*   This is the ID number of the voice menu, announcement, or fax
  item. Voice menus are indicated by the letter "M" followed by the ID
  number. Announcements are preceded by an "A." Fax items are
  preceded by the letter "F."

- *Service Accesses*   This is the number of times the menu, announcement,
  or fax item was accessed (either directly or indirectly) during the
  measurement period.

- *For each menu item, the number of accesses are:*   This is the total
  number of times that each menu option was used during the measure-
  ment period. For announcements and fax items, all frequencies are "0"
  since announcements do not process digits. The total number of accesses
  for the individual menu items may be less than 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.

Voice Menu Detail report analysis

This report provides a detailed breakdown of which menu items or announcements and fax items are actually being accessed, and a sense of the traffic that each menu or announcement and fax item is generating. While reviewing the report, consider the following points:

- If the menu items that are at the end of the menu (for example, 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 until all of the earlier options play before hearing the one they want. Thus, the length is reduced.

- If a particular service is generating a high volume of traffic, find out if there is any call blockage (that is, 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 the MSM (for example, through hardcopy memos, bulletin boards, and so on). 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, announcements, or fax items are not required, either remove them or replace them with a more useful menu item, announcement, or fax item. Be sure to rerecord the greetings and menu choices to reflect the changes.

- Whether the traffic is high or low for a particular voice menu, announcement, or fax item, 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, announcements, and fax items in front of you to refer to.

Networking Detail report

This report (Figure 12-8) displays traffic totals for each active site within the Meridian Mail network. Statistics are shown for the number of messages received at each site from other network sites and the messages delivered to network sites. Statistics are also displayed for network usage and failures.

Figure 12-8
The Meridian Networking Detail report

```
                        Operational Measurements

Networking Detail

Interval Start-End
     Messages             Messages Delivered                      Failures
     Received     Eco Std Urg NDN Ack  Failed   Network Usage    No    No    Prot
Site (from site)  (---------to site-----) to Send  Att  Suc  Time   Res   Reach Error

     (min)

09/30  10:00-11:00
111     100         10  10   5   0   0    0        0    2  2:32    6     12     0
112     100          0   0   2   0   0    0        0    4  4:04    0      0     0
09/30  11:00-12:00
112      25         10  10   5   0   0    0        2    0  0:00    6      0    12




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* Appears when the information fills more than one screen.

The following fields are displayed:

- *Interval Start-End* This field specifies the date and time intervals into which the data is divided. For more information, refer to the field description for the Voice Service Summary report on page 12-13.

- *Site* This is the remote network site ID.

- *Messages Received* This is the number of messages received by the local site from the identified site.

- *Messages Delivered* This is the number of messages delivered from the local site to the identified remote site. This statistic is further subdivided into the following categories based on the type of message:

  — *Eco* This displays messages that have been classed as economy.

  — *Std* This displays messages that have been classed as standard.

  — *Urg* This messages that have been classed as urgent.

— *NDN*   This displays Non-delivery Notification messages that are sent by the system to users whose messages could not be delivered (as the result of a "Failed to Send").

— *Ack*   This displays acknowledgements that are returned by Meridian Networking to indicate that a message (that was tagged for acknowledgement) was read by the Meridian Mail user at the remote site.

— *Failed to Send*   This displays messages that could not be delivered to the remote site within the stale-dating threshold because the system experienced many failures. See the "Meridian Networking administration" chapter in the *Networking Services Administration Guide* (NTP 557-7001-335) for information about stale-dating. They are effectively "lost" and must be recomposed and resent.

- *Network Usage*   This indicates the number of networking calls placed by the site during the specified interval. It is further broken down into the following categories:

— *Att*   This indicates the number of attempted calls.

— *Suc*   This indicates the number of successful calls.

— *Time*   This indicates the total amount of time (in minutes) used by networking calls.

- *Failures*   A failure refers to a single unsuccessful attempt to send a networking message. Networking will attempt to send these messages the next time it is scheduled to send messages to the remote site. If a message experiences many failures, and is not delivered within a certain period of time, it will be reported in the *Failed to Send* field.

— *No Res* or *no resources* means that the modems or voice ports could not be accessed by Meridian Networking to send these messages to the remote site.

— *Not Reach* or *not reachable* means that the remote site could not be accessed.

— *Prot Error* or *protocol error* means that the connection was made to the remote site, but message delivery was prevented by a protocol error.

Networking Detail report analysis

This report provides a detailed breakdown of the Meridian (proprietary) 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 "Meridian Networking administration" chapter in the *Networking Services Administration Guide* (NTP 557-7001-335) 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 chapter "Meridian Networking administration" in the *Networking Services Administration Guide* (NTP 557-7001-335) 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, a diagram of your network is a valuable reference tool.

AMIS Network Detail

This screen is displayed only on those systems with AMIS networking enabled. The AMIS Network Detail report (Figure 12-9) 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 12-9
The AMIS Network Detail report

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                         Operational Measurements


 AMIS Network Detail

                                                      Connect   Failures
                      Messages    Messages Delivered  Time      No   Not   Prot
 Interval  Start-End  Received  Eco  Std  Urg  NDN  Failed (mm:ss)  Res  Reach 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




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 │   Exit   │  │  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:

- *Interval Start-End*   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field descriptions for the Voice Service Summary report on page 12-13.

- *Messages Received*   This indicates the number of AMIS messages that were received at the local site during the time interval indicated.

- *Messages Delivered*   This 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*   This specifies the number of messages, tagged as economy, that were delivered to other AMIS sites during the specified interval.

— *Std*   This specifies the number of messages, tagged as standard, that were delivered to other AMIS sites during the specified interval.

— *Urg*   This specifies the number of messages, tagged as urgent, that were delivered to other AMIS sites during the specified interval.

— *NDN*   This stands for Non-delivery Notification and specifies the number of NDN messages sent by the system during the specified interval.

— *Failed*   This specifies 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.

AMIS Network Detail 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 chapter "AMIS Networking" in the *Networking Services Administration Guide* (NTP 557-7001-335) 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 chapter "AMIS Networking" in the *Networking Services Administration Guide* (NTP 557-7001-335) 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 always be 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, a diagram of your network is a valuable reference tool.

Outcalling Detail

The Outcalling report details outcalling activity for the remote notification and delivery to non-users services (Figure 12-10).

Figure 12-10
The Outcalling Detail report

```
                        Operational Measurements


  Outcalling Detail (Remote Notification and Delivery to Non-User)


                       Number of        Number of Attempts     Number of    Wait Time
                       New Requests    New Request  Retries     Successes    Avg  Max
  Interval   Start-End   RN    DNU      RN   DNU     RN   DNU    RN   DNU    (sec) (sec)

  2/08      13:00-14:00  0     0        0    0       0    0      0    0        0     0
  2/08      14:00-15:00  1     0        1    0       0    0      1    0      259   259
  2/08      15:00-16:00  4     0        1    0       0    0      0    0        0     0
  2/08      16:00-17:00  1     1        0    1       0    0      0    0        0     0



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  Select a softkey >


            Next                              Next
   Exit     Report                            Page*
```

* The "Next Page" softkey appears when the information fills more than one screen.

The report displays the following fields:

- **Interval Start-End**   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field descriptions for the Voice Service Summary report on page 12-13.

- **Number of New Requests**   This is the total number of new requests that were made for outcalling services during the interval.

— *RN*   This specifies the number of new requests for the remote notification service.

— *DNU*   This specifies the number of new requests for the delivery to non-user service.

- *Number of Attempts*   This is the total number of remote notification and delivery to non-user attempts made during the interval.

  — *New Requests*   This 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.

  — *Retries*   This 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*   This is the number of successful remote notifications and messages successfully delivered to non-users that have occurred during the interval.

- *RN*   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.

- *DNU*   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 number 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.

Outcalling Detail report analysis

In the sample report, there is minimal use of the outcalling features. There could be several reasons for this, including the following:

- 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 use the outcalling service properly; 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 the MSM may not have any outcalling restrictions, restrictions may be set in the PBX/switch.

  For example, long distance dialing may be restricted on the PBX/switch.

- The outcalling feature may have been set up incorrectly by either the administrator or the user.

- If the channels were 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).

Fax Delivery Detail report

The Fax Delivery Detail report details activity for the fax services (Figure 12-11).

Figure 12-11
The Fax Delivery Detail report

```
                        Operational Measurements

 Fax Delivery Detail

                     Number of    Number of     Number of Number of Wait Time
 Interval Start-End  New Requests New Attempts  Retries   Successes Avg  Max

 09/30   10:00-11:00      5            4            1          3       60   90
 09/30   11:00-12:00      9            9            0          9       66  112
 09/30   12:00-13:00      9            8            1          1       55  150




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 │          │ │  Next    │ │          │ │  Next    │ │          │
 │   Exit   │ │  Report  │ │          │ │  Page*   │ │          │
 └──────────┘ └──────────┘ └──────────┘ └──────────┘ └──────────┘
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* The "Next Page" softkey appears when the information fills more than one screen.

The report displays the following fields:

- ***Interval Start-End***   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field descriptions for the Voice Service Summary report on page 12-13.

- *Number of New Requests* This field displays the number of new requests for Fax Callback services during the given interval.
- *Number of New Attempts* This field displays the number of attempts that have been made to process new requests for Fax Callback services during the given interval.
- *Number of Retries* This is the number of attempts made to process old requests for Fax Callback services during the interval because one of the following occurred at the destination number:

  — The number was busy.

  — There was no answer.

  — The fax was not received at the destination. (The only way of knowing that the fax was not received at the destination is to review the Fax Audit Trail report.)

- *Number of Successes* This field displays the number of successful Fax Callbacks that have been made during the given interval.
- *Wait Time Avg* This field displays the average amount of time that the Fax outcalling agent (FOC) took to acquire the resources necessary to make Fax Callback calls during the given interval.
- *Wait Time Max* This field displays the longest amount of time that the Fax outcalling agent (FOC) took to acquire the resources necessary to make Fax Callback calls during the given interval.

Fax Delivery Detail report analysis

In the sample report, there is minimal use of the Fax on Demand features. There could be several reasons for this including the following:

- The users do not know how to use the service.

  If so, train all Fax on Demand 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 do not need to use the service.

  Consult the users to determine if they really do not need the service. If the service is not used at all, delete the service and the corresponding fax items.

- There is 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 fax device 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 Fax on Demand 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 Fax on Demand. 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 Fax on Demand 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 fax/device.
- Although the MSM may not have any outcalling restrictions, restrictions may be set in the PBX/switch.

  For example, long distance dialing may be restricted on the PBX/switch.
- The Fax on Demand feature may have been set up incorrectly by the administrator.
- If the channels were 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 Fax on Demand applications (or increase the number of channels dedicated to Fax on Demand).

Disk Usage Detail report

The Disk Usage report provides information on disk space usage on the voice storage volumes (Figure 12-12).

Figure 12-12
The Disk Usage Detail report

```
                          Operational Measurements

      Disk Usage Detail

                      Volume    Voice Volume   Voice Space      Text Space
      Interval Start-End  Name    Size (hh:mm)   Used (%)        Used (%)

      09/30   10:00-11:00 VS1            1:51       33              47
                          VS2            2:51       33              17
                          VS203         25:45       10              30
                          VS204         25:45       10              30

                             .

                             .
                          VS210         22:35       20              50
      09/30   11:00-12:00 VS1            1:51       33              47
                          VS2            2:51       33              17
                          VS203         25:45       10              30
                          VS204         25:45       10              30

                             .

                             .
                          VS210         22:35       20              50
      09/30   12:00-13:00 VS1            1:51       33              47

      Select a softkey >

        Exit          Next                       Next
                      Report                      Page*
```

* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed:

- **Interval Start-End**   This field specifies the date and time intervals into which the data is divided. For more information, refer to the field descriptions for the Voice Service Summary report on page 12-13.

- **Volume Name**   This is the name of the user volume (for example, VS1, VS2, VS203, and so on). Volumes are partitions on the MSM disks.

- **Voice Volume Size (hh:mm)**   This is 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 of disk space.

- **Voice Space Used (%)**   This is the percentage of disk space used for voice services storage at the end of the interval.

