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DMS Family and SL-100

Meridian Mail
General Description

Product release 10.0 Standard 1.0 August 1995

NORTEL

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DMS Family and SL-100

Meridian Mail

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April 1995

This manual is released as Standard 1.0. This version documents the latest issue of release 9.5 Meridian Mail product information for the DMS Family and SL-100. This edition makes all previous editions obsolete.

March 1994

This manual is released as Standard. This version documents the latest issue of release 9 Meridian Mail product information for the DMS Family and SL-100. This edition makes all previous editions obsolete.

April 1993

This manual, "General Description" was released as Standard for Release 8 of Meridian Mail for DMS-10, DMS-100, and SL-100 systems.

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About this document

This document describes the features and capabilities, software, and hardware of Meridian Mail for DMS-10, DMS-100, SL-100, and other specific vendor switches and PBXs. This document has four parts:

- Chapter 1, "Meridian Mail product overview," describes the features and functions available to a user of Meridian Mail systems.
- Chapter 2, "Maintenance and administration," describes the features and functions related to the maintenance and administration of Meridian Mail.
- Chapter 3, "Configurations," provides an overview of the physical components and structure of Modular Option GP systems. Modular Option GP systems can be connected to the DMS or SL-100 systems.
- Chapter 4, "Technical specifications," provides details on specific capacities and parameters of Meridian Mail software and hardware.
- The "List of terms" provides definitions for abbreviations used throughout this manual.
- The "Index" provides another way to locate information in this manual.

This document is general in nature. Documents listed in the *Meridian Mail NTP Contents Overview* (NTP 555-7001-000) contain detailed information on specific topics.

Document numbers may vary depending on the hardware configuration. Consult the *NTP Contents Overview* for details when a reference to an NTP number contains an "x" in place of a digit.

Chapter 1: Meridian Mail product overview

General Description

Meridian Mail Modular Option GP is a Voice Messaging system available for customer premise installation in organizations using any one of the following:

- SL-100 switching equipment
- selected models of ROLM, AT&T, or NEC private branch exchanges (PBXs)
- Centrex services from DMS-100, AT&T #5 ESS, and AT&T #1 AESS central office switches

The Modular Option GP is also designed for Northern Telecom (Nortel) central offices (DMS-10 or DMS-100) that want to provide Voice Messaging services to their business and residential subscribers.

The standard single-customer business voice mail provides the full array of features and options provided to Meridian Mail customers using either the MMUI or a VMUIF compatible interface. A multi-customer system can be configured with both MMUI and VMUIF; however, each customer group must use either MMUI or VMUIF.

The MMUI interface is a full-featured Nortel proprietary command-driven voice mail interface primarily designed for business users. Meridian VMUIF is an optional menu-driven interface similar to MMUI which is primarily designed for users with dual-tone multi-frequency (touch tone) telephone sets. This interface is designed for small business services to provide either a full-featured Voice Messaging system or only Call Answering and message retrieval. VMUIF is well suited for large campus environments such as universities and hospitals.

The optional Multi-Customer feature allows a single Meridian Mail system to support multiple user communities known as customers. For example, one system could support both Centrex user groups and small business groups.

Basic features

Each Meridian Mail user is assigned a private voice mailbox number which is set up by the administrator. Users log on to their mailboxes using a password which they create themselves. Using simple commands on their telephones, users can compose and listen to voice messages and perform general messaging functions such as replying to, forwarding, or deleting messages.

Meridian Mail can be integrated with the call-processing capabilities of your switching system to provide messaging features such as Call Answering and Voice Messaging. Call Answering prompts callers to leave messages when there is no answer or the extension is busy; Voice Messaging allows users to compose messages to, and receive composed messages from other Meridian Mail users.

In all its applications, Meridian Mail provides recorded prompts to guide the inexperienced user. These prompts remind the user of available functions and provide instructions suited for novices. The system detects delays in user input and supplies additional information to assist the hesitant user.

Optional features

Meridian Mail offers a number of unique, easy-to-use, optional voice services which can be added to the basic Voice Messaging functions. This includes Meridian Mail Networking, Remote Notification, Voice Forms (which allows a caller to fill out a 'form' over the telephone), Fax on Demand, and Automated Attendants. An automated attendant function might be used to answer external calls and prompt the callers to dial the desired extension number. Optional services can be tailored to the needs of Meridian Mail users.

Administration

Meridian Mail is administered through a simple, menu-driven administration interface available at a terminal or personal computer (PC). Using the administration menus, the administrator performs the initial configuration of the Meridian Mail system, maintains the user information base, creates voice applications such as announcements and Voice Menus, and monitors system usage and performance. The administrator also uses the menus to perform routine maintenance on the system.

If you have a Multi-Customer system, administrative tasks can be distributed among several administrators. For example, a system administrator would be responsible for setting up both the Meridian Mail system and customer groups to meet specific requirements and preferences. To maintain the customers on the system, a customer administrator may then be assigned to each customer or a group of customers.

Configurations

Meridian Mail Modular Option GP uses the Simplified Message Desk Interface (SMDI) protocol to communicate call-related information. It travels over the data link between Meridian Mail and the following switches:

- DMS-10
- DMS-100
- Meridian SL-100
- AT&T # 1 AESS
- AT&T #5 ESS
- non-Nortel PBXs

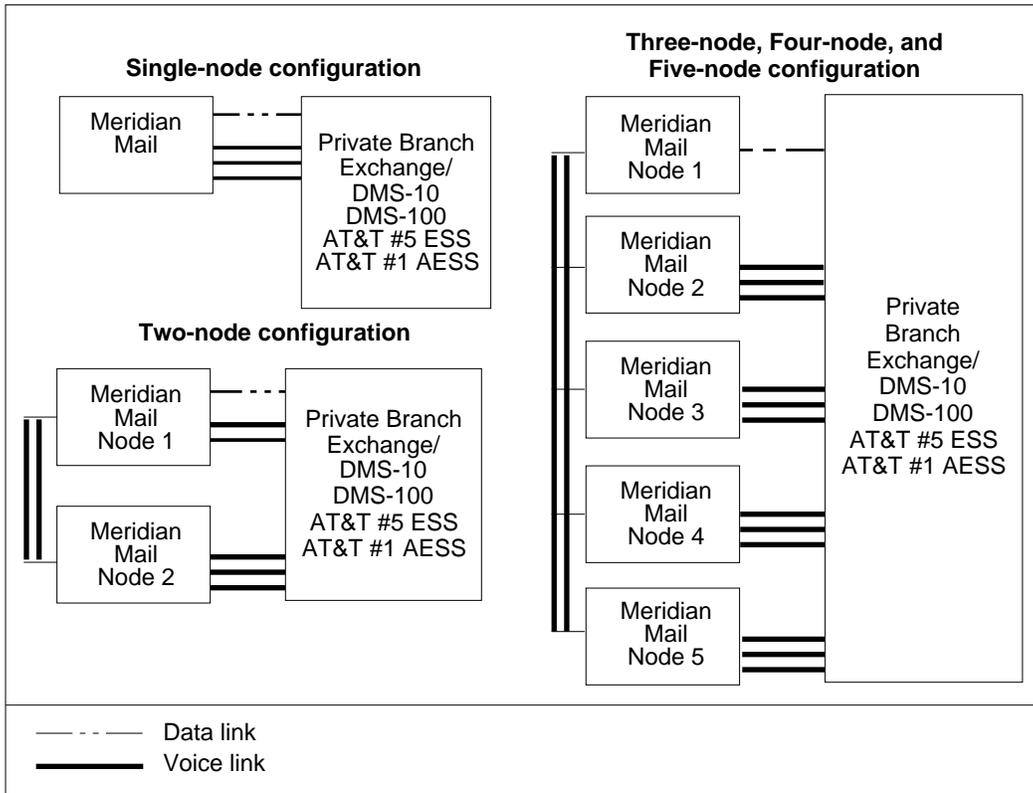
Meridian Mail voice ports are provisioned in increments of four ports. Larger configurations are achieved by adding more nodes, each node supporting up to sixteen voice ports, depending on the configuration. The smallest Meridian Mail configuration is a single-node, eight-channel system; the largest configuration is a 5-node, 64-channel system. See Figure 1-1 for an illustration of Meridian Mail configurations.

1-4 Meridian Mail product overview

For DMS-10, calls to voice services are distributed to the available Meridian Mail voice ports through the functions of a Multi-Line Hunt Group (MLHG). For DMS-100 and SL-100 systems, calls to voice services are distributed to the available Meridian Mail voice ports through the functions of a Uniform Call Distribution (UCD) group.

With the addition of the VoiceBridge PBX integration unit, the Meridian Mail Modular Option GP system can be used with selected models of AT&T, ROLM, and NEC PBXs. For these non-Nortel PBXs, calls to voice services are distributed to available Meridian Mail voice ports through the function of the VoiceBridge.

Figure 1-1
Meridian Mail configurations



Other PBXs and Central Office switches

Meridian Mail is primarily designed to connect to Nortel switching equipment through the SMDI link. However, it is possible to connect Meridian Mail to a wide range of other switches. The Meridian Connections feature enables Meridian Mail to connect to selected models of AT&T, ROLM, and NEC PBXs through the SMDI protocol. Call-related information is exchanged as if connected to a DMS-100 switch. In cases where SMDI protocols are not supported on the switch, Meridian Mail systems can be connected through voice ports and used for Interactive Voice Response (IVR) and Automated Attendant applications.

