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CallPilot

NMS Implementation and Administration Guide

Product release 2.02 Standard 1.0 October 2003

NORTEL NETWORKS™

CallPilot

NMS Implementation and Administration Guide

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chapter 1

About CallPilot

This chapter introduces CallPilot, the powerful multimedia messaging system from Nortel Networks. CallPilot offers a single solution for managing many types of information, including voice mail, fax-mail, e-mail, telephone calls, conferencing, calendars, directories, and call logs.

CallPilot enables you to get all the information you need from one source, whether through display-based telephone sets, your wireless set, your Windows desktop computer, a speech recognition interface, or another personal communications device.

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Overview

Introduction

The *NMS Implementation and Administration Guide* provides the information and procedures that are necessary to implement the Network Message Service (NMS).

Assumptions

This guide assumes that the Meridian Application Server has been correctly installed and is operational. If the application has not been installed, then install it before proceeding. For installation instructions, refer to the hardware installation guide appropriate to your server type.

If the server has been installed but is not operational, refer to the *Maintenance and Diagnostics Guide* for information on troubleshooting your system.

Skills you need

Introduction

You need certain skills and knowledge to use this guide effectively.

Nortel Networks product knowledge

Knowledge of, or experience with, the following Nortel Networks products will assist you:

- previous releases of CallPilot
- Meridian Mail

PC experience or knowledge

Knowledge of, or experience with, the following PC products will be of assistance. This guide does not document the following functionality:

- Microsoft Windows NT
- Microsoft Windows 95
- Microsoft Windows 2000

Other experience or knowledge

Other types of experience or knowledge that may be of use include the following:

- switch configuration and operation (especially trunk group access restrictions [TGARs] and network classes of service [NCOS])
- network management
- client-server systems
- flowcharting
- troubleshooting

How this guide is organized

Introduction

The *NMS Implementation and Administration Guide* is organized in the sequence of tasks required to successfully implement NMS for CallPilot. Start at the beginning of the guide and work your way through it until all required tasks are completed.

Contents

This guide contains the following chapters.

Chapter title	Description
Chapter 1, About CallPilot	This chapter describes how to work with the CallPilot interface and how to use this guide.
Chapter 2, Getting started	This chapter provides an overview of NMS. This chapter describes the features supported by NMS and how NMS works. This chapter also provides a high-level overview of the tasks that are performed during implementation.
Chapter 3, Gathering information	This chapter explains how to gather the information required to implement NMS.
Chapter 4, Configuring the switches	This chapter explains how to configure the switches for NMS.
Chapter 5, Configuring CallPilot for NMS	This chapter describes how to configure CallPilot for NMS. This chapter describes how to configure the local site and all satellite switch locations. This chapter describes every box that must be completed and provides detailed procedures.

Chapter title	Description
Chapter 6, Testing and backing up NMS	This chapter describes how to test the implementation of NMS to ensure that it is properly configured. This chapter also describes how to perform a backup of the system.
Chapter 7, Maintaining NMS	This chapter explains how to perform both regularly scheduled maintenance tasks and as-required maintenance tasks.
Chapter 8, Troubleshooting NMS	This chapter provides information to identify and solve problems with NMS.

Related information products

Introduction

The following CallPilot technical documents are stored on the CD-ROM that you receive with your system. The documents are also available from the following sources:

- CallPilot Manager
- My CallPilot
- the Nortel Networks Partner Information Center (PIC) at http://my.nortelnetworks.com

  You require a user ID and a password to access the PIC. If you do not have a PIC account, click Register to request an account. It can take up to 72 hours to process your account request.

You can print part or all of a guide, as required.

Note: To order the documents that are available in printed format, contact your Nortel Networks sales representative.

Planning and migration guides

Use these guides before you install CallPilot to help plan your system, or to plan a migration of data from Meridian Mail to CallPilot:

Document title	NTP number
Installation and Configuration Planner	—
Planning and Engineering Guide	555-7101-101
What's New Guide	555-7101-901

Installation and configuration guides

The following guides describe how to install the following:

- CallPilot server hardware and software
- desktop messaging and My CallPilot software

Document title	NTP number
Desktop Messaging and My CallPilot Installation Guide	555-7101-505
Installation and Configuration Guide for your server model This is a binder that contains the following five documents: ■ *Part 1: Installation and Maintenance Overview* ■ *Part 2: <Server model> Server Hardware Installation* ■ *Part 3: <Switch name> and CallPilot Server Configuration* ■ *Part 4: Software Installation and Maintenance* ■ *Part 5: <Server model> Server Maintenance and Diagnostics*	Refer to the *CallPilot Installation and Configuration* binder for NTP numbers.

Administration guides

The following guides provide specialized information to help you configure administer and maintain CallPilot, and use its features:

Document title	NTP number
Administrator's Guide	555-7101-301
Reporter Guide	555-7101-310
Application Builder Guide	555-7101-325

Document title	NTP number
Desktop Messaging and My CallPilot Administration Guide	555-7101-503
Meridian Mail to CallPilot Migration Utility Guide	555-7101-801

Networking guides

The following guides describe how to plan, install, set up, and troubleshoot the CallPilot networking services:

Document title	CallPilot release	NTP number
Networking Enhancements Guide	2.0	555-7101-507
Networking Planning Guide	1.0	555-7101-100
NMS Implementation and Administration Guide	1.0	555-7101-302
AMIS Networking Implementation and Administration Guide	1.0	555-7101-303
Enterprise Networking Implementation and Administration Guide	1.0	555-7101-304
Integrated AMIS Networking Implementation and Administration Guide	1.0	555-7101-305
VPIM Implementation and Administration Guide	1.0	555-7101-306

Note: For instructions on how to configure the networking services on CallPilot, refer to the CallPilot Manager online Help.

End user guides

The following guides are intended for CallPilot end users, such as telephone set users and desktop messaging users:

Document titles
Unified Messaging Quick Reference Card
Unified Messaging Wallet Card
Unified Messaging What's New Card
Command Comparison Cards
Menu Interface Quick Reference Card
Alternative Command Interface Quick Reference Card
Multimedia Messaging User Guide
Speech Activated Messaging User Guide
Desktop Messaging User Guides
My CallPilot User Guide

Troubleshooting

The *CallPilot Troubleshooting Reference* describes symptoms that can appear on all CallPilot server platforms, and describes ways to resolve them.

The *CallPilot Troubleshooting Reference* is intended for Nortel Networks distributors and technical support representatives; therefore, it is not part of the customer documentation package. Nortel Networks continually updates the *CallPilot Troubleshooting Reference*, which is available from the Nortel Networks Partner Information Center (PIC) at http://my.nortelnetworks.com.

You require a user ID and a password to access the PIC. If you do not have a PIC account, click Register to request an account. It can take up to 72 hours to process your account request.

Note: If you are not a Nortel Networks distributor, then contact your Nortel Networks technical support representative for assistance.

Using online sources

CallPilot administration online Help

The CallPilot Manager and CallPilot Reporter software contain administration online Help areas that provide access to

- technical documentation in Acrobat PDF format
- online Help topics in HTML format

To access online information, use either of the following methods:

- Click the orange Help button at the top of any page to access the Administration Help area.
- Click the grey Help button on any page to display a topic that relates to the contents of the page.

For more information about using these Help systems, access the CallPilot Manager Help, open the Getting Started book, and click “Navigating CallPilot Manager Help.”

The Application Builder software contains a Windows Help system as well as context-sensitive Help (available by clicking the ? button and then a field or label).

CallPilot end-user online Help

The My CallPilot software contains a Useful Information area that provides access to the end-user guides in PDF format.

To access online Help for the currently selected My CallPilot tab, click the Help button on the upper-right corner of the My CallPilot page.

Desktop messaging provides product-specific Windows Help for groupware clients (Microsoft Outlook, Novell GroupWise, and Lotus Notes). The stand-alone version of CallPilot Player also provides addressing and troubleshooting information for Internet mail clients.

Contacting technical support

Contact your distributor's technical support organization to get help with troubleshooting your system.

Conventions

Commands documented in procedures

As in many other Windows-based applications, in CallPilot you can execute a command in several ways. For example, to copy text you can choose any of the following methods:

- Select Copy from the Edit menu.
- Click the Copy button on the toolbar.
- Type the keyboard shortcut Control + C.

The procedures in this guide use only the first method: selecting a command from a menu.

Navigation information in procedures

A **Getting there** statement precedes each procedure in this guide. This statement summarizes the steps you must take to navigate to the window or tab where you carry out the procedure.

All **Getting there** statements start at the Nortel System Management Interface (SMI) window. This assmues that you logged on and selected the appropriate system. Eac item mentioned after the Nortel SMI window represents an icon, window or tab that makes up the path to the final destination.

Example

To define special mailboxes, such as the broadcast mailbox, you must be on the Mailboxes tab.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Message Administration

After you double-click Messaging Administration, the Message Administration Properties sheet displays. Click the Mailboxes tab.