- **Text Space Used (%)**   This is the percentage of disk space used for text storage at the end of the interval.

Disk Usage Detail 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 fluctuating drastically or is consistently increasing towards the full capacity of the disk, then steps should be taken to reduce the amount of voice space used. The important thing is to ensure that the disk space is not fluctuating drastically or consistently getting more and more full.

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 Chapter 9, "Voice Administration.")

To lower voice space used, you can also review all voice menus, voice forms, voice announcements, fax menus, and fax items 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 users 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 the Disk Usage Detail report immediately. This SEER indicates that your system has reached physical or virtual capacity. Check that the nightly audit is functioning. Force the audit to remove files on the volume in question by lowering the value entered for the number of days of data stored fields in the OM Options screen. 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 the following:

- redistributing users on to other voice nodes
- deleting old users, customer groups, and VSDNs
- turning on automatic message deletion
- expanding system capacity

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 Nortel support organization.

T1 Link Handler Detail

This report gives the number of errors encountered on the T1 links during a given reporting interval.

Figure 12-13
The T1 Link Handler Detail report

```
                          Operational Measurements

   T1 Link Handler Detail

                                        Out of              Backward  Forward
                              Bipolar   Frame   Extended    Slip      Slip
   Interval Start-End   T1 Link  Violatns  Errors  SF Errors  Count     Count

   9/30   10:00-11:00   13-1-1       3       5        0         1         1
   9/30   10:00-11:00   13-1-2       6       7        0         2         1
   9/30   10:00-11:00   14-3-1       1       3        0         2         0
   9/30   10:00-11:00   14-3-2       2       5        0         0         2




   _____

   Select a softkey >

   ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
   │          │  │   Next   │  │          │  │          │  │          │
   │   Exit   │  │  Report  │  │          │  │ Next Page*│  │          │
   └──────────┘  └──────────┘  └──────────┘  └──────────┘  └──────────┘
```

* The "Next Page" softkey appears when the information fills more than one screen.

The following fields are displayed on this screen:

- *Interval Start-End* This field specifies the date and time intervals into which the data is divided. For more information, refer to the field descriptions for the Voice Service Summary report on page 12-13.

- *T1 Link* This is the T1 link for which the reported statistics apply. The link is identified by the <node number>-<link number>.

- *Bipolar Violatns* This is the number of bipolar violations that have occurred in the specified interval. A bipolar violation is a type of digital communication error.

  An excessive number of violations indicates one of the following:

  — The quality of the line is poor.

  — The line code between the MSM and the PBX/switch does not match. Check the line code in the MSM and PBX/switch.

- *Out of Frame Errors*   This is the number of out of frame errors that have occurred in the specified interval. A bipolar violation is a type of digital communication error.

  An excessive number of errors indicates one of the following:

  — The quality of the line is poor.

  — The clocking reference between the MSM and the PBX/switch or channel bank/terminating equipment is poor or is not set up properly.

    If the MSM is configured to provide the timing reference (free-run mode), make sure that the channel banks/terminating equipment derive the timing reference from the MSM.

    If the PBX/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 Chapter 10, "Hardware Administration." A candidate is made the active reference in the T1 Link Status screen (described in Chapter 11, "System Status and Maintenance").

- *Extended SF Errors*   Not applicable.

- *Backward Slip Count*   This is the number of backward slips that have occurred in the specified interval. See the description for *Out of Frame Errors*.

- *Forward Slip Count*   This is the number of forward slips that have occurred in the specified interval. See the description for *Out of Frame Errors*.

T1 Link Handler Detail report analysis

The sample T1 Link Handler Detail report analysis (Figure 12-13) shows that a substantial number of errors 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 disappeared because it was related to something else on the system that had 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, do the following:

1   Check the quality of the line.

2   Check the line code in the MSM and the PBX/switch.

3   If the MSM is configured to provide the timing reference (free-run mode), make sure that the channel banks/terminating equipment derive the timing reference from the MSM.

4   If the PBX/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 Chapter 10, "Hardware Administration." A candidate is made the active reference in the T1 Link Status screen (described in Chapter 11, "System Status and Maintenance").

OM user usage reports

The OM user usage reports can only be viewed by logging on as customer administrator because this information is customer-specific. User usage data is used to monitor how specific users are making use of voice messaging, AMIS networking (if enabled), and Meridian Networking (if enabled). See the *Customer Administration Guide* for more details.

Using OM to detect or investigate system problems

You can use OM reports to monitor how the system is being used. For example, you can use these reports to determine what features are being used, and which are not, and if the use of the system matches what the expectations were when the system size was being determined. If the system is busier than was anticipated, then you may need to expand the system.

Similarly, 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 MSM system, channels may be 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 your disk usage warning level, then disk space is getting low. Steps should be taken to reduce the voice space used. See the *Voice Space Used* column in the Disk Usage Detail report screen described in the "Disk Usage Detail" section.

Channels 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 the MSM. Several of the report analysis sections that follow the sample reports refer to analyzing or dealing with high traffic problems.

Inefficient usage

The Voice Service Summary report provides an overview of how much all of your MSM 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 do not 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 (that is, hackers) are accessing your MSM system in order to use the thru-dial feature (for example, 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 Service Summary report for the number of thru-dial sessions and the average session lengths during specific time periods.

Session trace

The Session Trace tool allows you to obtain detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). The session information includes voice messaging activity (messages composed and sent), the number of messages played or left unplayed during a session, and the last change to the message waiting indicator (turned on or off, or untouched).

This session information allows an administrator or technician to study the state of a user's mailbox and the message waiting indicator, and use that information to follow up on any user complaints about Meridian Mail. For example, a user may complain that the MWI was on, but no voice messages were in the mailbox when the user logged in. The session information may tell the administrator why the MWI was turned on.

For more detailed information about using the session trace, refer to the *System Administration Tools Guide* (NTP 557-7001-305).

Note: The session information is retrieved from the Operational Measurements billing file, and this billing data is stored only when the *Collect User*

Usage/Session Trace Data on the Operation Measurement Options screen is enabled.

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 in disk storage and channel capacity (should the number of users on your system approach one of the limits discussed in *The MSM Product Guide* [NTP 557-7001-010]). If your organization's use of the MSM 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 space required for OM data storage

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 on the Operational Measurement Options screen. (See page 12-7 for details.)

The amount of storage required for each operational measurement can be estimated from Table 12-1. Please note the assumptions made about the system that are listed at the bottom of the table.

Table 12-1
Storage requirements for operational measurements

System type	Number of users	Billing Data Cost	User Usage Data Cost
48 channel	3750	1.3% per day	0.1% per day
72 channel	5625	1.9% per day	0.15% per day
96 channel	7500	2.5% per day	0.2% per day
120 channel	9375	3.1% per day	0.25% per day
144 channel	11250	3.75% per day	0.3% per day
168 channel	13125	4.375% per day	0.35% per day
192 channel	15000	5% per day	0.4% per day

Assumptions:
> System in use 12 hours per day, 5 days per week, at an average of 50% of peak traffic.
> Average holding time is 40 seconds (the port is busy for 40 seconds).
> 10% of traffic is network traffic.
> Voice menu traffic is 10% of voice message traffic.
> Operational Measurements is set for one hour commit interval.

Once you have gathered the information you need from Table 12-1, compute the storage as follows:

Assumption: If User Usage is enabled, and 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: 192 channel system with 15 000 users, 31 user usage days, and 8 days of traffic stored.

Total storage = (2x5%) + (8x1%) + (31x0.4%) = 30%

The total storage cannot exceed 100%, or you will run out of disk space. Should your calculations yield a result greater than 100%, reduce the number of days traffic and/or user usage data is stored, and repeat your calculations. The values presented in Table 12-1 are based on typical parameters for various MSM 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 impact of session trace on disk space

The session trace does not impact the amount of disk space that your system uses. Meridian Mail MSM is engineered to accommodate the session trace data which is collected by default.

For more detailed information about using the session trace, refer to the *System Administration Tools Guide* (NTP 557-7001-305).

Collecting outcalling audit trail data

Outcalling audit trail statistics allow you to monitor how users are using the remote notification and delivery to non-user features. There are two outcalling audit trail reports that you can generate: a summary report and a detail report. Each report provides outcalling data for a certain period of time (as specified by you).

For more information about the Outcalling Audit Trail report and other Outcalling administration tasks, refer to the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

The summary report provides the following information:

- the user's name
- the user's mailbox number
- the type of call (DNU or RN)
- the call status (answered, busy, and so on.)

The detail report provides the following information:

- the user's name
- the user's mailbox number
- the time at which the transaction started
- the duration of the transaction
- the specific outcall process
- the device (pager, phone, pager service) and the target number
- the channel DN of the channel that was used to place the outcall
- the number of retries

Enabling the collection of outcalling audit trail data

Audit trail data collection is enabled in the Operational Measurement Options screen (Figure 12-14) at the system administration level. There are two other parameters that you will have to specify in this screen. Follow procedure 12-4.

Identify how many days audit trail data should be stored

The *Number of Days of Audit Data Stored* field determines how long the collected audit trail data will be stored on disk before being overwritten. The number of days can range from 1 to 63. The default is 7.

Identify when collection of audit data should stop if the volume is almost full

This is a volume management parameter which will help you keep the volume on which audit trail data is stored from becoming completely full. Identify the percentage at which you want the collection of audit trail data to stop. For example, if the *Shutdown Audit Trail at Volume Full (%)* field is set to 80%, and the volume on which audit data is stored reaches 80% capacity, audit trail data collection will be disabled. If this number is set to 100%, collection of data will not stop until the volume is completely full. This is not recommended. (Note that this is a percentage of text space, not voice space.)

The default is 85%.

Procedure 12-4
Enabling audit trail data collection

Starting point: The Main Menu

> **Note:** You must be at the system administration level.

1 Select Operational Measurements.

2 Select Operational Measurement Options.

> *The Operational Measurement Options screen is displayed. The ninth, tenth, and eleventh items (that is, the last three before the OM Collection ACCESS Class item) on the screen are used to enable audit trail data collection.*

Figure 12-14
The Operational Measurement Options screen

```
              Operational Measurements

Operational Measurement Options

Collect Traffic Data:                   Disabled  [Enabled]

Traffic Period Start (hh:mm)            01:00

Traffic Period End (hh:mm):             01:00

Traffic Commit Interval (hh:mm):        01:00

Number of days of Traffic Data stored:  8

Collect User Usage/Session Trace Data:  [Disabled]   Enabled

Number of days of User Usage Data stored: 31

Collect Audit Trail Data:               Disabled  [Enabled]

Number of days of Audit Data stored:    7

Shutdown Audit Trail at Volume Full (%): 85%

OM Collection ACCESS Class:             256
_____

Select a softkey >

   Save         Cancel
```

3 Set the field *Collect Audit Trail Data* to "Enabled" if currently disabled.
("Enabled" is the default.)

4 Specify the number of days that audit trail data should be stored on disk.

Note: Detailed field descriptions are provided on the preceding pages.

5 In the *Shutdown Audit Trail at Volume Full (%)* field, enter the percent full at
which collection of audit trail data should stop.

The default is "85%."

6 To save the current configuration, go to step 6a. To exit without saving, go to
step 6b.

   a. Press [Save].

    *The outcalling data is saved and you are returned to the Operational Mea-
surements menu.*

   b. Press [Cancel].

    *Any changes you have made are not saved and you are returned to the
Operational Measurements menu.*

Generating an outcalling audit trail report

The Outcalling Audit Trail Report screen (Figure 12-15) is accessed from the Operational Measurements menu. This is a report selection screen in which you specify the type of report you want to retrieve (summary or detail) as well as the duration of the report period.

Note: Outcalling audit trail reports can be viewed from both the system and customer administration level. At the system administration level, outcalls for all customer groups are reported. At the customer administration level, only outcalls for the current customer group are reported.

The summary report shows each outcall (RN or DNU) that was made during the reporting interval along with the user that made the call, the user's mailbox number, the target number, and the status of the call. It shows only completed (answered) calls.

The detail report provides a more thorough account of each outcall request including the start time and duration of the call, the DN of the channel that was used to place the call, and the number of retries (if any). It shows all outcalls, both successfully completed and unsuccessful.