The Meridian Mail system can also connect to AT&T #5 ESS and AT&T #1 AESS in a CPE Centrex configuration. In this case, the customer owns the Meridian Mail system (that is, it is located on the customer's premises) but uses a Centrex service provided by the telephone company or service provider.

Meridian Mail requires a data link with the PBX or central office switch in order to exchange call-related information with the PBX or DMS and thereby increase the amount of information that can be given to Voice Messaging users regarding the originators and recipients of messages.

Meridian Connections

Meridian Connections enables Meridian Mail to connect to non-Nortel PBXs. Integration is provided by a VoiceBridge PBX integration unit.

Through digital set emulation on the AT&T or ROLM PBX, the VoiceBridge provides the calling and called party information to Meridian Mail by means of the SMDI protocol. The VoiceBridge enables the PBX to emulate a Centrex switch and Meridian Mail operates in exactly the same manner as if the PBX supports SMDI protocol. See Figure 1-2.

The PBX models that are supported are as follows:

- AT&T
- System 75 series PBX (R1V1 or greater software)
 - System 85 series PBX (R2V1 or greater software)
 - Definity series PBX (G1V1 or greater software)

1-6 Meridian Mail product overview

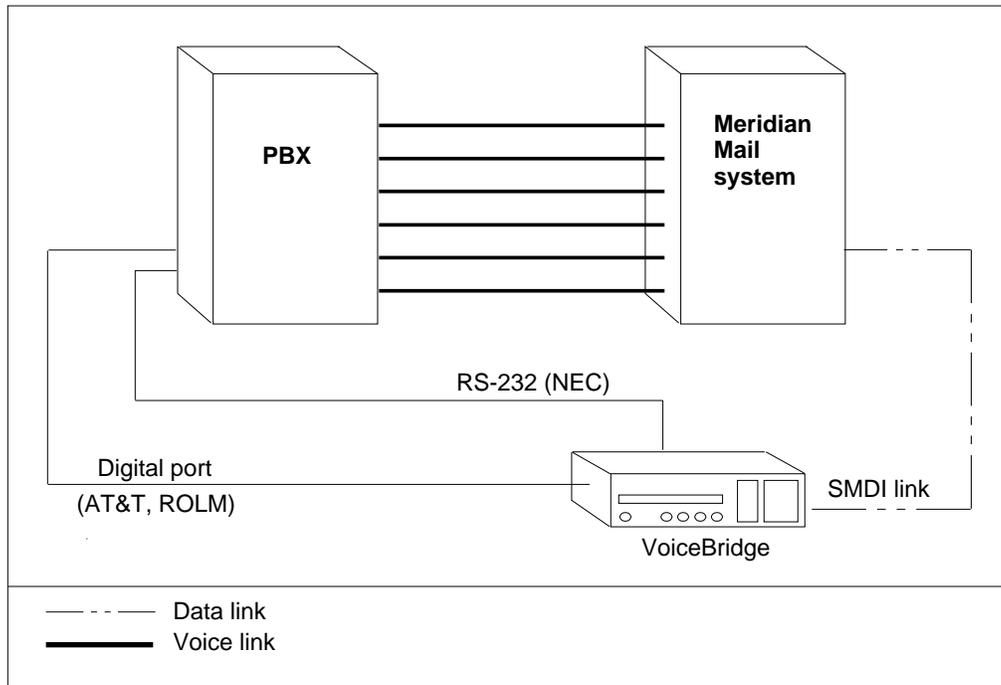
- ROLM
- 8000 CBX (version 8003 or greater)
 - 9000 CBX
 - 9751 BCS (models 10, 40, 50, and 70)

On the NEC PBX, the VoiceBridge makes use of the Message Center Interface and converts call-related information into SMDI protocol to communicate with Meridian Mail.

The NEAX 2400 PBX with message center interface models that are supported are as follows:

- models MMG and UMG with 4200 or greater software
- models SIM and IMG with 200 or greater software

Figure 1-2
Meridian Connections configurations



Basic voice services

MMUI and VMUIF offer two basic voice services: Voice Messaging and Call Answering. VMUIF can be set up to provide both services, or to provide only Call Answering.

Call Answering

This service is integrated with the call-forwarding features of the switching equipment (Call Forwarding on Busy or No-Answer). This feature allows a user's mailbox to function much like an answering machine. Callers are able to leave messages for users who are away from their desks or on the phone. A greeting (recorded in the user's voice) is played and the caller is prompted to leave a message after the tone.

When new messages have been received, the user is notified by one of the following two methods, depending on how the system has been configured.

- The message waiting indicator (MWI) on the telephone set lights up.
- The user receives an interrupted dial tone when picking up the receiver.

The user can retrieve and listen to these new messages.

Voice Messaging

Voice Messaging is a fast, reliable, and efficient method of communication that uses straightforward, easy to remember commands to control the range of features offered. The administrator provides each user of Voice Messaging with a private voice "mailbox". The user then logs on to the mailbox using a password.

Note: For VMUIF, passwords are not required for users who are logging in from their own telephone sets.

Voice Messaging using MMUI also includes Express Messaging through which any caller (not necessarily a Meridian Mail user) can

- send a message directly to a Meridian Mail user without having to log on to Meridian Mail
- use Voice Messaging commands to compose and send a message

Note: If networking is installed, Express Messaging cannot be used to send a message to a user at a remote site.

A set of simple commands lets the user perform even sophisticated messaging activities quite easily. Context-sensitive prompts offer guidance at every step. The Help service, accessed by pressing one key, supplements the prompts if the user desires, and speeds the learning process at the same time.

Features common to both MMUI and VMUIF

Descriptions of the features that are common to both MMUI and VMUIF follow. Additional features that are unique to MMUI and VMUIF (touch tone [DTMF] sets) are described as follows:

- MMUI on page 1-12
- VMUIF
 - touch tone sets on page 1-17
 - dial pulse sets on page 1-19

Mailbox Class of Service

Mailbox Class of Service (COS) provides an effective method of local user administration. Each user is assigned a class of service. The administrator maintains the COSs. This provides a quick and simple method of determining the mailbox properties for groups of users (for example, for billing purposes).

Mailbox password

You must create your own password to ensure the privacy of your mailbox. The administrator sets a minimum and maximum password length and expiration date. You can change your password whenever you wish.

Password expiry warning is a reminder from the system that your password is nearing its expiry date. It is time to change your password.

Mailbox access

You can access your private mailbox to retrieve messages, record a greeting, or create a password. You are notified that you have a message waiting by a flashing indicator or, if your set does not have this feature, by an intermittent dial tone.

Logon allows users to access their mailboxes from their own or a remote phone. Once logged on, the user is informed of any new, unread, and urgent messages in the mailbox. Messages are announced in order of arrival.

On MMUI systems, the user is also informed of messages that have been created but not yet sent. These are announced in order of creation.

The user can play any message as it is announced or, on MMUI systems, skip to another message. On VMUIF systems, the user cannot skip a message, but must specify whether to keep it, delete it, or save it as new (unread).

Autologin allows users to log on to Meridian Mail from their own telephones without entering a mailbox number and password. On MMUI systems, this feature must be enabled by the administrator.

Logon from Call Answering allows a user to log on to his or her own mailbox without hanging up after leaving a message at another user's mailbox.

Access security (incorrect logon) locks the mailbox if too many logon attempts are made using an incorrect password. The mailbox is locked until the administrator restores access privileges.

Logoff disconnects you from Meridian Mail Voice Messaging.

Greetings to callers

Personal greeting allows users to create customized personal greetings for callers reaching their mailboxes through Call Answering. On MMUI, greetings can be personalized for both internal and external callers. The greeting can be changed as frequently as required.

Default greeting is a system greeting that is played if the user chooses not to record a personal greeting.

Personal verification (spoken name) allows users to record their names. This personal verification then replaces the mailbox number in system prompts dealing with the user's mailbox.

Custom system greeting This enhanced option informs callers, prior to hearing your greeting, that they have reached Meridian Mail.

Busy greeting This enhanced option informs callers that you are presently on the phone.

Options for callers

Skip to record allows frequent callers to skip over a user's mailbox greeting and proceed directly to recording a message.

Message receive

Remote Notification allows users to receive notification of messages at remote telephone or pager numbers.

Note: This feature may not be available in all areas outside North America.

Message playback

Mailbox summary delivers, after login, a count of messages as follows:

- MMUI number of new messages and how many are urgent.
- VMUIF number of messages in the mailbox and how many are new.

Play begins or resumes playback of a received or composed message, spoken name, or greeting.

Delete removes a message from the user's mailbox.

Restore retrieves a message that is deleted during the current session.

Skip forward moves ahead five seconds in the message and then resumes playback.

Skip backward moves back five seconds in the message and then resumes playback.

Full mailbox notification prompts users to delete messages when their mailboxes are almost full.

If a VMUIF subscriber's mailbox is full, callers are unable to leave messages.

Autodelete allows the system to delete messages automatically after they have been in users mailboxes for a specified length of time.

Message send

Record allows a user to start recording a message.