Finding your way around CallPilot

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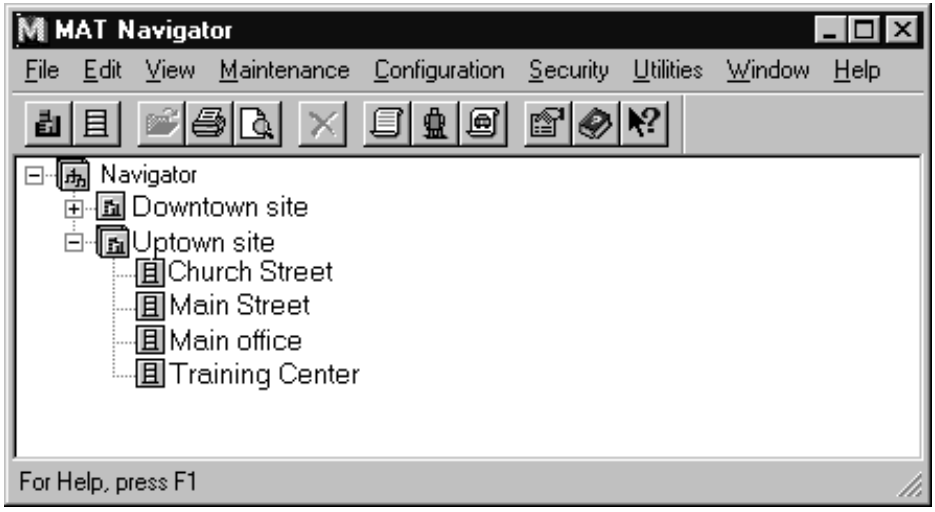
Connecting to CallPilot

Introduction

To perform administrative tasks, or to build or work with CallPilot applications, you must first connect to the Meridian Application Server (the MAS server). The MAT Navigator and the System Management Interface (SMI) work together to give you access to your system and sites.

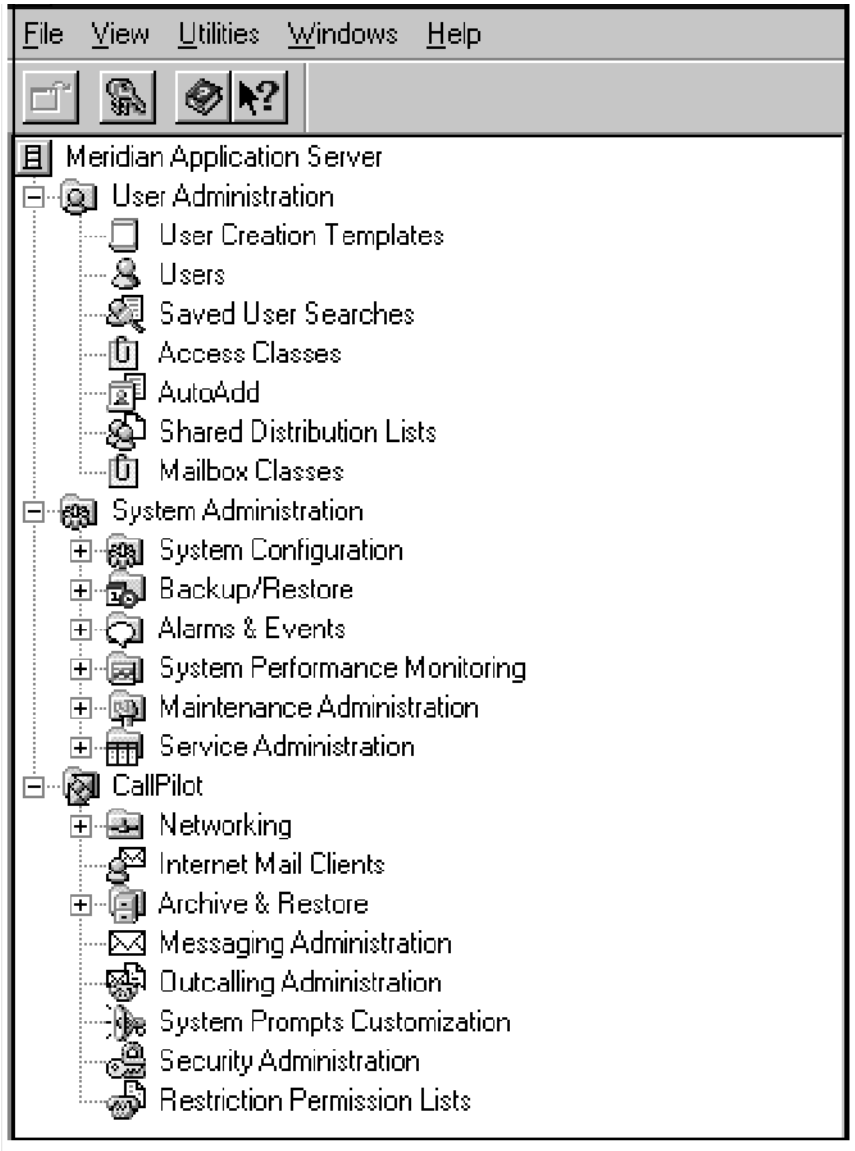
Selecting a system-the MAT Navigator

The first step in logging in is to launch the MAT Navigator, which has its own password. The MAT Navigator connects your administration client to the MAS server. It displays all your sites and systems and enables you to select one to work on.



Selecting a program—the System Management Interface (SMI)

When you select a system from the MAT Navigator, you are prompted for a second password. At this point, the SMI window for the selected system or site displays.



The SMI gives you quick and easy access to your system or sites. The SMI uses a navigation tree to display the system's hierarchy. In the tree, icons represent the folders and programs. Double-click a folder icon to view its contents. Folders can contain programs and other folders. Double-click a program icon to run the associated program.

Selecting an object-list views

When you launch certain programs, the first thing you see is a list view. The list view displays all the objects of a certain type (such as mailbox classes) that are currently defined in the system. The list view includes predefined objects as well as those defined by an administrator. From the list view window, you can select a specific object to work on.



Viewing and changing properties

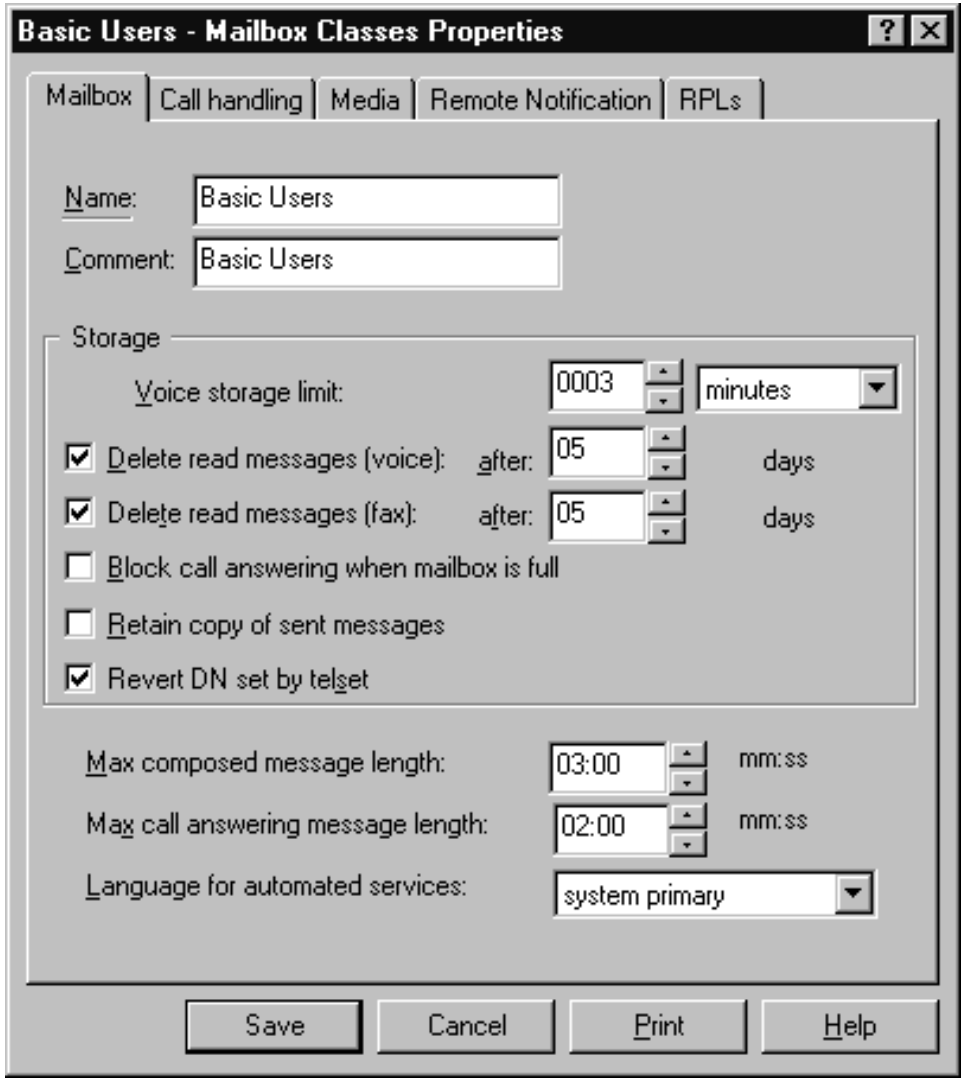
Select an object and display its properties by

- double-clicking it or
- single-clicking it and selecting Properties from the File menu
- right-clicking it and selecting Properties from the popup menu