You must specify whether you want to generate a report for a particular user, mailbox number, phone number, or all. You can either generate a report that includes all of the information currently stored on disk for that user (mailbox number or phone number) or generate a shorter report for a specific time period. The report can either be viewed on your terminal or printed.

Procedure 12-5
Generating an outcalling audit trail report

Starting point: The Main Menu

Note: Field descriptions are provided on page 12-47.

1 Select Operational Measurements.

2 Select Outcalling Audit Trail Report.

The Outcalling Audit Trail Report screen (Figure 12-15) is displayed.

3 Specify the report type (summary or detail).

4 Specify the selection criteria (name, mailbox, target phone number, or all).

5 Fill in the field that corresponds to the selection criteria you chose.

6 Enter the report start and end times.

If these fields are left blank, all outcalling data that is currently stored on disk will be retrieved.

7 To view the report on screen, go to step 7a. To print the report, go to step 7b.

a. Press [View Reports].

The first outcalling audit trail report is displayed.

If you selected "Summary," see the "The Summary Outcalling Audit Trail Report" section. If you selected "Detail," see the "The Detail Outcalling Audit Trail Report" section.

b. Press [Print Reports].

A new set of softkeys are displayed: [Cancel Printing] and [Continue Printing].

Press [Continue Printing] to print the report or [Cancel] if you do not want to print the report.

If you selected [Continue Printing], a [Cancel] softkey is displayed which can be used to cancel printing, once printing has started.

8 If you are viewing the report, press [Next Page] to view the next page of the report.

When the last page has been displayed, a prompt appears indicating it is the end of the report.

9 Press [Exit].

You are returned to the Outcalling Audit Trail Report screen.

Figure 12-15
The Outcalling Audit Trail Report

```
┌─────────────────────────────────────────────────────────────────────┐
│                      Operational Measurements                        │
│                                                                      │
│  Outcalling Audit Trail Report                                       │
│                                                                      │
│  Report Type:           [Summary]   Detail                           │
│                                                                      │
│   Selection Criteria:    [All]     Name    Mailbox Target_Phone_Number│
│                                                                      │
│ *  Last Name:           _____                  │
│                                                                      │
│ *  First Name:          _____                        │
│                                                                      │
│ ** Mailbox Number:      _____                    │
│                                                                      │
│ &  Target Phone Number: _____                    │
│                                                                      │
│                                                                      │
│  Report Start  (dd/mm/yy hh:mm): _____ (or blank for oldest)│
│  Report End    (dd/mm/yy hh:mm): _____ (or blank for newest)│
│                                                                      │
│                                                                      │
│                                                                      │
│  ─────────────────────────────────────────────────────────────────  │
│                                                                      │
│  Select a softkey >                                                  │
│  ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐        │
│  │         │ │         │ │  View   │ │  Print  │ │         │        │
│  │  Exit   │ │         │ │ Reports │ │ Reports │ │         │        │
│  └─────────┘ └─────────┘ └─────────┘ └─────────┘ └─────────┘        │
└─────────────────────────────────────────────────────────────────────┘
```

```
*  The Name fields appear only when the selection criteria is "Name."
** The Mailbox field appears only when the selection criteria is "Mailbox."
&  The Target Phone Number field appears only when the selection criteria is
   "Target_Phone_Number."
```

The following fields are displayed on the Outcalling Audit Trail Report screen:

- **Report Type**   Your options are "Summary" and "Detail." A summary report shows only completed calls. A detail report shows all attempts, both successful and unsuccessful.

- *Selection Criteria*   All entries in the database can be viewed or you can view data for a specific user, mailbox number, or phone number.

- *Note:* If Meridian Networking is installed, you cannot use a remote user's mailbox number as a search criterion.

- *Last Name*   This field is displayed if *Selection Criteria* is set to "Name." If you want to view outcalling data for a particular user, enter that user's last name (and first name in the next field as there may be more than one user with the same surname). This field accepts all characters, except "+," "?" and "_" (underscore).

- *First Name*   This field is displayed if *Selection Criteria* is set to "Name." If you want to view outcalling data for a particular user, enter that user's full first name (as well as the last name in the previous field). This field accepts all characters, except "+," "?" and "_" (underscore).

- *Mailbox*   This field is displayed if *Selection Criteria* is set to "Mailbox." To view outcalling data for a specific mailbox, enter the full mailbox number. This field accepts numeric data only.

- *Target Phone Number*   This field is displayed if *Selection Criteria* is set to "Target Phone Number." To view outcalling data for a particular target phone number or pager number (the number entered in the *Target DN* field in the outcalling schedule), enter the full number in this field. This field accepts numeric data only.

- *Report Start/End*   Enter the start date and time and end date and time to indicate the reporting period.

The Summary Outcalling Audit Trail Report

The Summary Outcalling Audit Trail Report (Figure 12-16) is displayed if you selected "Summary" as the report type.

Figure 12-16
The Summary Outcalling Audit Trail Report

```
                      Operational Measurements

Outcalling Audit Trail from 01/10/90 to end of data.

Date (dd/mm/yy)
 Name            Mailbox Number
  Start   Duration  Target Phone Number    Type    Call Status
  (hh:mm) (mmm:ss)

10/01/90
 Smith, J           7550
  12:40   1:10      98292962               DNU     Answered
  12:45   0:05      98292962               DNU     No DTMF Conf.
  13:45   0:18      8051-345643            RN      Answered


10/02/90
 Jones, D           7091
  8:52    0:02      8052                   RN      Answered
  8:57    0:06      8052                   RN      Disabled


 _____

 Select an item >


     Exit                                        Next Page*
```

*This softkey is displayed if data fills more than one screen.

The summary report displays the following information:

- *Date*   The date the call was made.

- *Name*   This is the name of the Meridian Mail user who initiated the call.
- *Mailbox Number*   This is the mailbox that originated the call.
- *Start Time*   This is the time at which the call was made.
- *Duration*   This is the length of the call in minutes and seconds.
- *Target Phone Number*   This is the number called. A maximum of 30 digits can be displayed in this field. For calls placed to paging services (such as SkyPager), the PIN number is also displayed (for example, in 8051-345643, the last 6 digits are the PIN number). If the full number is longer than 30 digits, the first few digits in the paging service phone number will be truncated.
- *Type*   This field displays the outcalling service that was used: either Remote Notification or Delivery to Non-User.
- *Call Status*   This field displays the result of the call.
  - *Answered*   This indicates that the destination number was answered and the message was heard by the called party.
  - *RN Disabled*   This indicates that the called party answered and pressed 3 to disable RN.
  - *No DTMF Confirmation*   This indicates that the called party did not press 2 to hear a DNU message (not relevant if DTMF confirmation is not required).
  - *Not Played*   This indicates that the called party disconnected before the DNU message was played.

The Detail Outcalling Audit Trail Report

The Detail Outcalling Audit Trail Report (Figure 12-17) is displayed if you selected "Detail" as the report type.

Figure 12-17
The Detail Outcalling Audit Trail Report

```
                          Operational Measurements

Outcalling Audit Trail from 10/10/90 to end of data.

Date (dd/mm/yy)
 Name            Mailbox Number
Transaction    Start   Duration    Device/Target Phone Number    Channel  Re-
(hh:mm)        (hh:mm)(mmm:ss)                                    DN       try
 Request #      Outcall Process     Call Status    Outcall Action

10/02/90
 Howe G.          3000
15:10          15:10                                                       0
 #1137         RN Submission                     Continue
15:10          15:10                                                       0
 #1137         RN Validation                     Continue
15:10          15:10   0:15     Phone/555-7050                   2004      0
 #1137         RN Call Results    Answered      Remove, user logged in
_____

Select a softkey >

                                                Next
    Exit                                         Page*
```

*This softkey is displayed if data fills more than one screen.

In addition to the information displayed in the summary report, the detailed
report contains the following information:

- **Transaction Time**   This is the time at which the audit trail record was
  stored.

- **Start Time**   This is the time at which the current outcall process started.

- **Duration Time**   This is the length of the call.

- **Device/Target Phone Number**   This is the type of device called
  followed by the phone/pager number. The device will be one of the
  following:

  — Phone

  — ToneP (tone pager)

  — Voice (voice pager)

  — NumPa (numeric pager)

  — PaSrv (pager service)

  If the device is a paging service, the paging service phone number fol-
  lowed by the pager identification number (PIN) will be displayed. The
  maximum length for this field is 30 digits. If this limit is exceeded, the
  first few digits of the paging service phone number will be truncated.

- **Channel DN**   This is the DN associated with the voice channel used.

- *Retry*   This is the number of retries that have been made at the time of the attempt. This field is incremented by one each time
  — a DN is busy and is retried or
  — when multiple target DNs are defined, and they have all been tried and either not answered or answered with no login
- *Transaction Request Number*   A unique number identifying the (RN or DNU) request.
- *Outcall Process*   This is the type of audit trail entry. This could be one of the following:
  — *Submission*   This indicates that a request has been made for an outcalling service.
  — *Recovery*   This indicates that messages for outcalling have been detected and submitted after a system reboot.
  — *Cancellation*   This indicates that during recovery, requests for outcalling have been detected, but have been cancelled since they are no longer valid.
  — *Logout/Admin*   This indicates that one of two conditions has occurred. The first possibility is that a user has logged out with unannounced messages left in his or her mailbox. Normally, if a user is listening to a message when a new message comes in, the new message is announced after the user has finished listening to the other message. However, if the user hangs up before the message has finished playing, the new message will not be announced. (In this situation, the user will continue to be notified of messages.) The second possibility is that an administrator has modified a user's account while there were unread messages in the user's mailbox.
  — *Validation*   This indicates a checking process just before a call is made.
  — *Call Results*   This indicates information regarding the *Call Status* and *Outcall Action* in the adjacent fields to the right.
- *Call Status*   This is a general statement of the results of a call. The following are the possibilities:
  — *Busy*   This indicates the RN or DNU target DN was busy. A retry attempt will be scheduled if the busy and no answer retries have not been exhausted.

— *Answered*   This indicates that an outcall to an RN or DNU target DN was placed. The RN call was answered, but the user did not log in on the same call to listen to the message. Remote notification will be rescheduled if the answered retries have not been exhausted. The DNU call was answered and the message was successfully delivered.

— *No Answer*   This indicates that an outcall to an RN or DNU target was placed and the call was not answered. A retry attempt will be scheduled if the no answer retries have not been exhausted.

— *No DTMF Conf*   This indicates that an outcall to a DNU target DN was placed. The call was answered, but the caller did not provide the required DTMF confirmation (in other words, he or she did not press 2 to hear the message). DNU will be rescheduled if the answered retries have not been exhausted.

— *Reorder*   During an outcall, the target DN was dialed, and a reorder tone was detected. The primary reasons for a reorder tone are an invalid DN was called, there were no resources to complete the call, or there were access restrictions that the DN violated. The call attempt will be treated as a busy attempt, and a retry attempt will be scheduled if the busy and no answer retries have not been exhausted.

— *Resource Delay*   This indicates that the outcall was not completed because the line on which the call was to be made was taken away due to an incoming call which was given priority. The outgoing call is retried on a different channel. If this is a persistent problem, reserve channels for outcalling and make sure no line DNs terminate on them.

— *Incomplete*   This indicates that the outcall could not be completed. The call attempt will be treated as a busy attempt, and a retry attempt will be scheduled if the busy and no answer retries have not been exhausted. If there is an accompanying SEER, follow the action described in the *Maintenance Messages (SEERs)* guide (NTP 555-7001-510).

— *RN Disabled*   During an RN attempt, the target DN was dialed, the call was answered, and 3 was pressed to disable remote notification. There will be no further RNs for this user until the user logs into his or her mailbox.

— *Not Played*   During a DNU attempt, the target DN was dialed, and the call was answered and disconnected before DNU could play its message. If the answered retries have not been exhausted, DNU will retry using the answered retry limits and intervals.

— *Illegal Window* This indicates that a user attempted to send a DNU message. The message became stale during an illegal time window and could not be delivered. (The stale date parameter defaults to 36 hours. If a message cannot be delivered within this time, a message becomes stale.) The user receives a non-delivery notification.