For existing messages on MMUI systems, the record function can be used repeatedly to add to, or edit, the message already recorded before sending it. On VMUIF systems, messages cannot be edited; they must be recorded again.

Compose allows users to compose messages to, and receive composed messages from, other Meridian Mail users. Receiving a composed message is different from receiving a regular message.

The message can be edited during or after composition and can be addressed to other mailboxes, to a distribution list, and to external numbers.

Note: If the message is to only one person, you can use the Express Message feature instead (see page 1-14).

Personal Distribution List allows a user to create a personal distribution list of other users on the Meridian Mail system. A user can create up to nine personal distribution lists containing up to 99 mailbox numbers each.

On MMUI, numbers for Meridian Mail remote users on Meridian Mail Networking and Virtual Node AMIS can be included in personal distribution lists. Refer to the section entitled "AMIS Networking" later in this section for a description of an AMIS virtual node.

On VMUIF, personal distribution lists can contain external numbers or mailbox numbers for local users and AMIS Networking.

System Distribution List allows the system administrator to create organizational distribution lists containing 120 mailboxes each. System distribution lists can contain only mailbox numbers for local users or remote users on Meridian Networking or Virtual Node AMIS.

Broadcast Message allows the system administrator, or other user authorized by the system administrator, to send a message simultaneously to all user mailboxes in the system.

Acknowledgement request informs the sender of a message as to when the message was played by the recipient. For AMIS Network users, the acknowledgement only indicates that the remote site has received the message. There is no guarantee that the message has been played.

Send allows users to send the outgoing message to addressees.

Non-delivery Notification informs the sender that a message could not be delivered.

Delivery to Non-Users (optional) allows users to compose and send messages to telephone numbers that are not part of a Meridian Mail system or network. When the "non-user" receives the message, Meridian Mail instructs that user on how to listen to the message and how to send a reply.

Note: This feature may not be available in all areas outside North America.

Help

The Help service provides you or the caller with context-sensitive information and prompts. The user is told how to complete or cancel the current operation.

AMIS Networking

AMIS Networking allows networking among non-Meridian Mail users without having to predefine any of the remote sites. This type of networking is available with either MMUI or VMUIF. A message can be addressed to any user by means of a direct dial system access number plus a unique mailbox identifier.

If a system is equipped with both Meridian Mail Networking and AMIS Networking, an AMIS site can be set up as a virtual node in a proprietary network. Users at a Meridian Mail site are then able to address a message to those at an AMIS site using the same addressing scheme as for proprietary (that is, Meridian Mail) networking.

Features unique to MMUI

Voice Messaging is a fast, reliable, and efficient method of communication that uses straightforward, easy-to-remember commands to control the range of features offered. The administrator provides each user of Voice Messaging with a private voice "mailbox." The user then logs on to the mailbox using a password.

A set of simple commands lets the user perform even sophisticated messaging activities quite easily. Context-sensitive prompts offer guidance at every step. The Help service, accessed by pressing one key, supplements the prompts if the user desires, and speeds the learning process at the same time. The following is a summary of the MMUI Voice Messaging features. For more information on using these features, see the *Voice Messaging User Guide* (P0741311).

Greetings to callers

Greetings-to-caller features include the basic features described on page 1-9.

Revert to Attendant allows the service provider to designate an alternate answering position. The alternate number may also have a voice mail greeting.

Custom Optional Revert allows an individual subscriber to designate an alternate answering position to which callers can transfer.

Options for callers

Caller option features include the basic features described on page 1-10.

Rerecord/edit Your caller can rerecord or edit the message before hanging up.

Message playback

Message playback features include the basic features described on page 1-10.

Play envelope plays back the name or mailbox number of the sender and any other summary information about the message (for example, a message classified as Urgent or Private). This information is called the envelope.

Call identification in header allows, within a subscriber group, the name of the caller, either prerecorded or the spoken name, to be incorporated into the message header. See "Spoken name" in the "Greetings to callers" section.

Forward allows users to forward an existing message to one or more users.

Next message allows a user to advance to the next message in the mailbox.

Autoplay This enhanced option plays your messages automatically in sequence as soon as you log on. Autoplay can be used with Autologin to allow a totally "handsfree" message retrieval. Autoplay is either enabled or disabled in the class of service (COS) assigned to the user.

Previous message allows a user to move back to the previous message in the mailbox.

Go to allows a user to move directly to a specified message in the mailbox. This allows the user to listen to a message of particular interest.

Message reply

Reply features can be used within the same customer group.

Call Sender automatically initiates a telephone call to the sender of the message the user has just listened to. Using Call Sender, the recipient of a message can return a call immediately, without looking up or dialing the sender's number, by pressing a single number on the key pad.

Reply allows a user to reply automatically to the sender of a message without entering the sender's mailbox number.

Reply all allows a user to reply automatically to the sender and all other recipients of a message.

Message send

Send features can be used within the same customer group. They include the basic features described on page 1-11.

Name Addressing allows users to address messages by name instead of mailbox number. This feature can be used when addressing an individual message, when using Express Messaging, and when adding individuals to a personal distribution list.

Message classification classifies a message by priority as Urgent, Standard, or Economy (for delivery over the network). An Urgent message is announced when a user logs on. Urgent and Standard messages are sent within a maximum time after their submission. Economy messages are sent at a specific time of day, usually during off-hours.

A message can also be designated as Private. A private message cannot be forwarded by the recipient to any other user.

Timed Delivery allows a user to specify a time for message delivery. When the user issues the Send command, the message is retained by Meridian Mail until the specified time.

Express Messaging allows a user to leave a message in another user's mailbox without having to

- log on to Meridian Mail to compose and send the message
- call the person directly (that is, ring the person's phone)

A special Express Messaging number is defined by the administrator. To use Express Messaging a user dials the Express Messaging number and enters the mailbox number of the person for whom he or she wants to leave a message. The user is then prompted to leave a message. Callers can also be transferred to Express Messaging to leave messages in mailboxes.

Note: If networking is installed, 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.

Dialing options

Thru-Dial allows a user to place a telephone call while logged into Meridian Mail. This alleviates the inconvenience of logging off to place a call. Thru-dial can also be used with the name dialing feature.

Name Dialing allows a user to place a call by entering the person's name instead of the extension number. This is particularly useful for automated attendant applications.

Dual language prompting (optional)

This is an MMUI feature intended for multilingual systems. It allows certain system prompts to be played first in one language and then in a second language. This is especially useful in areas where a substantial percentage of the population is bilingual. For example, in many parts of Canada it is essential that basic system prompts be repeated in both English and Canadian French.

The administrator selects the first and second languages. The prompts that are affected by this feature are prompts that are heard by

- users during mailbox logon
- external callers during Call Answering sessions
- callers during Express Messaging sessions

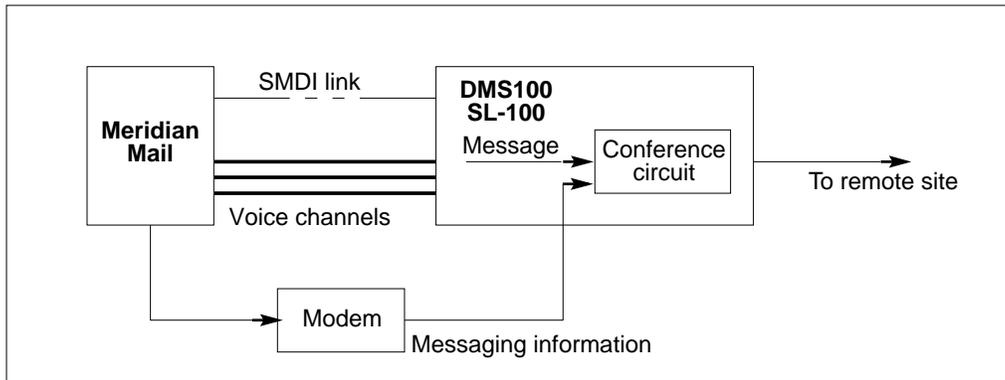
Meridian Mail Networking

Meridian Mail Networking is available between Meridian Mail systems using MMUI. A Meridian Mail network can link up to 49 Meridian Mail sites through the long distance network, Direct Distance Dialing (DDD), tie lines, or digital trunks.

Note: Single node systems require an RSM card for the Networking feature to be installed.

Networking allows Meridian Mail users to send and receive voice messages, to reply to voice messages, and to forward voice messages to users located at other Meridian Mail sites using the same commands as they would for users on their own system. Networking connections are established automatically by Meridian Mail through modems connected to the system. Meridian Mail uses the modems in conjunction with conferencing circuits on the switch to communicate the message and messaging information to the remote networking site (see Figure 1-3).

Figure 1-3
Meridian Mail Networking overview



Features unique to VMUIF

VMUIF Voice Messaging is designed specifically for the Central Office that wishes to offer either full-featured Voice Messaging or only Call Answering and message retrieval functionality to small business or residential subscribers. Call Answering subscribers do not have access to Voice Messaging functions; they cannot compose and send voice messages.

Single-line small business or residential subscribers with touch tone (DTMF) capability, have access to all the basic features with some enhanced options. A special, simplified Call Answering interface is available for households with dial pulse capability.