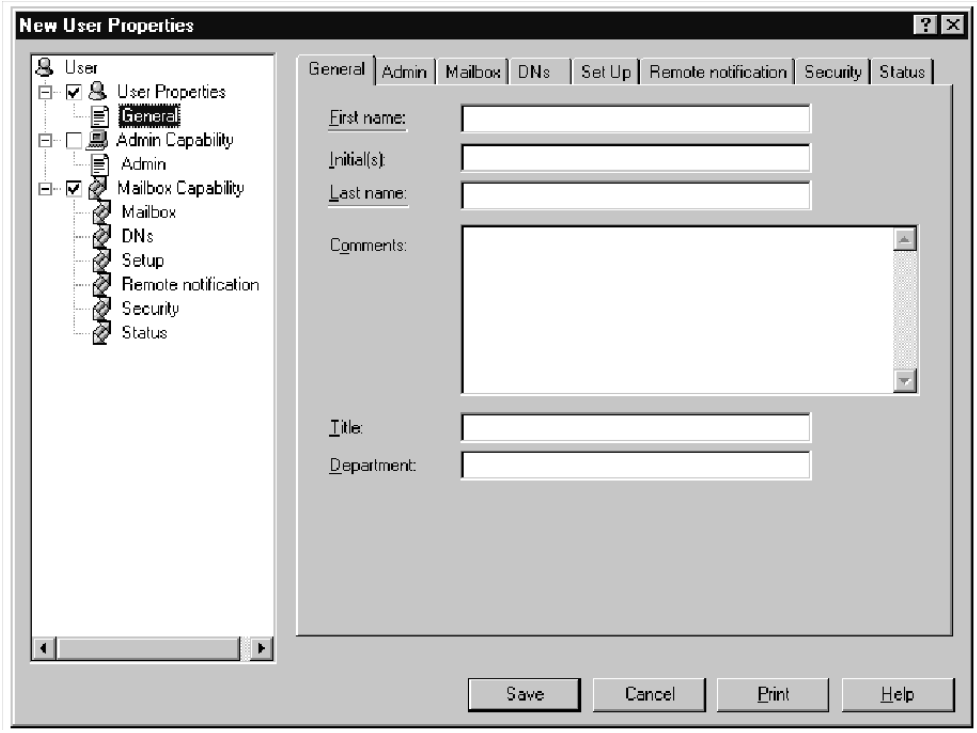
Entering data and choosing options-property sheets

A property sheet is displayed when you view an object selected from a list view. Certain programs, such as Messaging Administration, display a property sheet immediately after launching. Property sheets have one or more tabs. Each tab has fields, referred to as boxes, in which you can type data or from which you can select options.

Most CallPilot property sheets look like the following:



Some property sheets are divided into two panes. When a box is checked in the left pane, the selected capabilities are enabled and you can access the associated tabs. Select a tab by clicking its name in the left pane or by clicking the tab in the right pane. These property sheets look like this:



Mandatory boxes

If the name of a box is underlined, the box is mandatory, and you must fill it in. You cannot save if any mandatory boxes are empty.

Common buttons

The following buttons appear on most property sheets:

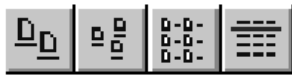
Button	Description
Save	Saves all changes made on any of the tabs in a property sheet and closes the property sheet. Therefore, save only when you have made the necessary changes on all tabs.
Cancel	Closes the property sheet without saving any changes.
Print	Prints the contents of all tabs in the property sheet.
Help	Displays Help for the current tab. From this overview Help topic, you can access other Help topics, the index, and the search function.

Using the toolbar buttons

For easier access, some of the more common tasks, such as Print and Save, are represented as buttons on the toolbar.

The following buttons are used throughout CallPilot. Buttons or icons specific to certain CallPilot functions, such as backups and archives, are documented in the relevant chapters.

Toolbar button	Description
	Saves any changes you have made and then transfers all the application's data to the server.
	Opens the Print dialog box and prints the active file or the objects you specify.
	Deletes the object you select.

Toolbar button	Description
	Displays the properties of the object you select.
	Displays the Help topics window.
 	Explains the next menu item or screen object you click. In a window, there is an arrow. On tabs or in dialog boxes, there is no arrow.
 	Opens the New dialog box, where you identify the properties of the object you are creating. The button looks different in different applications.
 	Displays the Open dialog box, where you select an object to open. The button is different in different applications.
	Reloads the current page and displays the changes you have made.
	Enables you to select how the system displays icons.

Multi-administrator access

Introduction

You can create multiple administrator accounts to make administering CallPilot easier and more efficient. Multiple accounts enable administration responsibilities to be distributed among a number of people. Therefore, certain administrators can specialize in certain tasks, such as maintaining users, performing backups, analyzing reports, or creating multimedia services.

Access classes

For security reasons, administrators should be given access only to those parts of the system that relate to their role. For example, an administrator who is responsible only for creating multimedia services should have access only to Application Builder and the Service Directory Number Table.

Each administrator account is assigned an access class. An access class is a list of the parts of the system and the level of access allowed. The access levels are as follows:

- create/delete (enables an administrator to delete objects such as users and services)
- edit
- view
- none

For example, an administrator may be able to create or delete objects in Application Builder but only view User Templates.

Simultaneous access

Multiple administrators can log in to CallPilot at the same time without overwriting other work.

If you are the first to log in to a particular resource, such as a specific mailbox class or user profile, and another administrator tries to access the same resource, a dialog box appears to inform you of the other administrator. At this point, you can do one of the following:

- Keep editing.
- Save your changes, and release the resource to the other administrator.
- Cancel your changes, and release the resource to the other administrator.

If you do not respond to this prompt within two minutes—because you are away from the terminal, for example—the system releases the resource so that others can access it. If this happens, all your unsaved changes are lost.

An administrator who accesses a resource that is currently being edited sees a read-only view of the property sheet in which all boxes are dimmed. This indicates that the resource is currently locked. The administrator is not notified when the resource is released, but must try to access the property sheet again to see whether its status has changed.

If a user tries to log on to a mailbox while an administrator is changing the profile, the user is unable to log on and receives a message that says the mailbox is in use.

Refreshing screens

Because multiple administrators can access the same database at the same time, a Refresh command is available from the View menu to ensure that the view you are seeing is the most up-to-date.

For example, if you are viewing a list of users when another administrator deletes a user, the only way to see the change is to refresh the screen. You should, therefore, refresh the screen regularly.

Error handling in property sheets

Introduction

If you make certain types of errors while entering data, you are not able to save your changes until you correct the errors. For example, if you leave a mandatory box empty, you receive a message prompting you to fix it.

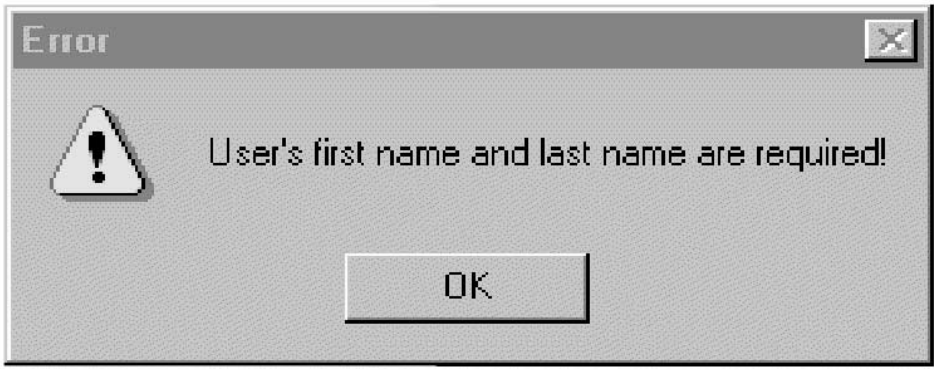
Note: These errors do not show up in the Event Browser or Alarm Monitor because the errors relate only to data entry and are not operational problems.

How error handling works

There are two types of error messages.

Type 1

If you get this type of error message, click OK, and then fix the problem described in the message before you try to save again.