— *Stale Date* This indicates that a user attempted to send a DNU message. The message was not delivered immediately (either because it was sent during a restricted time period, or the call was not answered and was, therefore, rescheduled). The message became stale during a permitted time period and could not be delivered. (The stale date parameter defaults to 36 hours. If a message cannot be delivered within this time, a message becomes stale.) The user receives a non-delivery notification (NDN.)

— *Sit Tone* During an outcall, the target DN was dialed, and a sit tone was detected. A sit tone is usually a series of tones followed by a voice message indicating that this DN is invalid. This causes remote notification for this user to be turned off by disabling all of his or her remote notification schedules. The administrator or user should define a new valid DN and reenable remote notification for the user. DNU is cancelled for the message and the user receives a non-delivery notification (NDN).

— *Bad Called DN* During an outcall, the target DN was dialed, and a bad-called DN was detected by the local switch. (In other words, the target DN is invalid for some reason.) This causes remote notification for this user to be turned off by disabling all of his or her remote notification schedules. The administrator or user should define a new valid DN and reenable remote notification for the user. DNU is cancelled for the message, and the user receives a non-delivery notification (NDN).

- *Outcall Action* This field indicates the action performed on the request. The following are the possibilities:

— *Continue* This field indicates the validation has been passed and a call attempt is to be made.

— *Remove, retry limit reached* This indicates that, after the call, the retry was not rescheduled because the retry limit had been reached.

— *Remove, another RN exists* This field indicates the validation step determined that the user has logged on since the last RN attempt and the retry was cancelled.

— *Reset* This indicates that a problem was encountered retrieving information. Requests will be discarded and recovered from disk.

— *Delayed 1*   This indicates that a channel on which to call out was not obtained. The action will be retried later.

— *Delayed 2*   This indicates that a channel was obtained but it was taken away before the call was made. Will retry later.

— *Defer*   This indicates that another call attempt has been scheduled. RN calls to pagers are always rescheduled because the user may fail to receive the page. (However, if the user logs on before the next retry, the retry will be cancelled.)

Collecting fax audit trail data

Fax audit trail statistics allow you to monitor how users are using the Fax on Demand features. There are actually two fax audit trail reports that you can generate: a summary report and a detail report. Each report provides fax data for a period (as specified by you).

For more information about the Fax Audit Trail report and other Fax on Demand administration tasks, refer to the *Fax on Demand Application Guide* (557-7001-327).

The summary report provides the following information:

- the name of the application
- the billing DN
- the called DN
- the call status (answered, busy, and so on)

The detail report provides the following information:

- the name of the application
- the billing DN
- the time at which the transaction started
- the duration of the transaction
- the calling DN
- the DN of the channel that was used to place the outcall
- the number of retries
- the specific outcall process
- the call status (answered, busy, and so on)
- the outcall action (for example, transmitted)

Before you can generate a fax audit trail report, you must enable the collection of audit trail data. The following steps are necessary to enable audit trail data collection and generate a report:

1   Enable audit trail data collection.

    This is done in the Operational Measurement Options screen at the system administration level.

2   Specify the characteristics of the report you want to generate in the Fax Audit Trail Report screen. This includes:

    — specifying the report type (summary or detail)

    — specifying whether you want to view data for a specific billing DN, a or called DN, or all DNs

    — specifying the period of time that the report should cover (for example, the past 3 hours, the past 2 days)

3   View or print the report and analyze it.

Generating a fax audit trail report

The Fax Audit Trail Report screen (Figure 12-18) is accessed from the Operational Measurements menu. This is a report selection screen in which you specify the type of report you want to retrieve (summary or detail) as well as the duration of the report period.

The summary report shows each fax outcall that was made during the reporting interval along with the calling DN and the status of the call. The detail report provides a more thorough account of each outcall request, including the DN of the channel that was used to place the call and the number of retries (if any).

You must specify whether you want to generate a report for a particular user, mailbox number, phone number, or all. You can either generate a report that includes all of the information currently stored on disk for that billing DN or called DN, or generate a shorter report for a specific time period. The report can either be viewed on your terminal or printed.

Procedure 12-6
Generating a fax audit trail report

Starting point: The Main Menu

1   Select Operational Measurements.

2   Select Fax Audit Trail Report.

    The Fax Audit Trail Report screen (Figure 12-18) is displayed.

3   Specify the report type (summary or detail).

    See the following pages for field descriptions.

4   Specify the selection criteria (Billing DN, Called DN, or All).

5   Enter the report start and end times.

If these fields are left blank, all outcalling data that is currently stored on disk will be retrieved.

6   Press [View Reports], [Print Reports], or [Cancel] if you do not want to view reports at this point.

The first fax audit trail report is displayed or printed.

See the next section, "The Summary Fax Audit Trail Report."

7   Press [Next Page] to view the next page of the report.

When the last page has been displayed, a prompt appears indicating it is the end of the report.

8   Press [Exit].

You are returned to the Fax Audit Trail Report screen.

Figure 12-18
The Fax Audit Trail Report

```
                        Operational Measurements

 Fax Audit Trail Report

 Report Type:              [Summary]    Detail

 Selection Criteria:       [All]     Billing_DN     Called_DN

  *  Billing_DN:  _____

  *  Called_DN:   _____




 Report Start  (dd/mm/yy hh:mm): _____ (or blank for oldest)
 Report End    (dd/mm/yy hh:mm): _____ (or blank for newest)
 _____

 Select a softkey >
  _____    _____    _____    _____    _____
 |             |             |     View    |     Print   |             |
 |    Exit     |             |   Reports   |   Reports   |             |
  ‾‾‾‾‾‾‾‾‾‾‾    ‾‾‾‾‾‾‾‾‾‾‾    ‾‾‾‾‾‾‾‾‾‾‾    ‾‾‾‾‾‾‾‾‾‾‾    ‾‾‾‾‾‾‾‾‾‾‾
```

`*` Only one of these fields will be displayed, depending on the Selection
  Criteria. See the field descriptions below.

The following fields are displayed on the Fax Audit Trail Report:

- *Report Type*   Your options are "Summary" and "Detail." The detail report displays more information.

- *Selection Criteria*   All entries in the database can be viewed or you can view data for a specific Billing DN or Called DN.

- *Billing DN*   This field limits the report to fax deliveries associated with a particular billing DN. This DN can be 0 to 31 digits.

- *Called DN*   This field limits the report to fax deliveries associated with a particular called (destination) DN. This DN can be 0 to 31 digits.

- *Report Start/End*   Enter the start and end date and time to indicate the period of time that should be included in the report.

Procedure 12-7
Printing the Fax Audit Trail Report

Starting point: The Main Menu

1   Select Operational Measurements.

The Operational Measurements menu appears.

2   Select Fax Audit Trail Report.

The Fax Audit Trail Report appears (Figure 12-18).

3   Change the selection criteria as desired.

4   Ensure that the printer is on-line and has paper.

5   Press [Print Reports]. (Ensure that the printer is on-line.)

A new set of softkeys are displayed: [Cancel Printing] and [Continue Printing].

6   Press [Continue Printing] to print the report or [Cancel] if you do not want to print the report.

If you pressed [Continue Printing], a [Cancel] softkey is displayed which can be used to cancel printing once printing has started.

You are returned to the Operational Measurements menu.

The Summary Fax Audit Trail Report

The Summary Fax Audit Trail Report (Figure 12-19) is displayed if the report type is "Summary."

Figure 12-19
The Summary Fax Audit Trail Report

```
                     Operational Measurements

 Fax Audit Trail from  9/23/93 to end of data.

 Date (dd/mm/yy)
  Description        Billing DN
   Start   Duration  Called DN             Call Status
   (hh:mm) (mmm:ss)

 9/23/93
  FID 2222            3656
   17:37   0:37 4018051              No Carrier
   17:40   0:37 4018051              Transmit Error
   17:44   2:45 4018051              Transmitted
 _____

 Select an item >

    Exit                              Next Page*
```

*This softkey is displayed if data fills more than one screen.

The summary report displays the following information:

- *Date*   This is the date the call was made.

- *Description*   This is the name (acronym) of the application.

- *Billing DN*   This is the billing DN that originated the call.

- *Start Time*   This is the time at which the call was made.

- *Duration*   This is the length of the call in minutes and seconds.

- *Called DN*   This is this destination DN for the fax delivery.

- *Call Status*   This is this field displays the result of the call.

  — *Transmitted*   This indicates that fax transmission completed without error.

  — *Transmit Error*   This indicates that the fax transmission started but was not completed successfully.

  — *No Carrier*   This indicates that the fax transmission was not started because the call was not answered, or was answered, but not by a compatible fax device.

The Detail Fax Audit Trail Report

The Detail Fax Audit Trail Report (Figure 12-20) is displayed if the report type is "Detail."

Figure 12-20
The Detail Fax Audit Trail Report

```
                         Operational Measurements

 Fax Audit Trail from  9/23/93 to end of data.

 Date (dd/mm/yy)
  Description              Billing DN
 Transaction Start  Duration    Called DN                Channel DN  Retry
 (hh:mm)       (hh:mm) (mmm:ss)
  Request #  Outcall Process  Call Status    Outcall Action

 9/23/93
  FID 2222              3656
 17:37       17:37                                                      0
 #*****      Submission        Transmitted    Continue
 17:37       17:37   0:37        4018051                    2802        0
 #00000      Call              No Carrier     Defer
 17:40       17:40   0:37        4018051                    2802        1
 #00000      Call              Transmit Error Defer
 17:44       17:44   2:45        4018051                    2802        2
 #00000      Call              Transmitted    Remove


 Select a softkey >

                                          Next
    Exit                                  Page*
```

*This softkey is displayed if data fills more than one screen.

In addition to the information displayed in the summary report, the detailed report contains the following information:

- *Transaction Time*   This is the time at which the delivery should have taken place.
- *Start Time*   This is the time at which the current outcall process started.
- *Duration Time*   This is the length of the call.
- *Called DN*   This is the destination DN for the fax delivery.
- *Channel DN*   This is the DN that was used to originate the call.
- *Retry*   This is the number of retries that have been made at the time of the attempt. This field is incremented by one each time a DN is retried.
- *Request #*   This is the number of the transaction request.
- *Outcall Process*   This is the type of audit trail entry. This could be:
  — *Submission*   This indicates that a request has been made for an outcalling service.

— Instead of *Submission* you may also see *Recovery*.

— ***Recovery***   This indicates that faxes for outcalling have been detected and submitted after a system reboot.

— ***Validation***   This indicates a checking process just before a call is made.

— ***Call Results***   This indicates information regarding the *Call Status* and *Outcall Action* in the adjacent fields.

- *Call Status*   This field indicates the status of the call attempt. The following are the possibilities:

  — ***Transmitted***   This indicates that the fax transmission completed without error.

  — ***Transmit Error***   This indicates that the fax transmission was started but was not successfully completed.

  — ***No Carrier***   This indicates that the fax transmission was not started because the call was not answered, or was answered, but not by a compatible fax device.

  — ***Illegal Window***   This indicates that the fax became stale during an illegal time window and could not be delivered. (The stale date parameter defaults to 36 hours. If a message cannot be delivered within this time, a message becomes stale.)

  — ***Stale Date***   This indicates that the fax was not delivered immediately (either because it was sent during a restricted time period or the fax was not transmitted and was, therefore, rescheduled). The fax became stale during a permitted time period and could not be delivered. (The stale date parameter defaults to 36 hours. If a fax cannot be delivered within this time, a fax becomes stale.)

  — ***Bad Called DN***   This indicates that during an outcall, the target DN was dialed, and a bad called DN was detected by the local switch. (In other words, the target DN is invalid for some reason.) The callback fax is not delivered and is removed.

  — ***Resource Delay***   This indicates that the outcall was not completed because the line on which the call was to be made was taken away due to an incoming call which was given priority. The outgoing call is retried on a different channel. If this is a persistent problem, reserve channels for outcalling and make sure no line DNs terminate on them.

— *Incomplete*   This indicates that the outcall could not be completed. The call attempt will be treated as a busy attempt, and a retry attempt will be scheduled if the busy and no answer retries have not been exhausted. If there is an accompanying SEER, follow the action described in the *Maintenance Messages (SEERs)* guide (NTP 555-7001-510).