Subscribers with DTMF capability can access their private mailbox to retrieve messages, record a greeting, or create a password. They can be notified that they have a message waiting by a flashing indicator or intermittent dial tone on their telephone set, depending on the capabilities of the supporting switch and telephone.

Features available to users with touch tone sets

The Voice Messaging features described below are available for users with touch tone (DTMF) telephone sets. Users with dial pulse sets can only use the Call Answering and message retrieval functions listed on page 1-19.

Descriptions of the features available to VMUIF DTMF telephone sets follow.

Mailbox password

If you wish to access your mailbox from a remote phone, you must create your own password. You can change your password whenever you wish. Your system administrator sets a minimum and maximum password length and an expiration date. Password features include the basic features described on page 1-8.

Optional password allows residential subscribers, who intend to access their mailboxes exclusively from their home phones, to choose not to create a password.

Mailbox access

Mailbox access features include the basic features described on page 1-8.

Logon greeting welcomes users to Meridian Mail when they log on to their mailboxes.

Introductory tutorial presents first-time login users with an introductory tutorial that explains how to record a greeting and how to create a password. Users can listen to the tutorial by selecting the appropriate menu options.

Call Answering only mailbox means that a mailbox is set up to receive but not to send messages. In this case, compose is turned off in the class of service (COS) assigned to the user.

Send only mailbox means that a user's mailbox is set up to send but not to receive messages. In this case, Call Answering is turned off in the COS assigned to the user.

Family mailboxes allows a user to log on to a main mailbox plus up to eight submailboxes from their own or a remote phone. The user accesses the mailbox by dialing the system access number and entering their personal password for their submailbox.

Family mailbox is either enabled or disabled in the COS assigned to you. If enabled, the number of allowed submailboxes is also determined by the COS. However, the owner of the main mailbox is responsible for setting up and administering the number of submailboxes once the administrator has specified the number of submailboxes that can be created.

Disable lockout automatically resets a user who has been locked out due to a number of unsuccessful login attempts. The reset occurs after the time period specified by the administrator in the COS assigned to the user.

Lockout revert automatically transfers a user who has been locked out due to a number of unsuccessful login attempts to a DN specified by the administrator in the user's COS.

Message playback

Message playback features include the basic features described on page 1-10.

Save as new allows users to retain read messages as "unread" or "new." These messages are identified as new messages when users log in again.

Volume control allows users to control the volume of messages during playback at any time. Four volume levels may be set. The volume level remains in effect until it is changed. If the volume level is changed when the playback is paused or has finished, the user hears a verification of the change.

Message send

Send features can be used within the same customer group. They include the basic features described on page 1-11.

Send on disconnect automatically sends a message to the addressed mailboxes when the user hangs up before actually sending a composed message. This function must be enabled in the user's COS; otherwise, the composed message is deleted when the user hangs up.

User interface

The user interface is compatible with both MMUI and VMUIF. It supports full type-ahead with proper handling of error messages. All prompts (except for error messages) can be interrupted or preempted.

Call Answering features for users with dial pulse sets

A special, simplified Call Answering interface is available for households with dial pulse capability. Because you do not have a phone keypad to enter commands, much of the interface is system automated. You do not require a mailbox number, password, or greeting.

The following are the only features available to dial pulse sets:

Autologin means that, for dial pulse set users, mailbox numbers or passwords are not required in order to log in.

Autoplay means that Message Summary and Message Playback follow automatically after Autologin. Messages are played in sequence with new messages first. Each message plays immediately after its announcement header.

No user commands are available; the user may hang up at any time or wait until the system terminates the session.

Autodelete operates automatically to delete all played messages, usually overnight.

Personal greeting allows a user to record a personalized greeting. To do this, the user must call a Greeting change number. If the user does not record a personal greeting, the default system greeting is played.

DTMF access means that if a dial pulse set user calls from other than his/her household phone to access the mailbox, the system requires a mailbox number and password. However, the system still operates as if it was accessed from a household phone (that is, it does not require the user to enter any commands).

If a DTMF command is received, the call reverts to the standard DTMF user interface. This means that the subscriber can take control of the call session by pressing any key after successful login. This allows the subscriber to perform the following functions on each message:

- replay
- keep
- delete
- save as new
- go to next message

International language capability

Meridian Mail can be configured to support several languages other than English. Meridian Mail may be set up to provide different language prompts for different groups of users on the same system.

Alternate language capabilities include

Arabic	German	Russian
Cantonese	German (Austrian)	Spanish
Czechoslovakian	Hungarian	• European
Danish	Icelandic	• Latin American
Dutch	Italian	Swedish
English	Japanese	Turkish
• American	Japanese (INTEC)	
• Female European	Korean	
• Male European	Mandarin (PRC)	
• New Zealand	Mandarin (Taiwan)	
Finnish	Norwegian	
French	Polish	
• Canadian	Portuguese	
• European	Portuguese (Brazilian)	

Note: Please check with your representative for specific prompt availability.

Optional multimedia services

Meridian Mail offers the following optional voice services:

- Voice Forms
- Voice Menu applications
- Fax on Demand

Voice Forms

Voice Forms are applications, created by the administrator, that allow Meridian Mail users to collect voice information from callers over the telephone. A series of questions is played to a caller who responds to each question in sequential order. In responding to the questions, the caller is essentially filling out a form over the telephone.

Once the information is collected, it is retrieved and can be transcribed to suit a user's individual requirements.

Voice Menu applications

Voice Menu applications are call-processing applications, created by the administrator, that allow callers to listen to recorded information, leave messages for specific users, or place calls. Any number of Voice Menu applications can be created, each with a unique directory number which the user can dial to gain access to the application. These applications use Voice Menus which can be linked into a hierarchy. Each Voice Menu offers a maximum of 12 actions to the user, one for each key on the telephone keypad.

Fax on Demand

"Fax on Demand" is a full-service option which allows administrators to create and users to retrieve fax information directly using a fax phone, or select fax items from a Voice Menu. Fax information can be sent to the caller on the same call (via the fax phone), or the caller may be prompted for a callback number to send the fax a short time later.

Other optional services

Multi-Customer

Multi-Customer is an optional feature that allows a single Meridian Mail system to be divided into multiple customer groups. Calls received from other customer groups on the same system are treated as external calls. Users within a particular customer group are prevented from composing messages to users outside their own customer group (unless they are using AMIS Networking).

Customer groups are administered separately and may have customized values for

- available features
- default attendant revert DN
- broadcast DN

- maximum voice file size and retention limits
- security and access controls
- system greeting and default language

Voice Menu applications such as announcements, Voice Menus, Thru-Dial services, and Voice Forms (if installed) are specific to a customer group. You cannot create an application that applies to more than one customer.

Note 1: Some operational measurements are generated at the system level whereas others occur at the customer level. Traffic reports are generated at the system level only. Since users are assigned to particular customer groups, user usage reports are generated at the customer level.

Note 2: Meridian Networking can only be enabled for one of your customer groups. AMIS Networking, on the other hand, can be enabled for all customers if desired.

Multiple administration terminals

This feature allows you to configure up to three multiple administration terminals (MATs) in addition to the main administration terminal. The main terminal can be used for performing all aspects of Meridian Mail administration, whereas the secondary MATs can only be used for user administration, voice services administration, and viewing mailbox class of service.

Up to four administrators can simultaneously log on to perform administration tasks. The only restriction is that no two administrators can work on the same user profile at the same time. If an administrator tries to access a user profile while another administrator is already logged on to the same profile, only the first administrator to access that profile will have modify and save privileges.

Disk-to-disk backup

In multi-node configurations, disk space can be allocated for the disk-to-disk backup function. This optional feature permits the backup of system data onto another disk drive and simplifies the task of daily backups. Disk-to-disk backups are done by the administrator and are designed to alleviate the need for frequent backups to tape. Backups to tape should still be carried out periodically for added security.

Disk Shadowing

With Disk Shadowing, disks are added to Meridian Mail in pairs. As data is written to disk, both drives in a pair are updated simultaneously in real-time. If one of the drives in a pair fails or needs to be repaired, it can be removed from service without loss of data or interruption of service. Once the faulty disk is replaced or repaired, it must be synchronized with the functioning disk so that the disks are once again mirror images of each other.

Multi-SMDI

This feature allows a Meridian Mail system to support up to 12 SMDI links allowing a number of similar or different switches to be supported. As a result, several switches can share the message processing capabilities of the same Meridian Mail system.

Note: The number of SMDI links available depends on the number of nodes in the system.

Meridian Mail and other computers

Meridian Mail Reporter

AdminPlus (for DOS) on the PC has been replaced by Meridian Mail Reporter. If you are currently using AdminPlus and are converting to Meridian Mail Release 10.0, you must do the following:

- Convert your AdminPlus (for DOS) application on the PC to Meridian Mail Reporter.
- Do a feature expansion after conversion in order to enable AdminPlus and redefine the AdminPlus dataports. (Meridian Mail will drop the AdminPlus feature during conversion. The AdminPlus feature on Meridian Mail must be re-enabled in order to use Meridian Mail Reporter.)

Note: Meridian Mail Reporter can communicate with releases of Meridian Mail prior to Release 10.0.