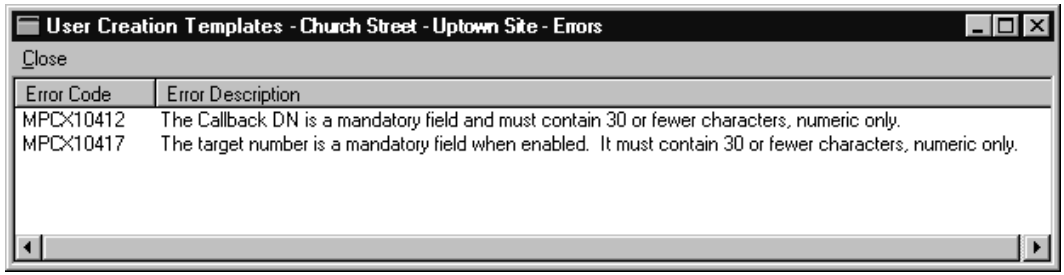


Type 2

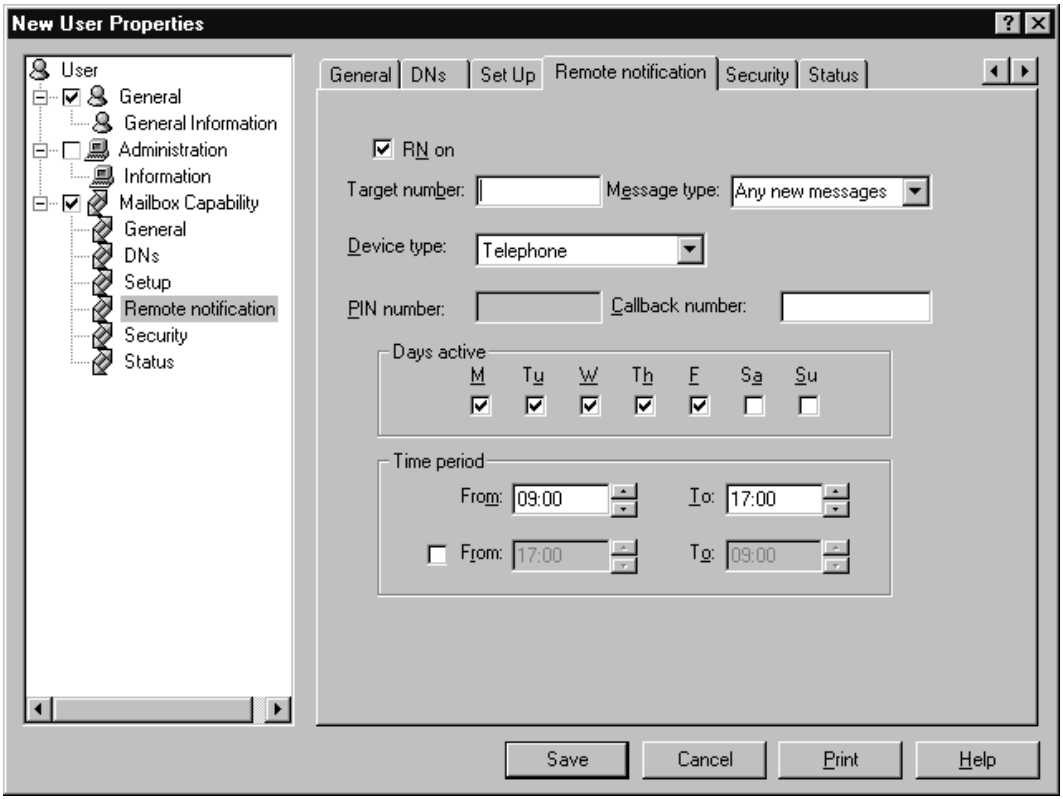
If you get this type of error message, click OK to see a list of errors.



Double-click an error from the list. Your cursor is automatically placed in the box where the error was made so that you can correct it.



For example, if you double-click the second error, the Remote notification tab is displayed, with the cursor in the Target number box.



Using the online Help

Introduction

While administering or maintaining CallPilot, you may have questions about the purpose of certain boxes and buttons, or need more information about completing certain tasks. Online Help provides brief answers to the questions "What's this?" and "How do I...?"

Context-sensitive Help

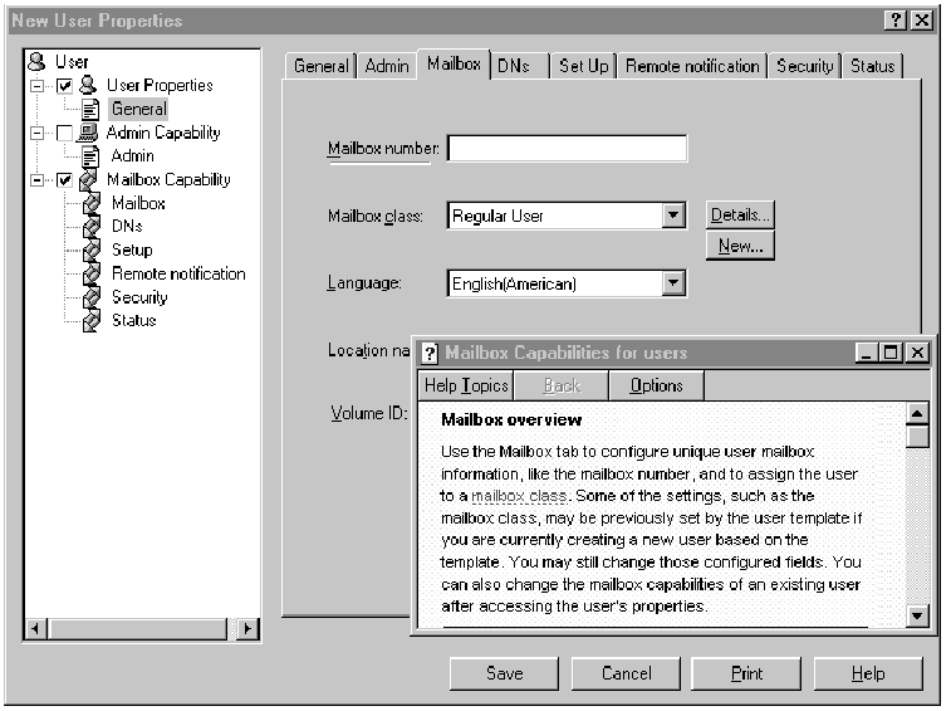
If you need to know the purpose of a particular box or button, use context-sensitive Help.

To access context-sensitive Help

1 Click the  icon in a window or the  icon on a tab or in a dialog box.

2 Point to the box or button for which you want more information, and click.

Result: A pop-up description of the selected object is displayed.



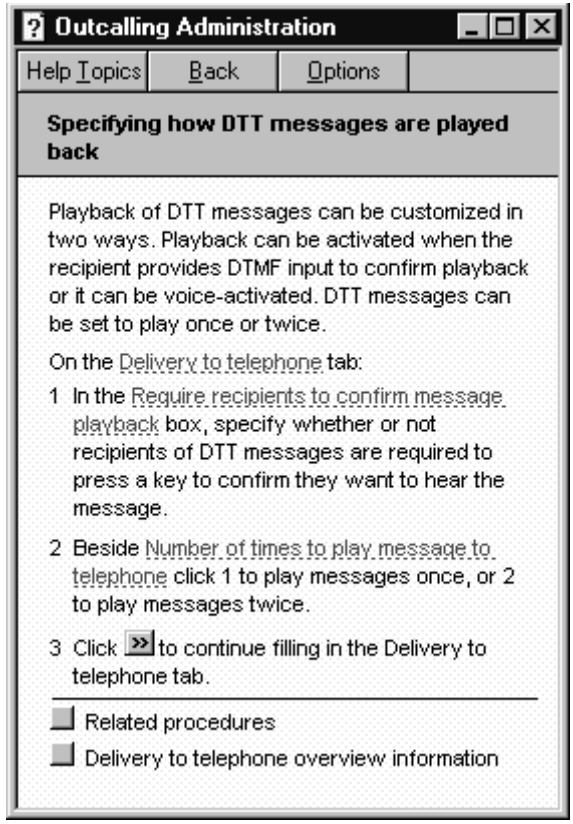
Procedures

If you need to know how to do something, you can access procedures to lead you through a task.

High-level tasks

In some cases, high-level tasks take you through longer procedures. These tasks also provide you with navigation to the step-by-step procedures they include.

For example, setting up Delivery to Telephone requires several procedures. The high-level task summarizes these procedures. You click the gray buttons within the task to open the step-by-step procedures. The high-level task remains on your screen so that you can continue to use it to move through the procedures.



Overview topics

Overview topics provide brief descriptions of tabs, features, and the tasks carried out from the tabs. However, the online guides contain more detailed feature descriptions.

To access overview topics

Click the Help button on a tab.

To find information in Help

You can look up procedures and overview topics in the following ways:

1 From the Help menu, select Help Topics.

Note: You can also press F1 on the keyboard.

2 Go to one of the following tabs:

- To see the table of contents of all the Help topics, select the Contents tab.
- To look up a subject alphabetically, select the Index tab.
- To do a full-text search to find topics that contain the words you enter, select the Find tab.

chapter 2

Getting started

This chapter introduces Network Message Service (NMS) and provides a basic overview of the implementation process.

This chapter also covers some basic networking concepts and terminology that are useful for understanding NMS.

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Overview

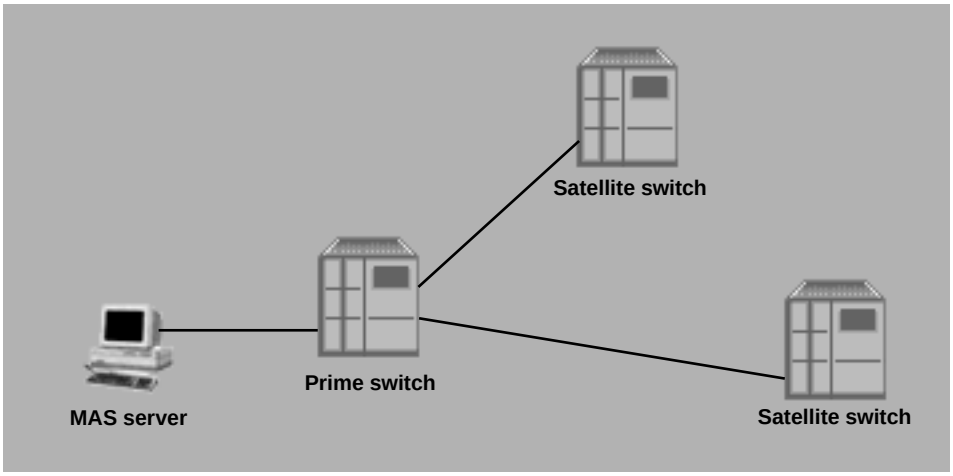
Introduction

Network Message Service (NMS) is a CallPilot feature that enables one Meridian Application Server to provide messaging services to users in a network of compliant switches.

NMS network

The collection of switch locations, connections, and the messaging server is collectively known as an NMS network.