- *Outcall Action*   This field indicates the action performed on the request. The possibilities are as follow:

  — *Continue*   This indicates that the validation has been passed, and a call attempt is to be made.

  — *Remove, retry limit reached*   This indicates that, after the call, the retry was not rescheduled because the retry limit had been reached.

  — *Remove*   This indicates that the fax was successfully delivered.

  — *Reset*   This indicates that a problem was encountered retrieving information. Requests will be discarded and recovered from disk.

  — *Delayed 1*   This indicates that a channel on which to call out could not be obtained. Will retry later.

  — *Delayed 2*   This indicates that a channel was obtained, but it was taken away before the call was made. Will retry later.

  — *Defer*   This indicates that another call attempt has been scheduled.

Chapter 13: Customer Administration

This chapter describes how to access the Customer Administration screens. Customer administration screens and tasks are described in the *Customer Administration Guide*.

How to log on

To perform customer administration, you can either

- log on as system administrator. For more information about logging on as system administrator, refer to "For both system and customer administration".

- log on as customer administrator. For more information, refer to "For customer administration only".

For both system and customer administration

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.)

To perform customer administration tasks after logging on as the system administrator, follow the steps outlined in Procedure 13-1.

Procedure 13-1
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 (Figure 13-1). From this screen you can add a new customer group, or modify or delete an existing one.

Figure 13-1
The Customer Administration screen

```
┌─────────────────────────────────────────────────────────────────┐
│                    Customer Administration                        │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│              To display the List of Customers select the         │
│              Find softkey followed by the List softkey.          │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│   _____       │
│                                                                   │
│  Select a softkey >                                               │
│                                                                   │
│    ┌───────┐   ┌───────┐  ┌───────────┐  ┌────────┐  ┌──────┐    │
│    │ Exit  │   │  Add  │  │View/Modify│  │ Delete │  │ Find │    │
│    └───────┘   └───────┘  └───────────┘  └────────┘  └──────┘    │
└─────────────────────────────────────────────────────────────────┘
```
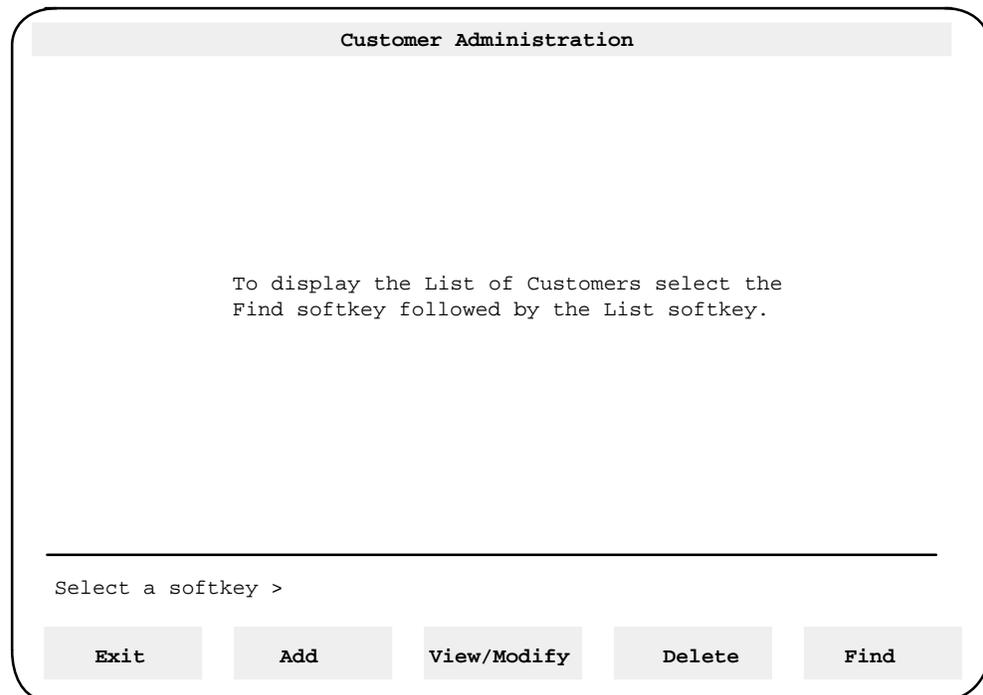
3 To add a customer group, go to step 3a. If you are not sure of the customer number but you need to retrieve a particular customer group in order to view, modify or delete it, go to step 3b. If you need to view or modify an existing customer group and you know the customer number, go to step 3c. If 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: 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.

For customer administration only

If you are only going to perform customer administration tasks, you only need to log on with the customer administration password. (However, you can log on with the system administration password to do customer administration tasks as described in "For both system and customer administration".

To log on for customer administration only:

1 Display the MSM logon screen.

2 Log on with the customer administrator password.

This method is described in the chapter "Administrator logon" in the *Customer Administration Guide*.

Chapter 14: Class of Service Administration

This chapter provides you with the following information:

- an overview of Class of Service administration
- a description of the types of COSs that are available
- how to convert COSs from a previous release
- a description of the system administrator's responsibility regarding the administration of Classes of Service
- a description of the Class of Service softkeys
- the information you need to define Classes of Service
- assigning classes of service to the system and users
- the information you need to view or modify Class of Service definitions
- the information you need to delete a Class of Service.

Note: If you are logged on as a customer administrator or logged on to 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 for the customer administrator and for administrators logged on to MATs, as a reference tool only and to assist you when you are adding users.

Overview

A Class of Service (COS) is a template that contains information about the capabilities that a user has and the values that are assigned to specific parameters. It is essentially a method of classifying users according to their needs. When you add a user to a customer group, you must specify the Class of Service to which he or she belongs.

Before adding users to the system, you should, therefore, carefully consider the user types that you need to represent with COSs. The following examples will give you an idea of the kinds of COSs you can create.

In a business environment, you might only 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.

The COSs that you end up creating will depend entirely on the types of users that you will be adding to the system.

If after you have created your COSs and added users you realize that you need to give a particular group of users some additional capabilities, you only need to change the values in the COS and all of the users that belong to that COS will automatically receive the same updates that have been made. You don't have to change each individual user.

If, at some point in the future, an individual user requests additional functionality (or even reduced functionality) or greater mailbox storage capacity, you can do one of two things: reassign the user to another COS that meets his or her needs, or create a personal COS for that user (if no existing COSs are adequate). Personal COSs are described in more detail in the following section.

ATTENTION

Do not perform user administration during nightly DR audit.

At 3:30 a.m. every day, an audit of the DR directory is performed. Do not perform any user administration (adding, modifying, or deleting users) 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 2 hours (if there have been many changes such as a lot of users being added).

VMUIF customer groups

VMUIF customer groups are suited for environments that require the following:

- 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 users with the Family Mailbox feature

- a DialPulse COS for those users that do not have touch-tone phones

COS types

There are two different types of COS:

- system
- personal

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 multicustomer 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 users 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 users who require capabilities that do not fit in with any existing COS. Mailboxes with a personal COS remain independent of changes made to other COSs.

Keep in mind, however, that as the number of personal COSs increases, the task of maintaining your classes of service and user profiles will become more difficult since all system COSs and personal COSs will have to be maintained.

Converting to COSs from a prior release

When you upgrade to Meridian Mail Release 9 from a prior release, all existing users are assigned to a personal class of service. This means that each user has a "unique" class of service that is not connected to any of the system classes of service. Therefore, users must be reassigned to system classes of service after an upgrade.

There is a class of service conversion utility that is documented in the "COS conversion" chapter in the *System Administration Tools* guide (NTP 557-7001-305). It checks each user's personal class of service, and if it matches an existing system class of service, the user is assigned to that class of service. User mailboxes that do not match a system class of service remain with personal COSs. You can use this utility to view these unassigned mailboxes and then use the utility to either create a system class of service based on the personal COS or assign the unassigned mailbox to a defined system class of service.

For more information about using the conversion utility, refer to *System Administration Tools* (557-7001-305).

Note: Only users that belong to a personal class are affected by this utility. Users that belong to other classes are not affected.

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 users are added to the system since the process of adding customers involves the addition of users which depend on the assignment of existing classes of service.

Once you have defined your COSs, you are ready to assign the defined COSs. This is done in the General Options screen. Once you have assigned COSs, you are ready to add users.

To define and use COSs, you:

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   Log on as customer administrator.

5   From the Main Menu, select Customer Administration.

6   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*.

7   From the Customer Administration Menu, select General Administration, General Options.

    This is described in the chapter "General Administration" in the *Customer Administration Guide*.

8   Assign up to 15 COSs in the General Options screen for each customer group.

9   Return to the Customer Administration Menu and select User Adminis-
tration to add users to customer groups.

Each user must be assigned to one of the system COSs (or a personal
COS can be created). This is described in the chapter "User Administra-
tion" in the *Customer Administration Guide*.

The class of service softkeys

When you select Class of Service Administration, the following screen is displayed:

Figure 14-1
The softkey selection screen

```
                      Class of Service Administration



              To display the List of Classes of Service select
              the Find softkey followed by the List softkey.
```

| Exit | Add | View/Modify | Delete | Find |
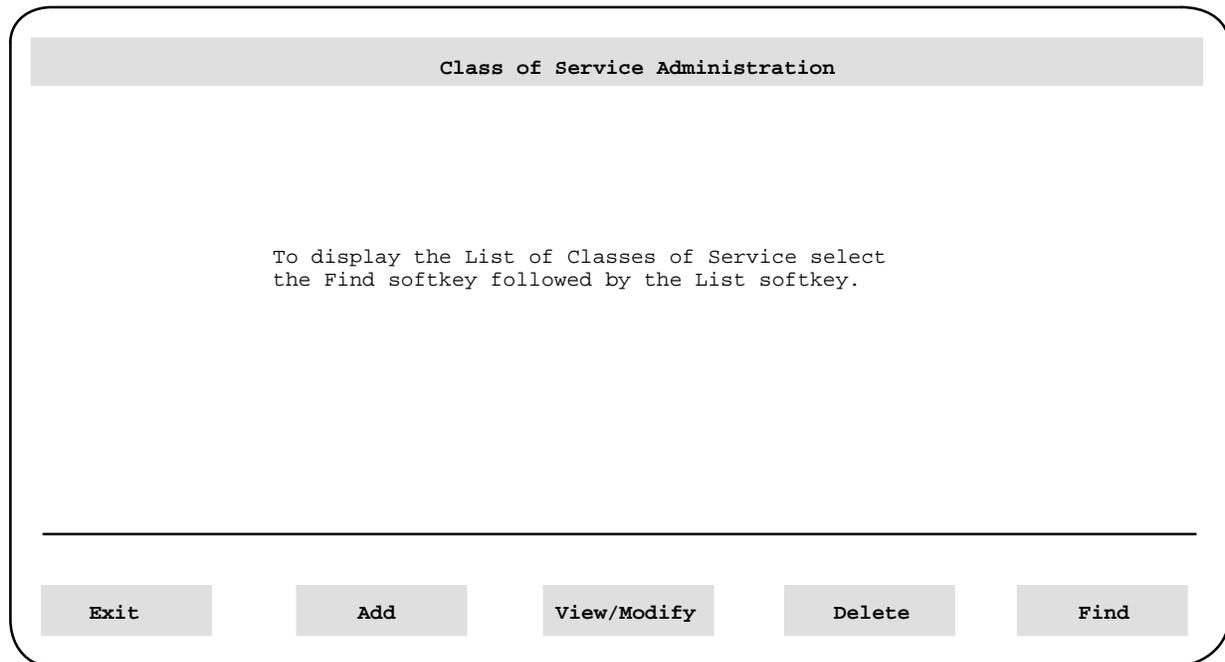
Press:

- the [Exit] softkey to leave Class of Service Administration.
- the [Add] softkey to add a class of service

  For more information about adding classes of service, refer to the next section "Defining classes of service".
- the [View/Modify] softkey to view or modify a class of service

  For more information about viewing or modifying classes of service, refer to the section "Viewing or modifying class of service definitions".
- the [Delete] softkey to delete a class of service

  For more information about deleting classes of service, refer to the section "Deleting classes of service".
- the [Find] softkey to find classes of service

  For more information about finding classes of service, refer to the section "Finding classes of service".