Meridian Mail Reporter on the PC is connected to the system through the PC and Meridian Mail (RSM card) RS-232 communication ports. It provides file download capabilities through which billing records are received from the Meridian Mail system. These records can be processed on the PC using any popular spreadsheet, reporting, or accounting program (such as Lotus 1-2-3 or dBASE III). This feature provides added flexibility to customers requiring detailed accounting and billing for users of Meridian Mail.

Meridian ACCESS

Meridian ACCESS (Release 3) is available for development of specialty applications. These applications include Interactive Voice Response (IVR) and VISIT Messenger (a desktop messaging system) which require specific development jointly defined between Nortel and its customers.

In previous releases of Meridian Mail, only one ACCESS link could be configured on nodes 1 and 3. Now, more than one ACCESS link can be configured on

- RSM and utility cards of node 1
- MMP40 cards of voice nodes

This means that on 1- or 2-node systems, Meridian Mail Reporter can be run at the same time as other ACCESS applications.

ACCESS links can now run at higher speeds, up to 38 400 bps on a single node. The higher speed provides the increased throughput that is necessary for supporting the demands of new applications such as desktop messaging.

Applications developed with ACCESS Release 3 are no longer required to acquire a voice channel to communicate with the customer calling into, or being called by the application service. For example, VISIT Messenger enables a user to view messages received on a PC screen. A telephone call (using a voice channel) is not required to perform this task.

There are five categories of ACCESS applications:

- ***Inbound applications*** These are applications that provide a service to callers who dial in either from an internal telephone (an extension on the PBX), or from an external telephone (a pay phone or home telephone). The service to which the caller dials in is usually an IVR service such as
 - product ordering (airline tickets, catalogue purchases)
 - educational registration (college and university courses)
 - product information (audio catalogues or inventories)
 - telephone surveys (audio questionnaires)
 - telephone banking (account balances, transfers)VISIT Messenger is another example of an inbound application; the caller can access the VISIT Messenger FAX subsystem in order to print a fax message.
- ***Outbound applications*** These are applications that call internal or external telephone numbers. The application asks Meridian Mail to initiate an outgoing call and provides a service (IVR or call processing function) to a customer. Examples of outbound applications include telemarketing operations and paging services.
- ***Transactional messaging applications*** These types of applications combine the characteristics of both inbound and outbound applications. Users typically call into the service and leave messages in mailboxes (inbound). Subsequently, the application schedules a call to either a free agent or to the customer.
- ***Administrative applications*** These types of applications do not take incoming calls or place outgoing calls. An example of this type of application is electronic mail notification. Meridian ACCESS can be used to send summaries of voice messages to a host computer, receive notification of text messages, or turn on Message Waiting Indication at a telephone set. Paging services is another type of administrative application that is supported by Meridian ACCESS.

- ***Desktop messaging applications*** The key focus of these types of applications (such as VISIT Messenger) is to export Meridian Mail Voice Messaging capabilities to the user's desktop. This includes support for displaying and maintaining lists of voice messages, and support for Voice Messaging functions such as play, compose, and send. The desktop application places calls to the user when needed for playing or composing messages. The application does not need to answer calls and, in many cases, does not require a voice channel.

Chapter 2: Maintenance and administration

System maintenance

Meridian Mail has comprehensive maintenance facilities including

- automatic diagnostic reports
- diagnostics identifying fault conditions
- automatic system recovery from faults
- system courtesy down to ensure that no calls or messages are disrupted as the system is taken out of service
- remote maintenance access
- system backup to protect system data

System maintenance covers two broad areas: automatic maintenance and diagnostics, and maintenance by human intervention.

Automatic maintenance and diagnostics

Automatic maintenance includes system diagnostics at the card level, reloading and reinitializing channels on a per-channel basis when necessary, initializing other programs fundamental to system operation, and monitoring all system events and errors. Events and errors are tracked and reported by System Error and Event Reports (SEERs). These can either be viewed on the administration terminal screen or printed out.

Maintenance by human intervention

The following two facilities are available for system maintenance:

- General system administration
- Tools and utilities

General system administration

Daily maintenance of the system is performed through menu-driven screens at the administration terminal. Daily maintenance involves backing up system data onto a tape or to another disk drive; setting and maintaining the system statistics and configuration; monitoring SEERs; and reporting any system faults, as detailed in the SEERs, to a craftsperson.

Tools and utilities

Technical maintenance of the system is performed by the administrator or a technical craftsperson, either on-site or through remote terminal access. Technical maintenance involves testing voice functions and prompts, maintaining files, freeing disk space, and testing and changing cards when necessary. The technical craftsperson uses lower-level facilities than the administrator.

System administration

The Meridian Mail system is designed to make the daily administration of the system simple and straightforward. Administrative activities are carried out through easy-to-use menus from two possible types of devices:

- multiple administration terminals
- local ASCII terminals
- remote ASCII terminals

Multiple Administration Terminals

If you have the Multiple Administration Terminals feature installed, you can have up to four administration terminals: one main administration terminal and three secondary terminals. The primary terminal can be used for performing all aspects of Meridian Mail administration whereas the secondary terminals can only be used for user administration, voice services administration, and viewing mailbox class of service. These secondary terminals are referred to as multiple administration terminals (MATs).

Up to four administrators can simultaneously log on to perform administration tasks. The only restriction is that no two administrators can work on the same user profile or voice service at the same time. If an administrator tries to access a user profile while another administrator is already working with the same profile, only the first administrator to access that profile will have modify and save privileges.

ASCII terminals

The administration terminal (also used for system maintenance) can be an NT220, HP700/22, HP700/32, VT220, VT320, VT420, or VT520 terminal.

Remote administration

A remote administration terminal can be connected to the Meridian Mail system through a modem. Compatible modems are

- Ven-Tel EC2400 Plus II
- Ven-Tel 9600plus
- UDS 2440

The following connection options are available:

- The modem can be connected to the same line as the local terminal and switched through an A/B switch box.
- The modem can also be connected to an RS-232 communications port on Meridian Mail Reporter.

Printers

A printer can be connected to the auxiliary printer port on the administration terminal. System Event and Error Reports (SEERs) and operational measurement reports are directed to this printer. A second printer can also be connected to a spare serial port on the Meridian Mail system if the printing of SEERs needs to be dedicated to one printer.

Administrator functions

The Meridian Mail administrator sets up the initial system configuration (normally a once-only operation) and performs some daily procedures needed for effective operation of the system. These procedures are performed either through the telephone or the administration terminal. Some procedures may need to be carried out frequently, perhaps daily, others only occasionally. The following are typical tasks for the administrator:

At the telephone

- **Custom system greeting** This involves the recording of the system greeting.
- **Broadcast messages** This task sends broadcast messages throughout the organization.
- **Voice prompt maintenance** This involves the routine recording of prompts, announcements, and greetings used in voice services.
- **Personal Verification recordings** This adds a personal verification recording to a user's profile.

At the Meridian Mail Administration Terminal

If the Multi-Customer feature is installed, some of the following tasks are performed at the system administration level whereas others are performed at the customer administration level:

- **User administration** This maintains a current information base of users, the Class of Service (COS) list, and system distribution lists. User administration also involves adding, changing, or deleting voice mail boxes.

Note 1: User administration can also be performed on a multiple administration terminal (MAT) if the Multiple Administration Terminal feature is installed.

Note 2: If the Multi-Customer feature is installed, user administration is performed at the customer administration level only since users are associated with a particular customer group.

- **Class of Service (COS)** This 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, or customer group, to the system, you must specify the Class of Service to which the individual belongs. This method of classifying users replaces the user models method used in releases older than Meridian Mail Release 9.0.

All new systems are installed without any COSs defined. It is, therefore, up to the system administrator to define the COSs initially. The task of defining COSs can be done before or after the addition of customer groups. It is, however, recommended that this be done before any customers are added to the system since the process of provisioning customer groups involves adding users who must be assigned to an existing class of service.

Note: Meridian Mail classes of service are not the same as Classes of Service (COSs) or Network Classes of Service (NCOSs) on the switch. Classes of service replace user models which were used in releases older than Meridian Mail Release 9.0.

For more information on how to use COS on Meridian Mail to set up users and their mailboxes, see the chapter entitled "Class of service administration" in one of the following NTPs (according to your system configuration)

- *System Administration Guide* (NTP 555-7001-301)
 - *System Administration Guide for Multi-Customer Systems* (NTP 555-7001-302)
 - *Customer Administration Guide for Multi-Customer Systems* (NTP 555-7001-303)
- **General administration** This sets general system parameters, and backing up system data from the hard disk onto tape, or onto another disk drive (with the disk to disk backup option).

In a Multi-Customer system, the general administration functions are split up between the system administrator and the customer administrator. The General Options screen appears at both levels; however, they contain different parameters. Volume administration (backup) is performed at the system administration level.

- **Voice administration** This configures voice services, assigns phone numbers to voice services, and sets operational parameters and security for voice services. Voice administration also allows the administrator to create and maintain Voice Menu applications. The administration of Remote Notification is also done through the Voice Services Administration.

Each channel is designated as having either "basic" or "full service" capability (depending on your purchased configuration). Basic channels can only be used for Voice Menus or IVR applications, announcements, prompt maintenance, Thru-Dial, and time-of-day control.

Voice administration is also divided between system administration and customer administration in a Multi-Customer system. Most of voice administration is done at the customer administration level. Here you can access the Voice Messaging Options screen, the Voice Security Options screen, the VSDN table, and the Outcalling Administration screen, and create voice menu applications and voice form applications (if installed).