The following diagram illustrates an NMS network consisting of the Meridian Application Server, a prime switch location, and two satellite switch locations. Only the prime switch location is directly attached to the server.



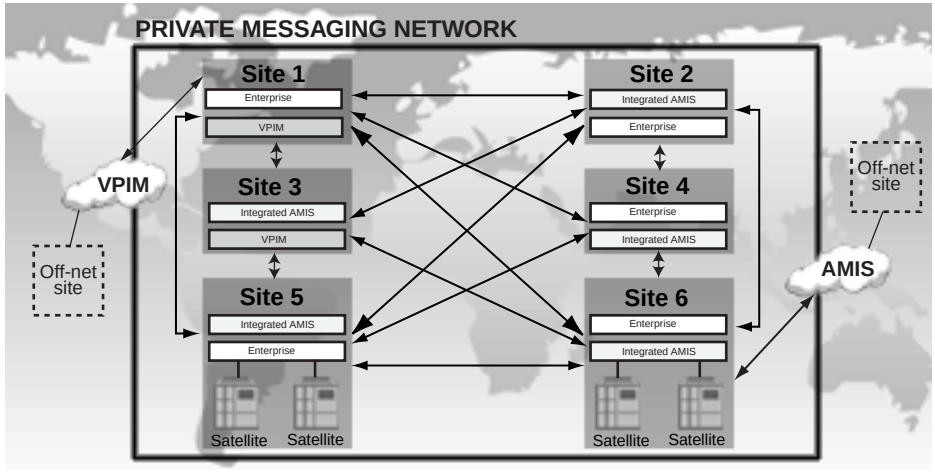
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NMS site

An NMS network is often a site within a more complex messaging network.

When an NMS network is part of a messaging network, it is called an NMS site. A messaging network can have many NMS sites.

In the following diagram, the messaging network consists of six sites. Site 5 and Site 6 are NMS sites. CallPilot networking solutions are implemented on all sites.



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Private messaging network

A private messaging network is made up of two or more sites that are connected by communication channels. These channels are maintained and restricted for an organization’s private use.

NMS networks are private

An NMS network is a type of private messaging network. An NMS network is set up and maintained by an organization for private use.

An NMS site is part of a private messaging network.

Typical private messaging network

In a typical private messaging network, every switch is connected to a messaging server. Users connected to a switch have mailboxes and can exchange messages with other users connected to the same switch.

Users can also send messages to users on other switches in the network. This capability is known as network messaging.

The messaging servers use a networking protocol, either analog or digital, to communicate with one another.

Key terms

The following terms are used in discussions of NMS:

Term	Definition
NMS network	■ The interconnected switches and the Meridian Application Server
NMS site	■ An NMS network when it is part of a larger messaging network in which each site has its own server
Prime switch location	■ The switch location directly attached to the Meridian Application Server
Satellite switch location	■ A switch location that is directly connected to the prime switch
Tandem switch location	■ A switch location that is connected between the prime switch location and a satellite switch location
User location	■ A logical grouping of mailboxes; may be the mailboxes on one switch or the mailboxes on two or more switches

NMS benefits

Introduction

An NMS network is not a typical private network. The network offers several unique benefits, including

- cost savings
- efficiency
- transparency
- flexibility

Cost savings

NMS connects several switches to a single Meridian Application Server. Since each switch does not require its own server, NMS offers considerable cost savings in both hardware and maintenance.

NMS enables you to have centralized administration, which helps control the cost of ownership. Although the actual switch configuration must be completed at each switch location, the configuration required to make the switches work with CallPilot is centralized.

From one Meridian Application Server, you can implement and maintain the server and all switches in the NMS network.

Efficiency

With NMS, the spare capacity on a Meridian Application Server can be applied to more end-users. Users at locations that are too small to have their own dedicated messaging servers and switches can become part of an NMS network.

Transparency

All users have a mailbox on the Meridian Application Server. Users on all switches in an NMS network have access to all multimedia messaging features and access them in the same way. The CallPilot feature operation is transparent to users. Users do not know that they are part of an NMS network.

This transparency is achieved by the configuration. User telephones on satellite switches are configured to call forward to the prime switch. The prime switch is configured to route NMS messages to CallPilot.

Flexibility

Because NMS can be combined with the other networking solutions offered by CallPilot, you can create a scalable messaging network that is customized to meet your specific needs.

Links and protocols

Introduction

NMS uses links and protocols to connect the parts of the NMS network and to transmit messages.

Prime switch location and satellite switch locations

The switches are connected by Integrated Service Digital Network (ISDN) primary rate access (PRA), and ISDN signaling link (ISL) trunks.

The prime switch communicates with the satellite switches with the D channel of Primary Rate Interface (PRI) (64 kbit/s).

The prime switch location and the satellite switch locations communicate through virtual signaling to turn the Message Waiting Indicator (MWI) on a user's telephone on and off. Virtual signaling is also used to transport necessary call information for a networking voice message feature, such as Call Sender. These calls are supported by using ISDN noncall-associated transaction signaling messages.

Prime switch location and Meridian Application Server

The Meridian Application Server (MAS) is connected to the prime switch with two connections, one for voice and one for data. The Meridian Application Server communicates with the prime switch using the Application Module Link (AML) protocol. If the AML link fails, NMS calls are routed to the default ACD DN configured for the CDN (DFDN).

Note: AML was previously known as Command and Status Link (CSL) and Integrated Services Digital Network/Applications Protocol link (ISDN/AP).

NMS and users

Introduction

NMS is designed to be transparent to users. Users on one switch use the messaging system in the same way as users on all other switches and have access to the same features.

The only time NMS is not transparent is when a desktop user logs on to the system.

Desktop user logon

When desktop users at non-NMS sites log on to CallPilot, they enter their mailbox number and their password only.

However, the first time desktop users at NMS sites log on to the system, they must also select their location name from a drop-down list. The location name is the name assigned to their switch location.

After the first logon, the selected location name becomes the default.

NMS access mechanisms

Introduction

Three accessing mechanisms provide access to NMS services:

- direct access
- indirect access
- offnet access

Direct access

The direct access offered to NMS users mirrors CallPilot direct access on other networking solutions.

Direct access is initiated by a user dialing an NMS directory number, either by switch or network, or by pressing the Message Waiting key. Auto-logon on NMS is supported if the call is initiated from the user's station.

For a direct access call, the call is presented to CallPilot at the prime switch through direct switches. This is a basic ISDN call that requires noncall-associated ISDN Q.931 messages.

However, to support NMS features that require transaction signaling to transport the noncall-associated information, such as Message Waiting Indicator notification and the Call Sender feature, the configuration between the originating switch and the prime switch must support the NMS transaction signaling transport. If the path used to transport the noncall-associated messages is relayed through a switch that does not support NMS transaction signaling, NMS is not supported.

Indirect access

Indirect access is initiated when a call is presented to NMS through call redirection.

For any call redirected to NMS, the original called number from the ISDN Q.931 SETUP message is extracted when the call is forwarded to the prime switch. It is then passed to the Meridian Application Server. This allows CallPilot to distinguish the address of the original called party.

For a redirected network call, NMS uses the Network Call Redirection (NCRD) feature to provide the original called number. The following Network Call Redirection types are supported:

- network call forward all calls (NCFAC)
- network call forward no answer (NCFNA)
- network call forward busy (NCFB)
- network hunting (NHUNT)

Indirect access requires the same NMS transaction signaling message.

Offnet access

NMS supports two types of offnet access.

A user can directly dial in to the prime switch where the Meridian Application Server resides.

A user can dial in to the user's own switch to access a remote Meridian Application Server. For this type of offnet access, the user's switch may need to support direct inward system access (DISA). This allows the user to dial another network location after dialing in to the user's own switch.

NMS features and considerations

Introduction

All CallPilot features are available to users in an NMS network.

NMS features

The following table lists the CallPilot features that are supported by NMS:

CallPilot feature	Supported
Call Sender	Yes
Names Across the Network	No
Name Addressing	Yes
Name Dialing	Yes
Personal Distribution Lists	Yes
Shared Distribution Lists	Yes
Multiple Recipients	Yes
Reply To (compose messages)	Yes
Reply All (reply to call answering messages)	Yes
User’s Actual Personal Verification	Yes
Administrator-Recorded Personal Verification	Yes
Remote Site Spoken Names	Yes
Private Tag	Yes
Acknowledgment Tag	Yes
Urgent Tag	Yes
Received Time Announced	Yes

CallPilot feature	Supported
Sent Time Announced	Yes
99-Minute Messages	Yes
Sender’s Name (text)	Yes
Recipient’s Name (text)	Yes
Message Subject (text)	Yes
Sender’s Department	Yes
Deferred Delivery	Yes

General considerations

The prime switch must be a Meridian 1 (Release 23C) switch.

Satellite switches must be either Meridian 1 switches or other compliant switches.

Capacity

A Meridian Application Server can support one prime switch and a maximum of 59 satellite switches.

Signaling limitations

NMS is affected by several signaling limitations.

ISDN signaling limitations

NMS uses the signaling capabilities of the ISDN primary rate access (PRA) and the ISDN signaling link (ISL) to provide networking customers with messaging services. Therefore, if a non-PRA or non-ISL trunk is involved in an NMS call, the call cannot be completed.

Virtual signaling limitations

The prime switch and the satellite switches use virtual signaling to

- Turn the Message Waiting Indicator (MWI) on and off.
- Transport necessary call information for a networked multimedia messaging feature, such as Call Sender.