Defining classes of service

When you define a class of service you need to:

- add each COS to the system

- define the basic class of service fields

- define the Outcalling parameters that you need to use as you add each COS

- enable AMIS Open Networking, if desired

- select restriction/permission codes

- assign the class of service to the system

- assign the class of service to a user

Adding classes of service

To add a Class of Service, press the [Add] softkey in the Class of Service softkey screen (Figure 14-1) that is displayed when you select Class of Service Administration from the Main Menu. (Refer to Procedure 14-1 for the steps that you should follow.) You are prompted to enter the COS number as shown in Figure 14-2.

Figure 14-2

The Enter new COS number screen

```
Enter the new COS number > __

   Cancel
```

After a valid COS number is entered (a number between 1 and 127), the Add Class of Service screen (shown in Figure 14-3) is displayed. Procedure 14-1 describes the procedure you need to follow to add a class of service. The new COS will have a set of default values. To change the COS to suit your needs, use the [Change Defaults] softkey described in Procedure 14-1.

Figure 14-3

The Add Class of Service screen

```
                      Class of Service Administration


    Add Class of Service

    Class of Service Number:        1

    Class of Service Name:          Secretary_____

 *  Voice Messaging Interface Type: [MMUI]   VMUIF




    _____

    Select a softkey >

    ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
    │   Save   │   │  Cancel  │   │  Change  │   │          │   │          │
    │          │   │          │   │ Defaults │   │          │   │          │
    └──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
```

* This field is displayed only if VMUIF is installed.

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. Do not use the following characters when entering a name: "+", "_", or "?". This field can be up to 30 characters long.

- *Voice Messaging Interface Type*   The interface type to be used by the users belonging to this COS. Your choices are MMUI and VMUIF. It is suggested that you keep a list of the COSs that you create and their interface types 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 interface type.

Procedure 14-1

Adding a class of service

Starting point: The Main Menu

1   Select Class of Service Administration.

The [Exit], [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   To save the definition at this point with the default values, go to step 5a. To discard the definition, go to step 5b. To continue defining the class of service, go to step 5c.

    a.   Press [Save].

       The information entered so far is saved and you are prompted to add another COS.

    b.   Press [Cancel].

       Any information entered in the Add Class of Service screen is discarded and the class of service softkeys screen is displayed.

    c.   Press [Change Defaults].

       The remainder of the Class of Service screen is displayed. (See Figure 14-4 if the interface type is MMUI or Figure 14-5 if the interface is VMUIF).

Figure 14-4

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

  Broadcast 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 Indication Options:   None  [Any]  Urgent

  External Call-Sender                  Unrestricted  On_Switch  [Local]
  Restriction/Permission Codes:         Long_distance_1  Long_distance_2

  Read Message Retention (days):        0
  ("0" implies that read messages
  are retained until the user
  deletes them manually.)


  ─────────────────────────────────────────────────────── MORE BELOW


    Save              Cancel
```

\# This field is displayed only if VMUIF is installed
* This field is displayed only on multilingual systems.

Figure 14-4 (cont'd)
The Add Class of Service screen (MMUI)

```
                      Class of Service Administration              MORE ABOVE

   Add Class of Service

   Send Messages to External Users:         [No]    Yes

   Retain Copy of Sent Messages:            [No]    Yes

   Delivery to Non-User Capability:         No      [Yes]

*  Delivery to Non-User                     Unrestricted On_Switch [Local]
   Restriction/Permission Codes:            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                      Unrestricted On_Switch [Local]
   Restriction/Permission Codes:            Long_distance_1   Long_distance_2

** Remote Notification Keypad Interface:    [No]    Yes

** Remote Notification Retry Limits and Frequency:
     Busy        Retry Limit:   3_         Retry Interval (hh:mm):   00:05
     No Answer   Retry Limit:   10_        Retry Interval (hh:mm):   00:15
     Answered    Retry Limit:   1_         Retry Interval (hh:mm):   00:05

** 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 Open Network Messages:      [No]    Yes

#  Compose/Send AMIS Open Network Messages: No      [Yes]

#! AMIS Open Network                        Unrestricted On_Switch [Local]
   Restriction/Permission Codes:            Long_distance_1   Long_distance_2

   Extension Dialing                        Unrestricted On_Switch [Local]
   Restriction/Permission Codes:            Long_distance_1   Long_distance_2

   Custom Revert                            Unrestricted On_Switch [Local]
   Restriction/Permission Codes:            Long_distance_1   Long_distance_2



   ─────────────────────────────────────────────────────────────────

     Save              Cancel
```

```
*  These fields are displayed only if Delivery to Non-User Capability is set to "Yes".
** These fields are displayed only if Remote Notification Capability is set to "Yes".
#  These fields are displayed only if AMIS Networking is enabled.
!  This field is displayed only if Compose/Send AMIS Open Network Messages is set to "Yes".
```

Figure 14-5

The Add Class of Service screen (VMUIF)

```
                    Class of Service Administration

   Add Class of Service

   Class of Service Number:              15

   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:            No      [Owner]   Group

   Lockout Duration (hh:mm):             00:00
   (00:00 implies no mailbox reset)

   Broadcast Capability:                 [No]    Yes

   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                  Unrestricted On_Switch [Local]
   Restriction/Permission Codes          Long_distance_1  Long_distance_2

   _____  MORE BELOW


     Save            Cancel
```

\# This field is displayed only if VMUIF is installed.

Figure 14-5 (cont'd)
The Add Class of Service screen (VMUIF)

```
                        Class of Service Administration            MORE ABOVE

   Add Class of Service
   Read Message Retention (days):            0
   ("0" implies that read messages
   are retained until the user
   deletes them manually.)

   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-User Capability:          No      [Yes]

*  Delivery to Non-User                      Unrestricted On_Switch [Local]
   Restriction/Permission Codes:             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                       Unrestricted On_Switch [Local]
   Restriction/Permission Codes:             Long_distance_1  Long_distance_2

** Remote Notification Retry Limits and Frequency:
     Busy        Retry Limit:   3_        Retry Interval (hh:mm):  00:05
     No Answer   Retry Limit:   10        Retry Interval (hh:mm):  00:15
     Answered    Retry Limit:   1_        Retry Interval (hh:mm):  00:05

** 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 Open Network Messages:       [No]    Yes

#  Compose/Send AMIS Open Network Messages:  No      [Yes]

#!AMIS Open Network                          Unrestricted On_Switch [Local]
   Restriction/Permission Codes:             Long_distance_1  Long_distance_2

   Custom Revert                             Unrestricted On_Switch [Local]
   Restriction/Permission Codes:             Long_distance_1  Long_distance_2



        Save              Cancel
```

*   These fields are displayed only if Delivery to Non-User Capability is set to "Yes".
** These fields are displayed only if Remote Notification Capability is set to "Yes".
#   These fields are displayed only if AMIS Networking is enabled.
!   This field is displayed only if Compose/Send AMIS Open Network Messages is set to "Yes".
This field is displayed only if Compose Capability is set to "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 (Figure 14-3). 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, although only the first 10 characters are displayed in the List of Classes of Service screen (Figure 14-10). 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 and is displayed only if VMUIF is enabled.

- *Personal Verification Changeable by User*   (MMUI only.) If this field is set to "No", only the administrator is allowed to record personal verifications for users belonging to the COS. If this field is set to "Yes", users 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 value other than zero in this field means that the submailbox capability is enabled for this COS. The submailbox feature allows a mailbox to be divided into several personal mailboxes, all of which are accessible from a single DN. "0" implies that the submailbox feature is disabled. If enabled, between 1 and 8 submailboxes are permitted. The default is 0.

  If a user requests additional submailboxes (and the total exceeds the maximum number configured here), you will have to reassign the user to another COS that has a sufficient number of submailboxes.

  Note: Once you have entered a value in this field and assigned users to this COS, this field becomes read-only and you cannot change this value. To change this number, contact your Northern Telecom support organization.

- *Voice Storage Limit (minutes)*   The maximum amount of storage available to the user. 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 submailboxes are enabled for this COS, all submailboxes contend for the same storage space.

If a user surpasses this limit, he can still receive incoming calls. The user 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 user has deleted some of his messages, he won't be able to reply to messages or compose messages until he has logged out of Meridian Mail and logged back in again.

- *Maximum Message Length* This value determines the longest possible composed message that a user 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".

  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 user 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*.

  For MMUI classes of service, this field does not control the maximum length of a user's personal greeting. However, a user's internal and external greeting *combined* cannot exceed 7 minutes (07:00). If the internal greeting plus the external greeting together total more than 7 minutes, the last recorded greeting may not be saved, and an error message is issued indicating this.

- *Delayed Prompts* When this field is set to "Yes", the system will prompt users for an action if the user does not initiate any action for 3.5 seconds. It is recommended that this field be set to "Yes" (especially for new users). Once the users 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 users while logged into their own mailboxes.) The language in which prompts are played to users while logged on to Meridian Mail is determined by the user's *Preferred Language* field. See the section "Adding local voice users" in the "User Administration" chapter in the *Customer Administration Guide*. The default is "Yes".

If this field is set to "Yes" and the *Default Language Overrides User's Preferred Language for Call Answering* in the Voice Messaging Options screen is set to "No", callers hear prompts in the user's preferred language, followed by the primary default language. If the primary default language is the same as the user'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 user's preferred language.

- *Dial Pulse Support*   (VMUIF only.) Set this field to "Yes" to create a class of service that supports users with rotary or dial pulse phone sets. This option allows the user 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 user does not need to enter a mailbox number or password to gain access to Meridian Mail. When set to "No" the user 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 users 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", users belonging to this COS will be allowed to record a custom call answering greeting for the system and personal verifications for users 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 users, this field should be set to "No". The default is "No".

- *Broadcast Capability*   Set this field to "Yes" if you want users to be able to compose and send broadcast messages. A broadcast message is sent to all users in the same customer group. The default is "No".

- *Auto Play* (MMUI only.) When this field is set to "Yes", the messages in the user's mailbox are automatically played when the user 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. However, the pound sign (#) can be pressed at any time to end playback.

   When this field is set to "No", the user 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. 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 users can log into their mailbox during or after a call answering session. When this feature is enabled, users have an alternative method of logging in which does not require that they dial a special access DN. Users 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", users are allowed to log into their mailbox only if the destination mailbox is their own. After pressing *, the user is prompted to enter his or her password.

   When this field is set to "Group", the user 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 user is prompted to enter the mailbox number followed by the password. For example, a user who is away from home can call a friend who is a user in the same customer group, leave a message, and then log on to their own mailbox.

   When this field is set to "No", the user will not be allowed to log in from call answering.

   The default is "Owner".

- *Lockout Duration (hh:mm)* (VMUIF only.) When a user'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 user 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 user will be locked out until you decide to reenable 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 user is on the phone. After the prompt is played, the caller is connected to Meridian Mail to leave a message. If the field is set to "No", the caller is simply connected to Meridian Mail and given the chance to leave a message. The default is "Yes".

    Note: If the user'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", users' 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 user. 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 residential customer groups, you might want to set this field to "No" when a user drops the service. You can allow some time to pass so that the user 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 user'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", users' mailboxes will not accept composed messages. The default is "Yes". Setting this field to "No" automatically sets the following fields to "No":

    — *Receive External Messages*

    — *Receive AMIS Open Network Messages*

- *Receive External Messages*   If this field is set to "Yes", a user can receive composed messages from users outside the customer group to which the user 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 user will only be able to receive messages from users 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 user's telephone set. Set this field to "Any" to notify users belonging to this COS of all new messages, "Urgent" to notify users of only those messages tagged as urgent, or "None" if users are not to be notified at all (if, for example, mailboxes do not have telephone sets associated with them). The default is "Any".

  This field should be set to "None" for users that don't have a physical telephone set, but do have a mailbox. For example, a salesperson may only rarely be at the office and does not have a phone as a result, but still requires a number for callers to leave messages.

- *Skip to First New Message*   (VMUIF only.) This field determines what happens when users log on to listen to new messages. If this field is set to "Yes", the first new message is automatically played when a user successfully logs on. If this field is set to "No", users 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 user 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, users can dial the originator of the message automatically if this field is set to "Yes". After listening to a message, the user 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 user has logged on through remote notification.

- *External Call-Sender Restriction/Permission Codes*   When a message is left in a user's mailbox during a call answering session, the External Call Sender feature allows the user to call the sender immediately after listening to the message (by pressing "9").

  Note: This feature only applies to messages left during call answering sessions, not voice messages that have been composed and sent. The Reply To feature applies to voice messages.

You may want to restrict users from using this feature to dial certain long distance DNs (or other specified external DNs). To do so, select the appropriate restriction/permission codes. The four choices that are presented in this screen reflect the four sets of dialing codes that are defined in the Voice Security Options screen. If "Unrestricted" is selected, all dialing codes are permitted since no specific restrictions are applied.

- *Read Message Retention*   This field specifies the number of days that messages are kept in users' mailboxes after they have been read. The value in this field is limited by the value set in the *Maximum Read Message Retention* field in the Voice Messaging Options screen. (See "Voice Messaging Options" in Chapter 9 "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 user. 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 user's read messages are kept.

System Retention Limit	User 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 value other than zero	The user retention limit determines how long messages are kept.
A value other than zero	0 (zero)	The system retention limit determines how long messages are kept.
A value other than zero	A value other than zero	The lesser value is used to determine how long messages are kept.

- *Compose Capability*   (VMUIF only.) Set this field to "Yes" to give users the ability to compose and send voice messages to other users within the same Meridian Mail system. If this value is set to "No", then the user only has call answering capability. If you set this field to "No", the fields *Compose/Send AMIS Open Network Messages* (Figure 14-7), *Delivery to Non-User Capability* (Figure 14-6) and *Send Messages to External Users* are also automatically set to "No". The default is "No".

Note: Once you have assigned users to the COS and put it to use, you cannot modify this field. If you need to revoke compose capability from a particular user, you will have to reassign the user to another COS. Conversely, if a user does not have this capability and later requests it,

you will have to reassign the user to a COS that has compose capability enabled.

- ***Send Messages to External Users***   Set this field to "Yes" to allow users to compose/send messages to users in other customer groups. 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".

  Note: If this field is set to "Yes", mailbox numbers must be unique across customer groups. If a mailbox number is duplicated in a number of customer groups, a message that is addressed to these (duplicated) mailboxes will only be delivered to one of the mailboxes. For example, Mailbox 5000 exists in customer groups B, C and D.. A user in Customer A sends a message to mailbox 5000. Only mailbox 5000 in Customer B (the first one found in the directory) will get the message.

- ***Treatment for Unsent Messages if the User Disconnects during Compose***   (VMUIF only.) This field is displayed only if the *Compose Capability* field is set to "Yes". The selection made in this field determines what happens to an unsent message if a user 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 user's mailbox. When it is set to "No", messages are deleted as soon as they are sent. Carefully consider how many users you can allow to have this capability, since the more users that have this ability, the faster your available storage space will be used up. The default is "No".

  Note: The remaining fields in the Add Class of Service screen are described in the following sections: "Defining Outcalling parameters (Remote Notification and Delivery to Non-Users)" on page 14-22, "Enabling AMIS Open Networking" on page 14-27, and "Selecting restriction/permission codes" on page 14-28.

Creating a class of service for users with dial pulse sets

If you have any users that have dial pulse sets and you have VMUIF customer groups, at least one class of service should be set up to support them. In order to support dial pulse set the following fields as indicated in Table 14-1:

Table 14-1
Fields and settings for COS users with dial pulse sets

Field name	Setting
Dial Pulse Support	"Yes"
Auto Logon	"Yes"
Skip to First New Message	"Yes"
Read Message Retention	Must be a value other than zero so that read messages are automatically deleted on a regular basis (such as every 7 days)

Dial pulse users 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 user logs in from a phone other than his or her own phone, a mailbox and password are required. (The user must, therefore, call in from a phone with touch-tone support.) Once logged on, the mailbox operates as if it was accessed from his or her own phone (no further commands are required). However, if the user 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 user via a remote telephone, pager, or paging service, that there are new messages in his or her mailbox. Delivery to Non-Users allows a user to compose and send messages to non-users of Meridian Mail. A number of RN and DNU parameters are configured in the class of service to which the user belongs. Other RN and DNU parameters are set on a system-wide basis in the Outcalling Options screen which is accessible from the Voice Administration menu.

For more information about configuring outcalling services, see the *Outcalling Application Guide for Multi-Customer Systems* (NTP 555-7001-323).

Outcalling fields

The following fields pertain to the Outcalling feature (Remote Notification and Delivery to Non-Users):

- *Delivery to Non-User Capability*   This field is displayed only if Outcalling is installed. This field determines whether or not users belonging to this COS can compose and send messages to people who are not Meridian Mail users. If this is a VMUIF class of service, this field cannot be set to "Yes" unless the Compose Capability field is set to "Yes". (See page 14-13.) The default is "No".

- *Delivery to Non-User Restriction/Permission Codes*   This field is displayed only if Delivery to Non-User Capability is set to "Yes".

  The selected option determines which dialing codes can and cannot be dialed when a user 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-User Capability is set to "Yes". (See page 14-13.) If a mailbox number is not found in the organization directory and this field is set to "Yes", then the message is sent using DNU. The default is "No".

Figure 14-6
Outcalling fields in the Add Class of Service screen