At the system administration level, you can also access the Voice Security Options screen, the Voice Services Administration screen, and the Outcalling Administration screen (although they appear different from the screens at the customer administration level). You can modify voice menu applications (you cannot create them). You cannot do any voice form administration as system administrator. Voice form applications are created and maintained by the customer administrator.

- **Hardware administration** This is used for obtaining general system configuration information.
In a Multi-Customer system, hardware administration is only accessible to the system administrator.
- **System status and maintenance** This task views the operational status of the system and the activity of the different hardware components. You can access the Channel Allocation Table, including dedicating voice channels to a particular service, only when logged on as the system administrator.

In a Multi-Customer system, system status and maintenance are accessible only to the system administrator.

- **Operational measurements (OM)** This task obtains system and user usage statistics sorted by users, events and errors, message traffic, disk space, and other criteria.

In a Multi-Customer system, the system administrator can access all traffic reports. When logged on as customer administrator, you can only access user usage reports.

- **Networking administration** This defines and administers the networking component of the system. The administrator is responsible for the local site's view of the network. Responsibilities include
 - local site administration, through which the basic networking parameters of the local site are specified
 - remote site administration, through which the connection parameters from the local site to selected remote sites are specified.

In some installations, one administrator may be designated to maintain the networking parameters of several sites using dial-up access to these sites.

In a Multi-Customer system, Meridian Networking can only be enabled for one customer group, and administration is carried out at the customer administration level.

If AMIS Networking is installed, Networking administration also involves administration of the AMIS service. AMIS can be enabled for as many customer groups as needed and is administered at the system administration level and the customer administration level on a Multi-Customer system.

2-8 Maintenance and administration

Chapter 3: Configurations

A Meridian Mail Modular Option GP system can be connected to a DMS-100, DMS-10, Meridian SL-100, and selected models of non-Nortel PBXs, as well as AT&T #1 AESS and AT&T #5 ESS, through a Simplified Message Desk Interface (SMDI) link. The hardware components, such as circuit cards, disk drives, and tape drives are described in this chapter, as well as the methods of connection to the PBX or DMS.

Circuit cards and subsystems

The Meridian Mail hardware packaging is assembled from printed circuit pack (PCP) cards which are housed in a card cage. Each card cage holds up to eight cards. Along with one or two hard disks, each cage constitutes a Meridian Mail node and is equipped with the following cards:

- MMP40 board with 16 Mbyte of RAM
- High Availability Bus Controller (HABC), if in a multi-node configuration
- one or more voice processor cards
- RS-232 Service Module (RSM) card (optional)

Node 1 in each system has a tape drive.

MMP40

The MMP40 (Meridian Mail Processor 40) has a 24-Mhz 68040 processor, 16 Mbyte of RAM (expandable to 64 Mbyte), a SCSI interface processor, and two RS-232 serial ports. MMP40 handles all voice-related functions and the data link to the PBX.

High-availability bus controller

The High-availability bus controller (HABC) card provides 2 Mbyte of RAM storage for programs and data, and circuitry that allows interconnection of nodes in multi-node configurations through an external bus (DVS bus).

Voice Processor

Each voice processor card provides four voice channels. Each card has two digital signal processors (DSPs) that provide voice compression and digital tone receiver (DTR)/automatic gain control (AGC) functions. The voice channel interfaces to the PBX or DMS through analog loop pairs. The voice processor card is a 32K general-purpose signal processor (GSP) card.

RS-232 Service Module

The RS-232 Service Module (RSM) card provides four RS-232 serial ports, a battery-backup clock, and two alarm relays. The ports connect to networking and remote administration modems, terminals, and printers.

Disk drive

The disk drive assemblies are 5-1/4 inch (offering 300 or 600 Mbytes of storage), or 3-1/2 inch (offering 300 Mbytes, 600 Mbytes or 1.0 Gbyte of storage capacity).

Tape drive

The tape drive assembly is a Tandberg TDC4220 unit which uses tapes capable of storing up to 2.5 Gbytes.

Note: If you are converting from a previous release of Meridian Mail to Release 10.0 or greater, you can still use your Archive Corporation Viper unit and DC6150 or DC6250 tapes. You do not have to upgrade to the Tandberg tape drive unit at this time.

If you choose to upgrade to the Tandberg tape drive, the drive will read Archive tapes if a system restore is required during conversion. The Tandberg drive will read tapes containing voice prompts, and full and partial backups.

Please note that some downtime will be required when upgrading to the Tandberg tape drive.

Disk shadowing

Disk shadowing requires two hard disks for each node that is shadowed. In the event of a disk failure on one of the disks, the second disk, if enabled, automatically assumes full functionality of the system. This provides protection against both the loss of data which can occur on a non-disk shadowed system, and costly system down time.

When the replacement disk drive is installed, the system automatically copies over all stored messages from the old disk to the new disk. When both disks are enabled, write operations are directed to both disks, and read operations alternate between disks.

Terminal interface

The link to the administration/maintenance terminal is an asynchronous 2400 bps RS-232 port on the MMP40 or RSM card. Multiple administration terminals may be connected to RSM card ports.

If you wish, you can change the terminal link speed on the MMP40 card to 9600 bps. If you change the speed, then you must ensure that the MMP40 card is labelled with the "9600 bps" sticker provided with the system.

A brief overview of how you can change the speed follows.

Table 3-1
Changing the terminal link (console port) speed

If you are	then do the following:
installing Meridian Mail for the first time	<ol style="list-style-type: none"> 1 Run the Console Port Speed Utility on the installation tape and change the speed on the MMP40 card to 9600 bps. 2 Set the terminal to 9600 bps (by using the Modify Data Port screen on the Modify Hardware Utility from the Tools menu). 3 Program the remote access modem to run at 9600 bps. 4 Apply the 9600 bps sticker to the MMP40 card. 5 Proceed with the installation.
-continued-	

Table 3-1 (continued)
Changing the terminal link (console port) speed

If you are	then do the following:
converting to Meridian Mail Release 10.0 from a previous release	<ol style="list-style-type: none">1 Run the conversion with the terminal and modem set at 2400 bps (the default).2 Run the Console Port Speed Utility on the installation tape, and change the speed on the MMP40 card to 9600 bps.3 Set the terminal speed to 9600 bps (by using the Modify Data Port screen on the Modify Hardware Utility from the Tools menu).4 Program the remote access modem to run at 9600 bps.5 Apply the 9600 bps sticker to the MMP40 card.6 Reboot the system into service.
-end-	

Note: You can use the Console Port Speed Utility at any time to change or reset the terminal link speed on the MMP40 card. Don't forget to

- change the speed on both the terminal and modem
- apply or remove the 9600 bps sticker

Remote access modem

The following modems allow remote access to Meridian Mail by authorized maintenance personnel:

- Ven-Tel EC2400 Plus II with the MNP/X.PC feature
- Ven-Tel 9600plus
- UDS 2440
- other equivalent modem

Networking modems

Ven-Tel EC2400 Plus II modems with the MNP/X.PC feature are required for networking. They are connected to the RS-232 ports on the RSM card and allow Meridian Mail to establish and receive calls from remote Meridian Mail sites.

Disk-to-disk backup options

In multi-node configurations, disk space can be allocated for the disk-to-disk backup function. This optional feature permits the backup of system data onto another disk drive and simplifies the task of daily backups. Disk-to-disk backups are done by the administrator and are designed to alleviate the need for frequent backups to tape. Backups to tape should still be carried out periodically for added security.

It should be noted that if disk-to-disk back-up is implemented, there is a slight reduction in voice storage capacity.

Additional features available

The Meridian Connections feature is available on the Meridian Mail Modular Option GP with the addition of the Voicebridge PBX integration unit. The VoiceBridge enables Meridian Mail to communicate with selected models of non-Nortel PBXs in a manner that emulates SMDI protocol.

Data links

SMDI links

The link to the DMS-10, DMS-100, SL-100, and other central offices switches (for example, AT&T #1 AESS and AT&T #5 ESS) is known as Simplified Message Desk Interface (SMDI). This link is a 1200 or 2400 bps asynchronous RS-232 connection. It is interfaced to the I/O card on the switch (SL-100 and DMS-100: 1X89BA or 1X89BB; DMS-10: NT3T80BA, Dual SMDI Pack) by one of the two ports on the MMP40 card.

Multiple switches can be connected to a single Meridian Mail system, or a single switch can support a number of Meridian Mail systems. See Figure 3-4.

ACCESS links

Multiple ACCESS links are supported on a single node. With multiple links, if there are two serial ports available for ACCESS links, a single node Meridian Mail system could have, for example, VISIT Messenger and Meridian IVR running at the same time.

ACCESS links can be configured on voice nodes only. The total aggregate ACCESS link speed cannot exceed 38 400 bps.

Meridian Mail Reporter link

The Meridian Mail Reporter link is a 9600 bps asynchronous RS-232 connection to Meridian Mail Reporter by one of the two ports on the MMP40 card or one of the four ports on the node 1 RSM card.