Virtual signaling is supported using ISDN noncall-associated transaction signaling messages. The FACILITY message with the TCAP protocol is used to transport information across the ISDN network.

End-to-end signaling limitations

End-to-end signaling (EES) is required to access CallPilot features from a satellite switch.

Dialing plans

NMS requires one of the following types of dialing plans:

- Electronic Switched Network (ESN)
- Coordinated Dialing Plan (CDP)
- hybrid, which is a combination of ESN and CDP

Note: NMS does not support another dialing plan, such as public switched telephone network (PSTN).

Message center directory number

Only one message center directory number can be defined on each user telephone.

Local messaging server broadcast

NMS interprets a local messaging server message broadcast to include users on all switch locations in the NMS network.

This feature is especially useful if, for example, you want to inform users of a server shutdown.

Broadcast messages are not delivered to mailboxes that are configured to refuse them. To avoid excessive resource usage, non-delivery notifications are not generated for broadcast messages.

Message transmission times

There are no message transmission times among switch locations, because NMS does not transmit messages among switch locations.

Every user on each switch is added as a mailbox user on the Meridian Application Server. The server functions as the message center of NMS. When a message is sent to more than one user, the message is deposited directly into each user’s mailbox. There is no transmission to a satellite switch location.

Feature interaction

Introduction

Many switch features interact with NMS. The following features interact with ISDN Network Call Redirection (NCRD):

- Call Forward (Unconditional, No Answer, and Busy)
- Network Call Transfer
- Network Hunting
- Call Forward by Call Type Allowed to a Network DN
- Attendant Extended Call
- Call from CO Loop Start
- Conference Call
- Barge-in Attendant

Call Forward (Unconditional Call Forward, Call Forward No Answer, Call Forward Busy)

All three types of Call Forward are supported by the ISDN Network Call Redirection features. These are the basis for NMS indirect access.

In the case of an indirect NMS access call, the original called number and the redirecting reason are extracted from the original called number information element in the PRA SETUP message. The original called number and the redirected reason are put into the AML PCI message when presenting a call to the Meridian Application Server.

If the original called number information element is not present, the redirecting information element is used instead. Similarly, the redirecting number and reason are extracted and transported to the server through a PCI message.

Network Call Transfer

Network Call Transfer is supported by the ISDN Network Call Redirection feature. If an NMS location is involved in a Network Call Transfer scenario, the connected party number is extracted from the PRA NOTIFY message and put into the AML DNP message when the transfer is complete.

The DN update message informs CallPilot that a call transfer has occurred.

Network Hunting

Network Hunting is supported by the ISDN Network Call Redirection feature. Indirect NMS access can be presented to CallPilot through Network Hunting. The messaging is the same as for Call Forward Busy. Therefore, the original called number information element in the PRA SETUP message is used to construct the ISDN/AP PCI message.

Call Forward by Call Type Allowed to a Network DN

The definition of the Call Forward by Call Type Allowed class of service is changed by the ISDN Network Call Redirection feature. This means that private network calls are treated as internal calls and are forwarded, using the Call Forward No Answer feature or the Network Hunting feature, to the Flexible Directory Number or Hunt DN rather than to the External Flexible Number or External Hunt DN.

The Call Forward feature is implemented through the ISDN Network Call Redirection feature. With this feature, the switch is able to provide different messaging treatments for different types of calls, such as off-net calls instead of on-net calls.

A location can be configured so that all off-net calls are handled by a centralized attendant, while internal calls are handled by CallPilot. However, there is a limit of one message center DN for each location. This means that a user can be served by two message centers, one that handles internal calls and one that handles external calls, but only one can control the Message Waiting Indicator (MWI) activation.

Attendant Extended Call

Attendant Extended Call has an impact that is similar to Network Call Transfer. There is one important difference, however. The DN update message is sent to CallPilot when the attendant releases the call. Therefore, the connected party number is updated only when the attendant is released.

Call from CO Loop Start

Calls that come in to the switch from the CO Loop Start trunk cannot be redirected to another trunk through attendant extension or call redirection. These calls should be blocked when redirection is activated.

The ISDN Network Call Redirection feature does not redirect calls from CO Loop Start. Therefore, NMS does not support these calls.

Conference Call

When another party has a conference call with a CallPilot system, a DN update message is sent indicating a conference call type. The connected party DN is the same as the station initiating the conference call, which is always the same as the DN in the PCI message.

If additional parties are added to the conference, no additional DNP messages must be sent.

When a conference call drops back to a simple call, a DNP message is sent indicating a simple call as call type and showing the remaining party as the connected DN.

When the conference is established and is dropped at a satellite switch, a FACILITY message with TCAP protocol is transported to notify the prime switch of the conference call activities.

The DNP message is then triggered and sent to the Meridian Application Server.

Barge-in Attendant

The attendant can barge in on an NMS call on the prime switch location. During barge-in, users cannot use the features that require switch effort, such as Call Sender.

Dialing plans and NMS

In this section

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NMS dialing restriction scenarios 68

Overview

Introduction

The dialing plan that connects the switch locations in a NMS network is fundamental to NMS.

NMS supports the following dialing plans:

- Electronic Switched Network (ESN)
- Coordinated Dialing Plan (CDP)
- hybrid, which is a combination of ESN and CDP

Note: NMS does not support another dialing plan, such as PSTN.

Why dialing plans are important

It is important to understand how dialing plans work, because the dialing plan used can affect the way your NMS network is implemented. As well, if the dialing plan is set up incorrectly, NMS cannot work.

The dialing plan can also affect the configuration of the switch locations.

See also

The following discussion assumes that you are familiar with the basic concepts of dialing plans. For a review of these concepts, consult the *Networking Planning Guide*.

Dialing plans and NMS user locations

Introduction

The dialing plan used can affect the flexibility of configuring the user locations in an NMS network.

User location

A user location is a logical grouping of mailboxes. A user location may be the mailboxes on one switch or the mailboxes on two or more switches.

ESN dialing plan

If the ESN dialing plan is used, there must be a one-to-one correspondence of switch locations to user locations.

CDP dialing plan

If the CDP dialing plan is used, there are two ways to define the correspondence of switch locations to user locations:

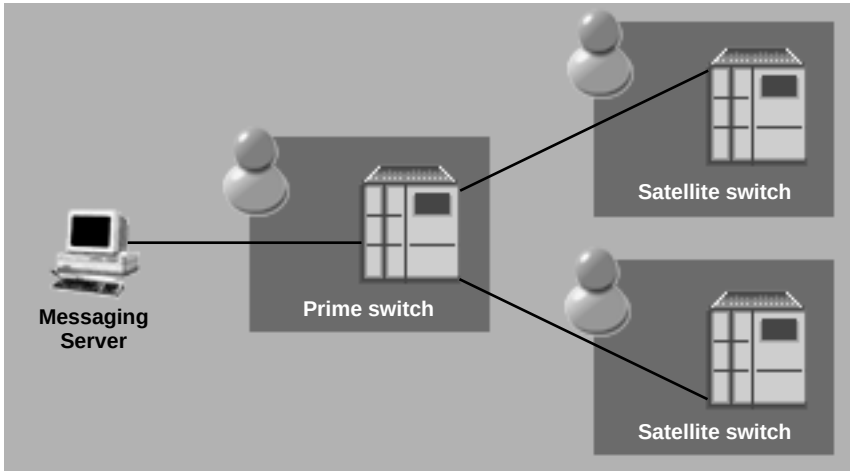
- a one-to-one correspondence
- an all-to-one correspondence

Define one switch location as one user location

Typically, each switch location is represented by a user location.

If this is done, ensure that there are no conflicts. For example, the same extension cannot exist on two different switch locations.

The following diagram shows a one-to-one correspondence between switch locations and user locations.



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Define two or more switch locations as one user location

By defining two or more switch locations as one user location, you do not have to check for conflicts. This option also allows you to maximize the number of users supported.

You can combine all switch locations into one user location, or you can combine some switch locations into one user location.

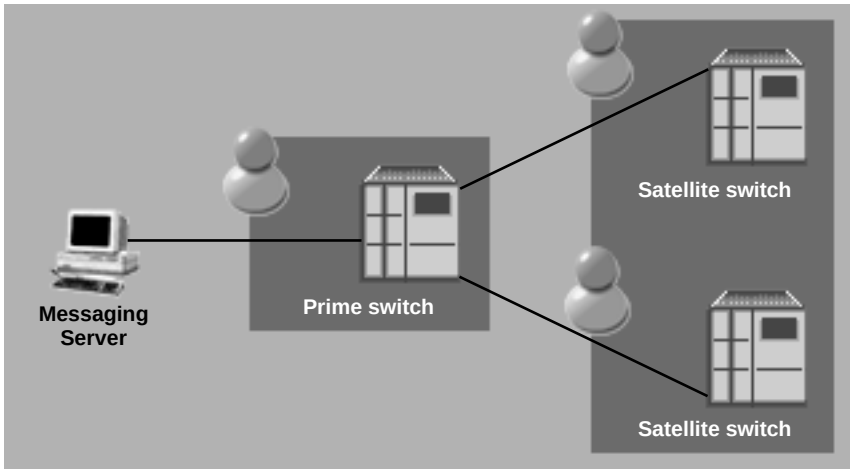
Defining one user location offers the following advantages:

- Configuration of satellite switch locations is simplified.
- Configuration of phantom DNs for services at all locations is simplified.