```
                        Class of Service Administration          MORE ABOVE

   Add Class of Service

   Delivery to Non-User Capability:          [No]    Yes

*  Delivery to Non-User                      Unrestricted  On_Switch  [Local]
   Restriction/Permission Codes:             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                       Unrestricted  On_Switch  [Local]
   Restriction/Permission Codes:             Long_distance_1 Long_distance_2

#! Remote Notification Keypad Interface:     [No]    Yes

#  Remote Notification Retry Limits and Frequency:
     Busy        Retry Limit:   3_          Retry Interval (hh:mm):  00:05
     No Answer   Retry Limit:   10          Retry Interval (hh:mm):  00:15
     Answered    Retry Limit:   1_          Retry Interval (hh:mm):  00:05

#  RN Business Days:        Sunday          [No]    Yes
                            Monday           No    [Yes]
                            Tuesday          No    [Yes]
                            Wednesday        No    [Yes]
                            Thursday         No    [Yes]
                            Friday           No    [Yes]
                            Saturday        [No]    Yes


   ───────────────────────────────────────────────────────────────────

    Save               Cancel
```

! This field is applicable only if the interface type is MMUI.
* These fields appear only if "Delivery to Non-User Capability" is set to "Yes".
# These fields appear only if "Remote Notification Capability" is set to "Yes".

- *DNU DTMF Confirmation Required*   This field is displayed only if
  Delivery to Non-User 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 is displayed only if Outcalling is installed. This field determines whether or not this user 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 DNs in users' 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). "Unrestricted" indicates that all numbers are permitted.

- *Remote Notification Keypad Interface*   (MMUI only.) This field is displayed only if *Remote Notification Capability* is set to "Yes". When this field is set to "Yes", users are able to change their schedules, periods, and target DNs from a telephone keypad. The default is "No".

- *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. For example, if the system attempts to notify a user of a message, but the notification numbers are not answered, the system will stop notification attempts after the *No Answer Retry Limit* has been exhausted for the user. This is considered one retry repeat. If another new message is left for the user, and retry attempts are again exhausted, this would be counted as the second retry repeat. This continues until the maximum number of retry repeats set in this field is reached, at which time Meridian Mail no longer attempts to notify the user of new messages. If a user logs on to the mailbox and retrieves the messages, the counter is reset to "0", and remote notification is reenabled for the user.

   Note: Call Progress Tone Detection (CPTD) can be set to Standard (the default) or France during software installation. The retry limits and intervals will be different (as specified in the following descriptions) depending on this setting. To change this setting from the default value, call your Northern Telecom support organization.

   — *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".

      If more than one target DN is defined in the user's schedule, Meridian Mail 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 amount of time specified as the busy retry interval).

If this limit is exhausted, then the *No Answer Retry Limit* and *No Answer Retry Interval* are used for further instances of busy. Therefore, the total number of allowed retries is actually Busy Retries + No Answer Retries.

Note: If CPTD is set to France, the valid range is 0 to 5 and the default is "1".

— **Busy Retry Interval (hh:mm)**   This field determines how long the MSM will wait before retrying remote notification if the destination number is busy. The valid range is from 00:00 to 23:59. The default is "00:05".

Note: If CPTD is set to France, the valid range is 00:00 to 00:12 and 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".

If more than one target DN is defined in the user's schedule, Meridian Mail will try calling the first target DN. If there is no answer, Meridian Mail immediately tries calling the second target DN. If there is no answer at this DN, Meridian Mail will call the the third target DN (if defined). If it, too, is not answered, the system will wait the amount of time specified as the *No Answer Retry Interval* before retrying remote notification to the first target DN.

If there is a mixture of No Answer and Answer results in a multiple DN scenario, the *Answer Retry Interval* and *Answer Retry Limit* are used.

Note: If CPTD is set to France, the valid range is 0 to 5 and the default is "4".

— **No Answer Interval (hh:mm)**   This field determines how long the MSM will wait before retrying remote notification if the destination number is not answered. The valid range is from 00:00 to 23:59. The default is "00:15".

Note: If CPTD is set to France, the valid range is 00:00 to 00:12 and the default is "00:05".

— **Answered Retry Limit**   The number of times the MSM will retry a remote number when the number is answered but the user 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 cannot be turned off. However, if the MSM is calling a pager you would like the pager to go off periodically to remind the user of calls.

If more than one target DN is defined in the user's schedule, Meridian Mail will try calling the first target DN, if it is answered with no login, Meridian Mail immediately tries calling the second target DN. If it, too, is answered with no login, Meridian Mail will call the third target DN (if defined). If it, too, is answered with no login, the system will wait the amount of time specified as the *Answered Retry Interval* before retrying remote notification to the first target DN.

If there is a mixture of No Answer and Answered results in a multiple DN scenario, the *Answered Retry Interval* and *Answered Retry Limit* are used.

Note: If CPTD is set to France, the valid range is 0 to 5 and the default is "0".

— *Answered Retry Interval (hh:mm)* The length of time the system will wait before retrying a remote number when the destination number is answered but no messages are retrieved. The valid range is from 00:00 to 23:59. The default is "00:05".

Note: If CPTD is set to France, the valid range is 00:00 to 00:12 and the default is "00:05".

- *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 Open Networking

The following fields allow you to enable or disable AMIS Open Networking for the class of service:

- *Receive AMIS Open Network Messages* This field is displayed only if AMIS is enabled. Set this field to "Yes" if you want users to be able to receive messages that are sent from remote AMIS Open Network sites. If this is a VMUIF class of service, this field cannot be set to "Yes" unless *Receive Composed Messages* is first set to "Yes". (See page 14-18.) The default is "No".

Figure 14-7
AMIS Networking fields

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│                     Class of Service Administration          MORE ABOVE   │
│                                                                           │
│    Add Class of Service                                                   │
│                                                                           │
│    Receive AMIS Open Network Messages:              [No]    Yes           │
│                                                                           │
│    Compose/Send AMIS Open Network Messages:         No     [Yes]          │
│  # AMIS Open Network                                 Unrestricted  On_Switch [Local] │
│    Restriction/Permission Codes:                    Long_distance_1  Long_distance_2 │
│   ─────────────────────────────────────────────────────────────────────  │
│                                                                           │
│    ┌────────────┐      ┌────────────┐    ┌────────┐   ┌──────────┐  ┌──────────┐ │
│    │   Save     │      │   Cancel   │    │        │   │          │  │          │ │
│    └────────────┘      └────────────┘    └────────┘   └──────────┘  └──────────┘ │
└─────────────────────────────────────────────────────────────────────────┘
```

This field is displayed only if Compose/Send AMIS Open Network Messages is set to "Yes".

- *Compose/Send AMIS Open Network Messages* This field is displayed only if AMIS is enabled. Set this field to "Yes" to allow users belonging to this COS to compose and send messages to remote AMIS Open Network sites. This field cannot be set to "Yes" unless the *Compose Capability* field is first set to "Yes". (See page 14-20.) The default is "No".