Configuration

The Modular Option GP (see Figure 3-1) hardware platform consists of one or more Universal Equipment Modules (UEMs), each housing one Meridian Mail node. The Meridian Mail Modular Option GP system can be configured with up to five nodes. Each node contains an MMP40 (68040) processor card.

Figure 3-1
Meridian Mail Modular Option GP

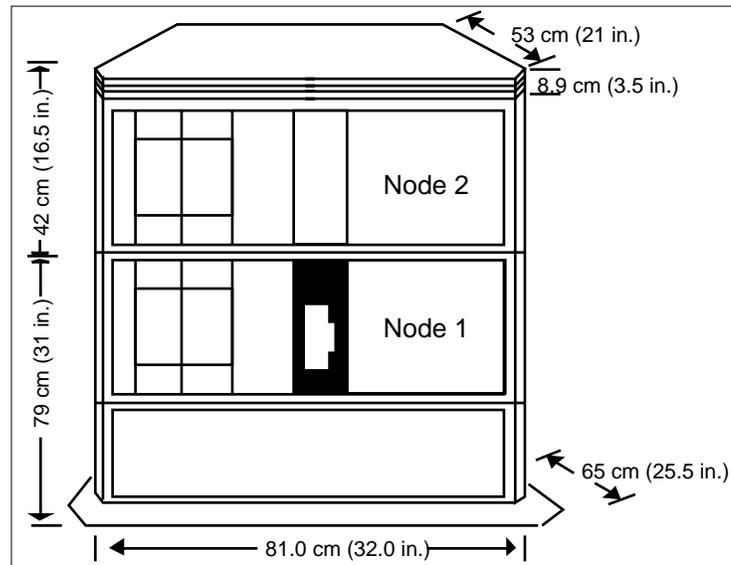
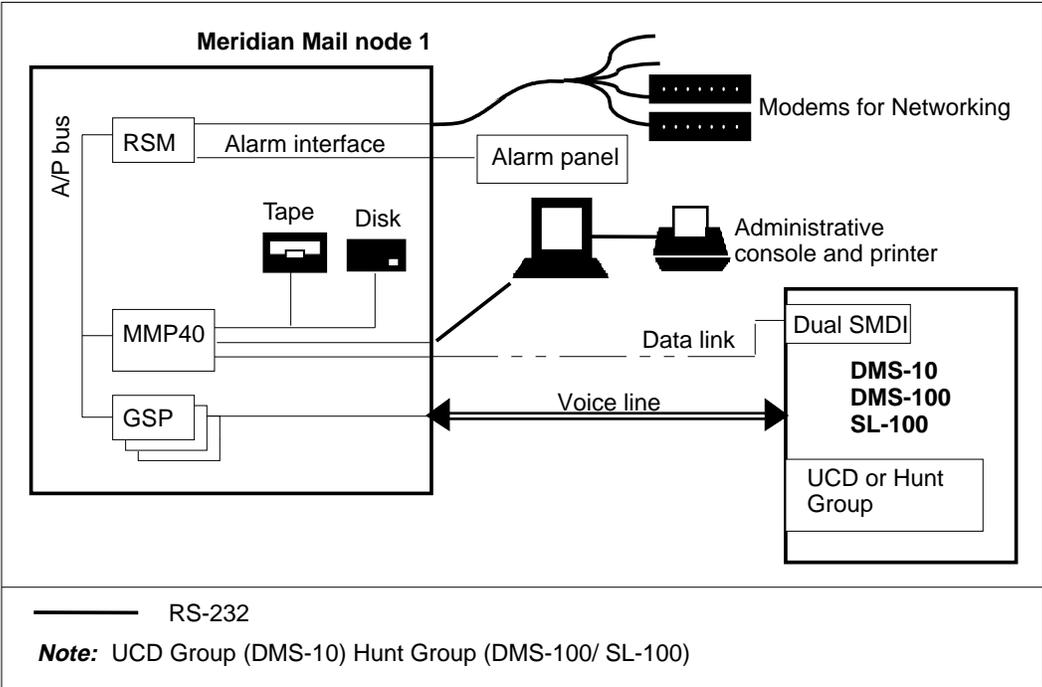


Figure 3-2 shows the interconnections of circuit cards and subsystems for single-node configurations.

Figure 3-2
Meridian Mail Modular Option GP schematic diagram (single-node)



Figures 3-3 and 3-4 show the interconnections in multi-node systems. The various connection options for administrative terminals and printers are not shown in these illustrations.

Figure 3-3
Meridian Mail Modular Option GP schematic diagram (multi-node)

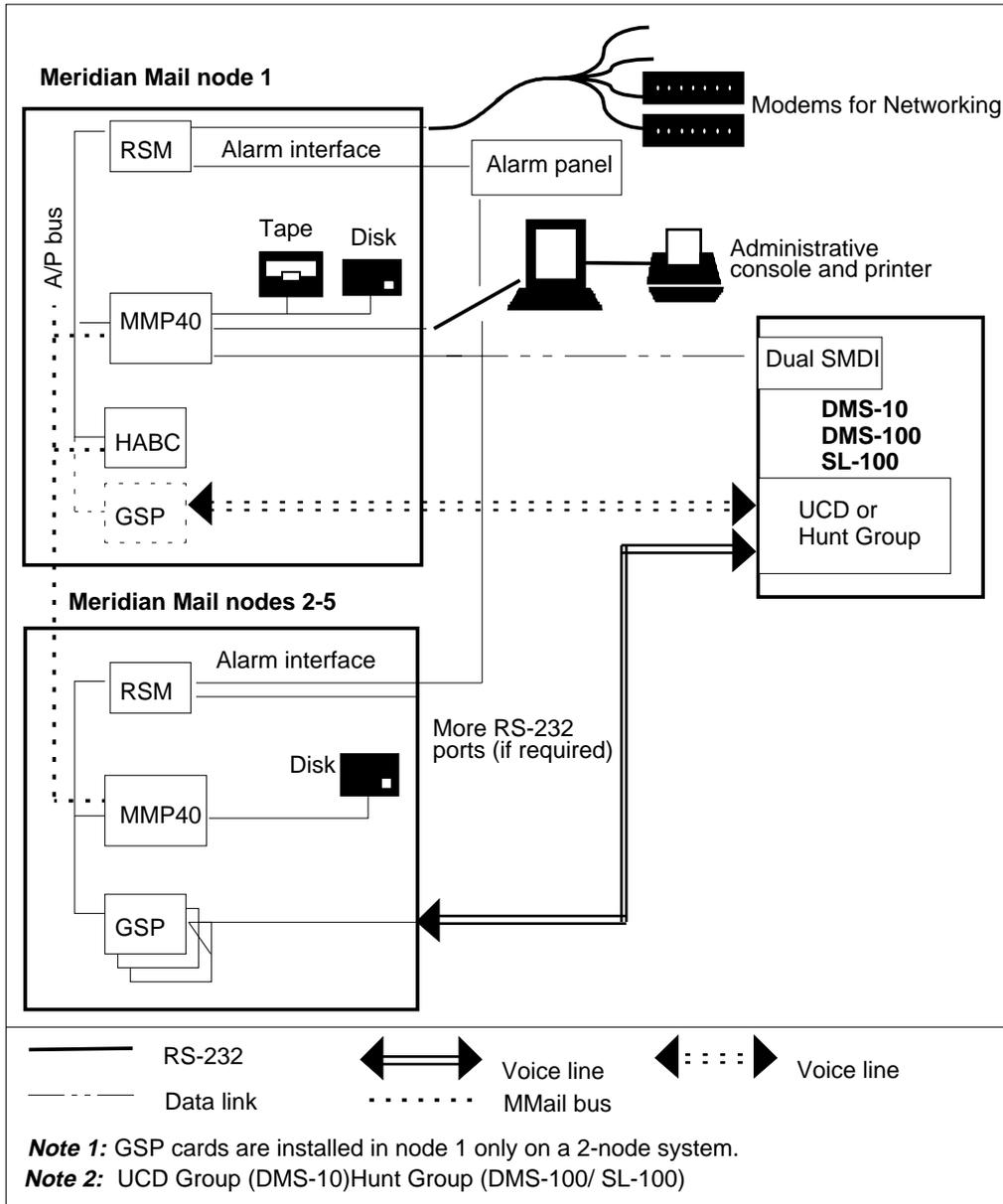
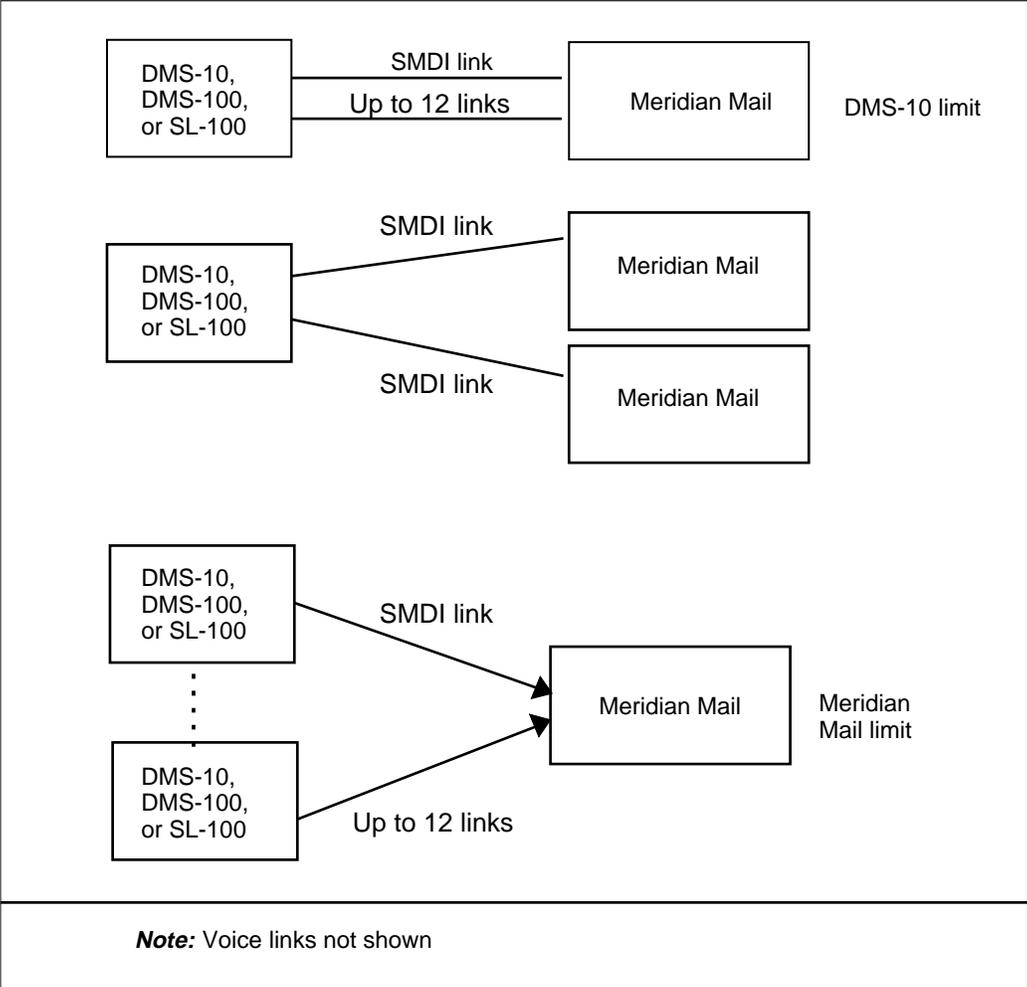