However, defining one user location has the following disadvantage:

- The spoken name for each individual location is lost.

In the following diagram, two switch locations are combined into one user location.



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How two or more switch locations are combined into one user location

When implementing NMS, if each switch location is a user location, on CallPilot you add and configure each satellite switch. However, each switch is configured individually.

To combine two or more switch locations into a single user location, you add and configure only one satellite switch location. The CDP steering codes for the switch locations are added to a single list.

Restriction

A switch location can have a maximum of 500 CDP steering codes. If, by defining a single user location, you require more than 500 CDP steering codes, you cannot use this option.

NMS dialing restriction scenarios

Introduction

An NMS network requires a uniform dialing plan. This requirement has important implications for implementing an NMS network. In some cases, it may require reconfiguration of an existing dialing plan.

Uniform dialing plan

The uniform dialing plan requirement must be considered in the following scenarios:

- calls to other users in the NMS network
- calls to other users at other sites in the private messaging network but not part of the local NMS site
- calls to public switched telephone network (PSTN) users beyond the private messaging network

Dialing restrictions for calls within an NMS network

Dialing among all users on all switches in an NMS network must be done uniformly. The only exception is that the ESN access code may be different.

Dialing restrictions for calls within a private messaging network

A uniform dialing plan is also necessary when an NMS network is a site in a larger private messaging network.

Dialing from all users on all switches in an NMS network to a remote site in the private network must be completed uniformly. The only exception is that the ESN code may be different.

Dialing restrictions for calls beyond the private messaging network

A uniform dialing plan is also necessary to make calls from an NMS network to PSTN users.

Dialing from all users on all switches in an NMS network to a PSTN site, which is not part of the private network, must be completed uniformly. The only exception is that the ESN code may be different.

Implications of the dialing restriction for calls beyond the private network

The uniform dialing plan restriction has important implications that must be considered when implementing an NMS network.

For all switches in an NMS network to dial PSTN destinations in the same way,

- All switches in the NMS network must be located in the same city/area code.
- All switches must be located in proximity to one another (that is, within the same PSTN local calling area).
- All switches must use the same prefixes to reach the PSTN.

If these requirements are not satisfied, when a user on a satellite switch in the NMS network dials a PSTN destination using features such as Thru-Dial, Call Sender, and Remote Notification, the message may not be delivered. This is because, although the call is made at a satellite switch location, the call is actually dialed from the prime switch location.

These implications do not affect users on the prime switch location.

Note: While CallPilot is supported, calls may not work.

All switches must be located in the same city/area code

Switches in different city/area codes cause problems.

Example: Switch A is in the 416 city/area code and switch B is in the 905 city/area code. To dial from switch A to (416)597-1234, a user dials 95971234. However, a user on switch B must dial 914165971234.

All switches must be in the same calling area

Numbers that require different dialing from different switches cause problems.

Example: To reach the PSTN number (905)555-1234, a user on switch A can dial 919055551234. A user on switch B, however, can dial only 95551234. Because the switches have different local and long-distance dialing areas and use different dialing formats to reach the same PSTN number, the dialing plan is not uniform.

All switches must use the same prefixes to reach the PSTN

Switches that do not use the same prefixes to reach the PSTN may cause problems.

Example: All switches in the NMS network must use the same local, long-distance, and international dialing prefixes. If users on switch A dial 61 for long distance and users on switch B dial 71, the dialing plan is not uniform.

CDP dialing plan restriction

If a CDP dialing plan is used, the CDP code must overlap the mailbox number sufficiently.

Hybrid dialing plan requirements

If a hybrid dialing plan is implemented in the NMS network, the following requirements must be met:

- All switches must support ESN and have ESN prefixes.
- The prime switch must support both ESN and CDP.
- CDP can exist on any satellite switches.
- The general restrictions that apply to CDP also apply to CDP when used in a hybrid dialing plan.

Considerations

If all CDP switches share the same ESN prefix, configure the prime switch to represent all of the switches that are part of CDP.

If each CDP switch has its own ESN prefix, or prefixes, create a location for each ESN switch in the network. That is, group the switches by ESN prefixes.

Implementing NMS

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Overview

Introduction

Successful implementation of NMS requires planning and preparation. A plan that specifies the objectives and functionality of the networking implementation is important.

Before you begin to implement NMS, you should understand the basic implementation process and what you are expected to do.

All steps in the implementation process are described in more detail in the following chapters.

Before you begin

NMS is an incremental installation onto your CallPilot system.

This guide assumes that the following preliminary requirements are met:

- The prime switch is installed and configured.
- The satellite switches are installed and configured.
- CallPilot is installed and configured, except for NMS.
- Sufficient trunks connecting the prime switch to a public switch are available.
- If the implementation is an upgrade from Meridian Mail, all legacy information is available.

Implementation process

The main steps in the implementation process are

- gathering information (Chapter 3, “Gathering information”)
- configuring the switch locations (Chapter 4, “Configuring the switches”)
- configuring CallPilot on the Meridian Application Server (Chapter 5, “Configuring CallPilot for NMS”)
- testing and backing up the system (Chapter 6, “Testing and backing up NMS”)

Gather information

Introduction

Before you implement NMS, you must understand how the network will work and how users will dial one another.

If the implementation is an upgrade

If CallPilot NMS is an upgrade from an existing NMS setup or is being added to an existing site, information must be gathered about the existing site. Whenever possible, the information will be reused so that the implementation of CallPilot NMS will be transparent to users, and they will continue to use the system as they always have.

If the implementation is a new network

If NMS is a new implementation, this information must be created. Information about the administrative setup should be gathered first so that there are no conflicts. For example, prefixes used to dial an exterior number, a long-distance number, or an international call should be gathered.

Much of the required information depends on the dialing plan that will be used. If CallPilot NMS is replacing a current system, usually the existing dialing plan will be re-created. If CallPilot is a new implementation, the choice of dialing plan depends on how the system will be used.

Recommendation

An ESN dialing plan is recommended over a CDP dialing plan.

An ESN dialing plan has several advantages, including the following:

- easier to maintain
- easier to add new sites
- minimal conflicts with numbering plans

Configure the satellite switches

Introduction

Although all satellite switches must be installed and configured before you begin to implement NMS, you must make additional changes to the satellite switch configurations.

Satellite switches must forward to the prime switch

Phantom directory numbers (DNs) have been set up on the prime switch. These phantom DNs are used by the switch to route calls to services. Phantom DNs forward incoming calls to the appropriate CDN queues on the prime switch for further call handling.

By creating a phantom DN for CallPilot services, every service has a unique number that users dial. Some services, such as Integrated Voice and Fax, may be configured to use the CDN numbers directly.

To make the services that are available to users on the prime switch available to users on the satellite switches, the phantom DNs on the satellite switches must be configured to forward to the ACD queues on the satellite switch. In turn, the ACD queues on the satellite switch forward to the CDN queues on the prime switch.

Phantom DNs and NMS

To access a CallPilot service, a user enters a unique dialable number. The switch uses this number to begin routing the call to the requested service.

The call is routed to ACD queues on the satellite switches and then to CDN queues on the prime switch location.

Determine the CDN queues on the prime switch

You must know the CDNs used on the prime switch to configure the phantom DNs and ACD queues on the satellite switches.

Ask the switch technician responsible for configuring the prime switch location for this information.

NMS network configuration

Introduction

NMS configuration consists of adding information about the Meridian Application Server, the prime switch location, and all satellite switch locations to the database.

Prime switch location configuration

When you configure the prime switch location for NMS, you complete the required information on the Messaging Network Configuration—Local Prime Switch dialog box.

Configuration consists of providing general information about the switch location, such as name and server type, as well as detailed information about the dialing plan used.

Satellite switch location configuration

When you configure a satellite switch location, you complete the required information on the Messaging Network Configuration—Satellite Switch dialog box.

Configuration consists of providing general information about the switch location, such as name and server type, as well as detailed information about the dialing plan used.

You must also configure the phantom DNs and ACD queues on the satellite switch locations.

After adding a phantom DN for a satellite switch, you must add an entry to the SDN Table on the prime switch location.

Meridian Application Server configuration

There are two main steps to configuring the Meridian Application Server:

- adding and configuring inbound SDNs for all services provided by all switch locations
- configuring the messaging network configuration information

SDNs

Although the Service Directory Number (SDN) Table on the Meridian Application Server is already set up and configured, you must make additions to the table for NMS after configuring the phantom DNs and ACD queues on the satellite switch locations.

Messaging Network Configuration

Configure the local Meridian Application Server for NMS by completing the required information on the Messaging Network Configuration—Local Server dialog box.

Test and back up the system

Test the NMS network to ensure that the system is properly configured and is sending messages as expected.

After the system is tested, perform a backup. The backup ensures that the proper configuration is not lost in the event of a system failure.

See also

If you require additional information about the general implementation process, consult the *Networking Planning Guide*.

NMS site configuration

Introduction

If the NMS network is a site in a larger messaging network, it is called an NMS site.

The first steps in configuring of an NMS site are the same as those for configuring an NMS network. In fact, first you set up an NMS network, and then you add it to the messaging network as a site, specifying the protocol or protocols that the NMS site uses to communicate with other sites in the messaging network.