- *AMIS Open Network Restriction/Permission Codes* This field is displayed only if AMIS is installed and the previous field, *Compose/Send AMIS Open Network Messages*, is set to "Yes".

  When a user composes a message to an AMIS site (that is not defined as a virtual node), the system checks to see if the address is restricted. If it is restricted, the user gets a non-delivery notification (NDN). The default is the third restriction/permission set ("Local" if the default name has not been changed). "Unrestricted" indicates that all numbers are permitted.

  Note: If there is Integrated AMIS Networking between the local site and the remote AMIS site, these restriction/permission codes do not apply. If the remote AMIS site is a virtual node and, therefore, part of your Meridian Network, it is assumed that you want local users to be able to send messages without restriction to those sites.

Selecting restriction/permission codes

The following fields are used to apply restriction/permission codes to extension dialing (also known as mailbox thrudial), and custom revert. Note that extension dialing is only available if the interface type is MMUI.

Figure 14-8
Choosing restriction/permission codes

```
                      Class of Service Administration          MORE ABOVE

   Add Class of Service

*+ Extension Dialing                  Unrestricted On_Switch [Local]
   Restriction/Permission Codes:      Long_distance_1 Long_distance_2

 * Custom Revert                      Unrestricted On_Switch [Local]
   Restriction/Permission Codes:      Long_distance_1 Long_distance_2



   ─────────────────────────────────────────────────────────────


     Save              Cancel
```

```
* These fields default to the third restriction/permission set in the list.
+ This field is displayed only if the interface type is MMUI.
```

- *Extension Dialing Restriction/Permission Codes* (MMUI only.) This field indicates which restricted/permitted dialing codes apply when a user dials a phone number while logged on to his mailbox (known as mailbox thru-dialing). For example, a user may dial into her mailbox from outside the office in order to listen to messages. While listening to messages the user realizes that she would like to speak to someone at the office. Instead of logging out and calling back, the user 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 users 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 users 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 users cannot revert callers to long distance numbers.

The actual restriction/permission sets are defined in the Voice Security Options screen (described in the chapter "Voice Administration"). 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 DNs, restrict the dialing codes 0–9 in one of the restriction/permission sets and assign "Custom Revert" to that set. This may be desirable in a university environment in which you want to have a custom revert DN configured for students, but you do not want them to be able to change this DN themselves. When the digits 0–9 are restricted, the administrator is still able to enter a revert DN that will work in the Add or View/Modify Local Voice User screen. 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.)

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 Chapter 8 "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 classes of service to users

Once you have assigned COSs to each customer group, you are ready to add users.

To assign a user to a particular COS, select 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*.

Personal classes of service

If a user has special requirements that are not met by any of the existing COSs, you can create a personal COS that is customized for that user. All personal COSs must be maintained individually since any changes made to a system COS will not affect the personal COSs that exist on the system. If,

for example, it is decided that all users belonging to a particular customer group will be given access to a particular feature, you would have to modify the system COSs that are assigned to that customer group as well as all personal COSs that exist in that customer group. To create a personal COS refer to the section "Creating a personal class of service" in the "User Administration" chapter in the *Customer Administration Guide*.

Viewing or 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).

*Note***:** If you are logged on as a customer administrator at the main administration terminal or logged on at a MAT, the [View] softkey will be displayed instead of the [View/Modify] softkey. You will not be able to modify the COS.

Finding classes 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 14-9) 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.) For more information about using wildcards when finding a class of service, refer to "Using wildcard characters" in the "User Administration" chapter of the *Customer Administration Guide*.

- 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 14-9

The Find Class of Service screen

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│  ┌─────────────────────────────────────────────────────────────────────┐ │
│  │                   Class of Service Administration                   │ │
│  └─────────────────────────────────────────────────────────────────────┘ │
│                                                                           │
│     Find Class of Service                                                 │
│                                                                           │
│     Class of Service Number:         ____                                 │
│                                                                           │
│     Class of Service Name:           _____         │
│                                                                           │
│   * Voice Messaging Interface:       [Any]   MMUI    VMUIF                 │
│                                                                           │
│                                                                           │
│                                                                           │
│                                                                           │
│                                                                           │
│     ──────────────────────────────────────────────────────────────────   │
│                                                                           │
│   ┌─────────┐  ┌─────────┐  ┌─────────┐  ┌─────────┐  ┌─────────┐        │
│   │  Exit   │  │         │  │  List   │  │  Print  │  │         │        │
│   └─────────┘  └─────────┘  └─────────┘  └─────────┘  └─────────┘        │
└─────────────────────────────────────────────────────────────────────────┘
```

* This field is displayed only if VMUIF is installed.

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 14-2 describes how to view a list of existing COSs, and Procedure 14-3 describes how to print a list of COSs.

Procedure 14-2

Viewing a list of COSs

Starting point: The Main Menu.

1 Select Class of Service Administration.

2 Press the [Find] softkey.

The Find Class of Service screen is displayed.

3 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.

4 Press [List].

The List of Classes of Service screen is displayed.

The List of Classes of Service screen

The List of Classes of Service screen displays a list of COSs that match the search criteria specified in the Find Class of Service screen.

Figure 14-10
The List of Classes of Service screen

```
                        Class of Service Administration


 List of Classes of Service

 COS    *COS       #VceMsg   Storage     Retain      #Compose    DNU        AMIS        DualLang
 Num    Name       I/F       (Mins.)     ReadMsg     Msgs        /RN    Receive/Send    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 Stud VMUIF       10         0            No        N/N      No  No
 17     VMUIF Facu VMUIF       10         0            Yes       N/N      No  No



     Exit                            View/Modify        Delete
```

* Only the first 10 characters of the COS name are displayed.

\# These columns are displayed only if VMUIF is installed.

Note: If you are logged on as administrator at a MAT, only the [View] softkey is displayed on the List Classes of Service screen. You will not be able to modify or delete the COS.

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 (not shown if MMUI is chosen on the Find Class of Service screen)

- the maximum amount of storage available

- the number of days that read messages are retained

- whether or not the user is able to compose messages (not shown if MMUI is chosen on the Find Class of Service screen)

- 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.

Procedure 14-3

Printing a list of existing COSs

Starting point: The Main Menu.

1 Select Class of Service Administration.

2 Press the [Find] softkey.

The Find Class of Service screen is displayed.

3 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.

4 Press [Print].

A list of existing COSs that meet the specified search criteria is printed.

Viewing or modifying classes 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 if you are logged on at a MAT, the [View/Modify] 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 14-14.

Procedure 14-4

Viewing and Modifying an existing COS

Starting point: The Main Menu

1   Select Class of Service Administration.

2   Press the [Find] softkey.

The Find Class of Service screen is displayed.

3   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 COSs must match.)

To find those COSs for a particular interface, specify either MMUI or VMUIF.

4   Press [List].

The List of Classes of Service screen is displayed (Figure 14-10).

5   Move the cursor to the definition you want to modify.

6   Press spacebar to select it.

7   Press [View/Modify].

The View/Modify Class of Service screen is displayed. This screen has the same fields as the Add Class of Service screen shown in Figure 14-4 (for MMUI systems) and Figure 14-5 (for VMUIF systems).

8   Make the necessary changes to the COS definition.

9   To save the new COS definition, go to step 9a. To exit the screen without saving your changes, go to step 9b.

  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.

Deleting classes of service

From the List of Classes of Service screen, you can select a particular COS and press the [Delete] softkey to view the entire COS definition.

Note: Before deleting a class of service, reassign those users that refer to the COS. The system will issue an error message if you try to delete a class of service before reassigning the users.

Field descriptions are given in the section "Defining the basic class of service fields", beginning on page 14-14.

Procedure 14-5

Delete a class of service

Starting point: The Main Menu

1 Select Class of Service Administration.

2 Press the [Find] softkey.

 The Find Class of Service screen is displayed.

3 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 COSs must match.)

 To find those COSs for a particular interface, specify either MMUI or VMUIF.

4 Press [List].

 The List of Classes of Service screen is displayed (Figure 14-10).

5 Move the cursor to the definition you want to delete.

6 Press spacebar to select it.

7 Press [Delete].

 The Delete Class of Service screen is displayed.

8 To delete the COS, go to step 8a. To exit the screen without deleting the COS, go to step 8b.

 a. Press [OK to Delete].

 The COS is deleted. If users are assigned to the COS, a warning message is displayed and the COS is not 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.

List of terms

MMP40

The MMP40 processor card

AMIS

Audio Messaging Interchange Specification

Analog

Pertains to representation by means of continuously variable physical quantities.

Batch Change Supplement (BCS)

An SL-100/DMS-100 software release

Call

In the MSM, 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 Meridian Mail MSM network between calling and called party.

Card

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

CDP

Coordinated Dialing Plan

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 Meridian Mail MSM.

Centrex

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)

Consists of multi-layer PCB, through-hole electronic components, backpanel connector, faceplate, lock latches, and stiffeners.

CO

Central office

COS

Class of Service

CPE

Customer Premises equipment

Customer Premises Equipment (CPE)

Refers to equipment, such as the Message Services Module (MSM), that is located on the customer's premises.

Data

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

DID

Direct inward dialing

Directory

> In Meridian Mail, 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

DN

> Directory number

DSP

> Digital Signal Processor

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.

ESN

> Electronic Switched Network

Function

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

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. (36 CCS=1 Erlang.)

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 Meridian Mail MSM 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 MSM business services package that utilizes the data-handling capabilities of a central 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

Line hunting

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

Link

- In the MSM, 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 Meridian Mail 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.

MAT

See Multiple Administration Terminal

Meridian SL-100 PBX

Message Services Module (MSM)

Message Waiting Indicator (MWI)

MMUI

Meridian Mail User Interface

Modem

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

MSM

Message Services Module

Multiple Administration Terminal (MAT)

MWI

See Message Waiting Indicator

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 the Meridian SL-100 switch (or a DMS-100 switch) and an external computer. The MPC provides the SMDI link between the Meridian SL-100 PBX (or DMS-100 switch) and the MSM. The MPC card resides on the input/output controller shelf.

Multi-server Processor (MSP)

A node running multi-server programs on the Message Services Module.

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 Meridian Mail 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 module

The basic building-block of the Meridian Mail 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. In MSM, nodes can be MSP, SPN, or TIFN.

Nortel practice (NTP)

A document that contains descriptive information about the Meridian Mail 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.

NTP

Northern Telecom practice

PBX

Private branch exchange

Port

In the MSM, the point at which a voice, T1, or SMDI link is connected to the system.

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.

Service Order System (SERVORD)

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

SERVORD

Service Order System

Shelf

A container for drawers, cards, or both.

Signal Processing Node (SPN)

A node on the Message Services Module that is used for signal processing.

Simplified message desk interface (SMDI)

An interface feature that enables a PBX/switch 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. For example, calls can be forwarded because a busy signal was received (CFB, call forward busy), or no answer was received (CFN, call forward no answer). 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

SPN

Signal Processing Node

Table

Two-dimensional entities in which data associated with the hardware and software systems of the MSM 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 Message Services 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 MSM, the smallest unit of address space within the input/output system

TIFN

Telephony Interface Node

Transition Module (TM)

A transition module (TM) is a short circuit pack, based on the standard circuit pack that carries the cable interfaces and/or local service functions. These include local clock sources and bus terminations, located on the back of the PBX/switch or MSM shelf.

Translations

Translations is the process the Meridian Mail 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 MSM 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.

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 or UCD positions. This feature is used to queue incoming calls to the message desk.

VMUIF
> *See* Voice Messaging User Interface Forum

Voice Messaging User Interface Forum
> The interface provided by MSM that complies with the industry standard Voice Messaging User Interface Forum specification.

Voice Processor card
> A twelve-port card that is used in the Message Services Module for voice processing.

VP12
> Voice Processor card

VSDN Table
> Voice Services-DN Table

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**Reader's Response Form
for:**

Message Services Module
System Administration Guide for Multi-Customer Systems,
557-7001-300,
August 1995

Tell us about yourself:

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_____

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Reader's Response Form

Meridian Mail

Message Services Module

System Administration Guide for Multi-Customer
Systems

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