Figure 3-4
SMDI configurations



3-10 Configurations

Chapter 4: Technical specifications

Tables 4-1 to 4-3 provide information on the features and capacities of the Meridian Mail Modular Option GP platform. The maximum capacities given in these tables should be considered typical values since they represent various types of information which share a finite amount of disk space. The maximum capacities should be considered recommended values that guarantee efficient and trouble-free operation of Meridian Mail.

Table 4-1
Maximum capacity of system

<p>Voice Services Voice Service Directory Numbers: 24 000 Up to four languages, subject to disk space availability</p> <p>Voice Menu applications Voice Menus: 19 hours for System Volume; 100 hours for User Volume 20 levels of Voice Menus</p> <p>Voice Forms applications The number of Voice Forms definitions per customer is limited to disk capacity (see Table 4-2) 1000 responses per Voice Form Up to 150 fields per Voice Form</p> <p>User information 360 minutes per mailbox 999 messages per mailbox</p> <p>Distribution lists The number of system distribution lists is limited to disk capacity 120 entries per system distribution list 9 personal distribution lists per mailbox 99 entries per personal distribution list</p> <p>ACCESS Refer to Table 1-1 in the <i>Meridian ACCESS Configuration Guide</i> (NTP 555-7001-315).</p> <p>Networking 49 networking sites</p> <p>Operating temperature 40 degrees C (104 degrees F) with thermal shutdown capability</p> <p>SMDI links 12 links for multi-DMS-10s, DMS-100s, or SL-100s</p>
--

**Table 4-2
Meridian Mail configuration**

System	1-node	2-node	3-node	4-node	5-node
directory entries	10 000	10 000	15 000	18 000	25 000
mailboxes	1399	2516 on node 1 3074 on node 2	3074 on each of nodes 2 and 3	3074 on each of nodes 2, 3, and 4	3074 on each of nodes 2, 3, 4, and 5
channels	4, 8, 12	16, 20, 24	32	24, 28, 32, 36, 40, 44, 48	40, 44, 48, 52, 56, 60, 64
networking ports	4	8	12	16	20
disk/disk backup	no	yes	yes	yes	yes
storage hours	11, 24 36, 54	26, 54, 84, 114	30, 60, 90, 120	45, 90, 120, 180	60, 120, 180, 240
*storage hours	N/A	48, 78, 108	41, 71, 101	72, 102, 162	102, 162, 222
maximum number of Personal Verifications	5 h sys: 2100 11 h sys: 2100 24 h sys: 3500 36 h sys: 3500 54 h sys: 3500	26 h sys: 2100 54 h sys: 3500 84 h sys: 3500 114 h sys: 3500	19000	19000	20000
**maximum number of Voice Menus & Form Definitions (h)	5 h sys: 2 (5) 11 h sys: 2 (11) 24 h sys: 3.5 (24) 36 h sys: 3.5 (36) 54 h sys: 3.5 (54) 100 h sys: 5.4 (100)	26 h sys: 3.5 (9) 54 h sys: 3.5 (23) 84 h sys: 3.5 (23) 114 h sys: 3.5 (52) 200 h sys: 5.4 (100)	30 h sys: 18 (15) 60 h sys: 18 (30) 90 h sys: 18 (60) 120 h sys: 18 (60) 200 h sys: 18 (100)	45 h sys: 18 (15) 90 h sys: 18 (30) 120 h sys: 18 (60) (180 h sys: 18 (60) 300 h sys: 18 (100)	60 h sys: 19 (15) 120 h sys: 19 (30) 180 h sys: 19 (60) 240 h sys: 19 (60) 400 h sys: 19 (100)
***disk drives	1 (2)	2 (4)	3 (6)	4 (8)	5 (10)
tape drives	1	1	1	1	1
<p>* With Disk-to-disk Backup Option</p> <p>** The figures are representative maximum values when Voice Menus and Form Definitions share storage space with Personal Verifications. The figures in brackets represent maximum values when Voice Menus and Form Definitions share storage space with Voice Messaging.</p> <p>*** Numbers in brackets represent shadowed systems.</p>					

4-4 Technical specifications

Table 4-3
Maximum number of cards

Card	1-node	2-node	3-node	4-node	5-node
MMP40	1	2	3	4	5
HABC	n/a	1	1	1	1
Voice processor	3	6	8	12	16

Table 4-4
Weight and power requirements

System size	Weight	Power
1-node	95 kg (215 lbs)	10 A @ 48 V DC
2-node	163 kg (365 lbs)	18 A @ 48V DC
3-node	231 kg (515 lbs)	27 A @ 48 V DC
4-node	299 kg (665 lbs)	36 A @ 48V DC
5-node	367 kg (815 lbs)	44 A @ 48 V DC

Regulatory standards

Meridian Mail systems comply with the following regulations:

- | | |
|------------------------------|--|
| Safety | <ul style="list-style-type: none">• Underwriters Laboratory 478• Underwriters Laboratory 1459• Canadian Standards Association (CSA) 22.2.7• Canadian Standards Association (CSA) C13J-J1970 |
| Electromagnetic interference | <ul style="list-style-type: none">• United States Federal Communications Commission (FCC), Rule 15, Subpart J, Class A• United States Federal Communications Commission (FCC), Rule 68• Department of Communications (DOC) C108.3.1J-J1975• Department of Communications (DOC) CS03 |

Environmental requirements

Meridian Mail requires no special environmental considerations above and beyond those required to accommodate your existing switching equipment. Detailed information on Meridian Mail environmental specifications are provided in the *Site and Installation Planning Guide* (NTP 555-7051-200).

4-6 Technical specifications

List of terms

AGC	Automatic gain control
AMIS	Audio Messaging Interchange Specification
BPS	Bits per second
CDP	Coordinated dialing plan
COS	Class of service
CSE	Circuit switch equipment
DOC	Department of Communications (Canada)
DTR	Digital tone receiver
DN	Directory number
DNU	Delivery to Non-User
EMI	Electromagnetic interference
FCC	Federal Communications Commission
Gbyte	Gigabyte
GSP	General-purpose signal processor
HABC	High-availability bus controller
HDLC	High level data link control
kbyte	Kilobyte
LED	Light emitting diode
MAT	Multiple administration terminal

5-2 List of terms

Mbyte	Megabyte
MMUI	Meridian Mail User Interface
MMP40	Meridian Mail processor 68040
PBX	Private branch exchange
PCP	Printed circuit pack
RAM	Random access memory
RN	Remote Notification
RSM	RS-232 service module
SEER	System error and event report
SCSI	Small Computer System Interface
SMDI	Simplified Message Desk Interface
UCD	Uniform call distribution
VMUIF	Voice Messaging User Interface Form

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Reader's Response Form for

Meridian Mail

DMS Family and SL-100 *General Description*, 555-7001-101

August 1995

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NORTEL

Reader's Response Form

DMS Family and SL-100

Meridian Mail

General Description

Customer Documentation
Northern Telecom
522 University Avenue, 12th Floor
Toronto, Ontario, Canada
M5G 1W7

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