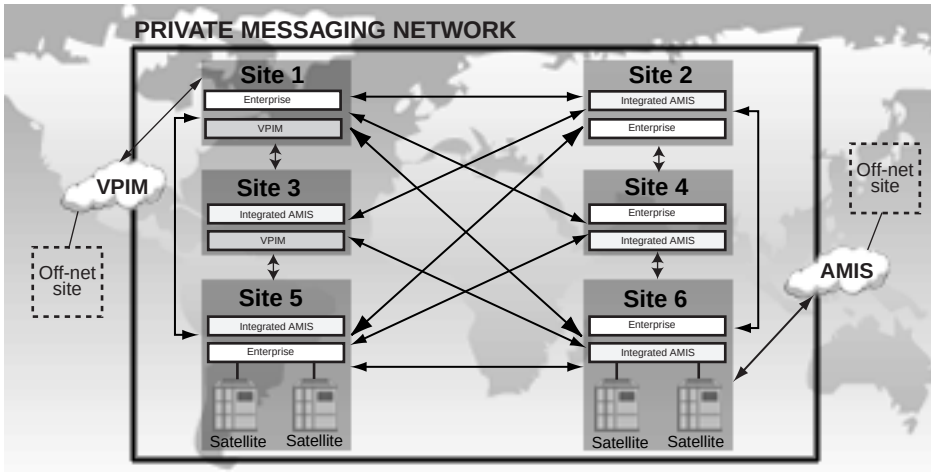
Recommendation

Plan the entire messaging network before configuration to ensure that there are no conflicts with any other sites in the messaging network.

Example

The following example illustrates two NMS sites, Site 5 and Site 6, in a messaging network. In this example, suppose you are the administrator of Site 6.

In addition to NMS, you know that you are implementing Enterprise Networking, AMIS Networking, and Integrated AMIS Networking on your system. You know which sites you will communicate with using each protocol.



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You begin by implementing NMS on Site 6. Once completely implemented and tested, you provide all details of the configuration to the administrators of the remote sites as part of a general information-sharing and -gathering process.

The network administrator at Site 5 also implements and tests NMS.

When both Site 5 and Site 6 have NMS implemented, configuration information is shared with all other sites in the messaging network.

Only after the NMS network implementation is complete and all the required information is gathered can you begin to implement the other networking solutions.

chapter 3

Gathering information

This chapter describes how to gather the information that is required to implement NMS.

The chapter also describes how to create a representation of the NMS network.

In this chapter

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NMS network representation 83

Required information

Introduction

Before you begin to implement NMS, gather the information that is required to configure the system.

This information specifies how the switches in the NMS network communicate.

Required information

Information is required from the prime switch location and each satellite switch location.

Prime switch location information

The following information is required:

- switch location name
- dialing plan used
  - ESN
  - CDP
  - hybrid, combining ESN and CDP
- dialing plan information
  - ESN dialing plan:
    - ESN access codes
    - number of overlapping digits between ESN prefix and local extension
    - ESN prefix, including the access code
  - CDP dialing plan:
    - number of overlapping digits between CDN steering code and local extension
    - CDP steering code
  - hybrid dialing plan, combining ESN and CDP dialing plans
- extension numbers used (necessary to avoid conflicts with any codes and prefixes used)
- information about existing CDNs and phantom DNs defined on the switch

Satellite switch location information

The following information is required:

- switch location name and number
- dialing plan used
  - ESN
  - CDP
  - hybrid, combining ESN and CDP
- dialing plan information
  - ESN dialing plan:
    - ESN access codes
    - number of overlapping digits between ESN prefix and local extension
    - ESN prefix, including the access code
  - CDP dialing plan:
    - number of overlapping digits between CDN steering code and local extension
    - CDP steering code
  - hybrid dialing plan, combining ESN and CDP dialing plans
- extension numbers used (necessary to avoid conflicts with any codes and prefixes used)
- information about existing phantom DNs and dummy ACD queues defined on the switch

NMS network representation

Introduction

A representation of the NMS network summarizes how the NMS network is set up. It contains information about each of the switch locations and the Meridian Application Server, and indicates the relationships among them.

If sufficiently detailed, a representation of the NMS network is the primary source of information consulted during implementation.

For most NMS networks, a diagram is the most suitable form of representation. For a very large NMS network, however, a spreadsheet is more appropriate.

Purpose

A detailed diagram or spreadsheet is useful because it contains all of the information you require to implement NMS. During implementation, you enter information from the representation into the network database.

In many ways, the representation is your implementation blueprint.

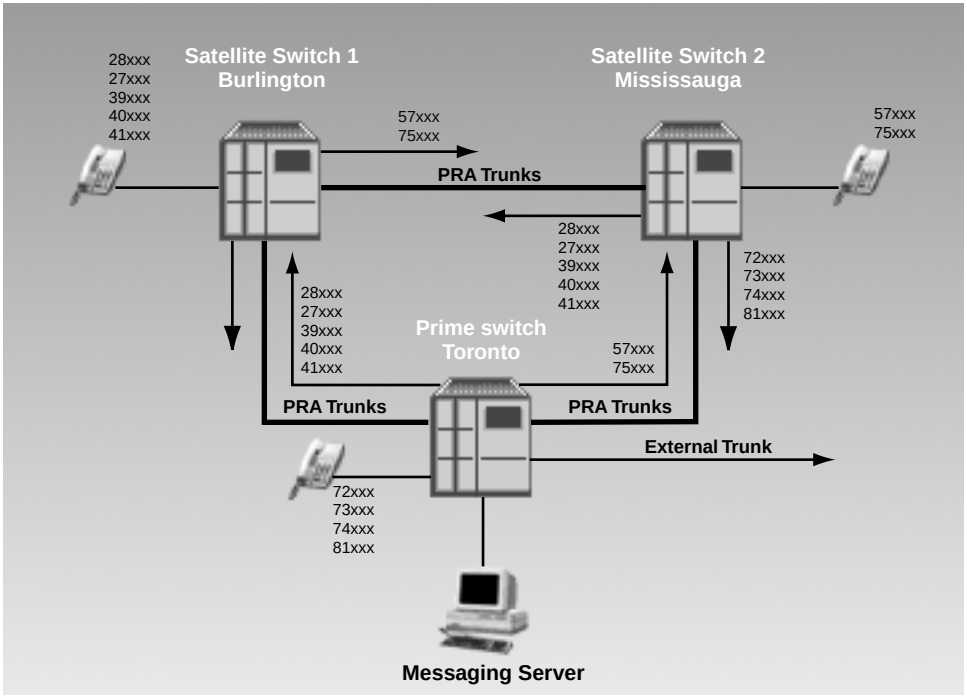
Benefits

There are many benefits to creating a representation of your messaging network. A representation

- offers a clear view of how your network is connected
- provides an opportunity to determine if there are any conflicts
- gathers all required information in one place
- provides useful information when planning future modifications
- helps during the analysis of traffic issues
- reveals areas where the network could be improved
- provides support personnel with a concise, clear view of the network

Sample NMS diagram

The following diagram illustrates a simple NMS network. The dialing plan is CDP. Each switch location is defined as a distinct user location.



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Protecting the representation

Your network representation contains sensitive information. It should be properly stored and protected as part of normal security procedures.

See also

For more information on creating network diagrams, consult the *Networking Planning Guide*.

chapter 4

Configuring the switches

This chapter describes how the prime switch location and the satellite switch locations are configured to implement NMS.

The chapter introduces the concepts that are necessary to understand the configuration process and provides detailed configuration procedures.

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Configuring the switch locations 91

About switch configuration

In this section

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Confirming the Network Class of Service 89

Switches and NMS

Introduction

Switches provide the call handling required by CallPilot.

All switches that are used by NMS are already configured and tested when you begin to implement NMS.

However, you must check this configuration to determine if it is suitable for NMS. You must also do additional configuration to enable functionality that is required by NMS.

Confirming the Network Class of Service

Introduction

On each switch location in the NMS network, confirm that the Network Class of Service (NCOS) level is adequate for NMS.

If an NCOS level is inadequate, NMS may not work.

Definition: Network Class of Service

A Network Class of Service level is a switch setting that controls access to trunks and call queuing. It also provides users with expensive route warning tones.

NCOS and NMS

NMS requires that the system be able to dial within the NMS network. Therefore, ensure that the NCOS level is sufficient to support a CallPilot system with all features.

The NCOS level must allow the system to dial out of a switch location for Call Sender and Thru-Dial, but not create possible security breaches.

See also

For detailed information about NCOS levels, including how to check their current setting and make adjustments if required, refer to your switch documentation.

Configuring the switch locations

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Phantom DNs and SDNs in an NMS network 95

Switch overlays 98

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Adding and configuring SDNs in the SDN Table 111

Overview

Introduction

NMS provides the same CallPilot services to users on satellite switches that are available to users on the prime switch. NMS provides these services transparently. That is, users receive the same services without having to enter any additional numbers, regardless of which switch they are on.

To provide these services, the switches and the server in the NMS network must be carefully configured.

Configuring the prime switch location and the satellite switch locations is a major step in implementing an NMS network.

Skill requirements

Configuring switches for NMS should be done by an experienced switch technician.

Assumptions

This guide assumes that you have a basic understanding of how the prime switch is set up and how it interacts with the server to provide requested services.

You should understand the following terms:

- service directory numbers (SDNs)
- controlled directory numbers (CDNs)
- phantom directory numbers (phantom DNs)

For a review of these concepts, consult the relevant sections in the *Advanced Administration Guide*.

Before you begin

Implementing NMS is an incremental process.

Before you begin to configure the switches in your NMS network, the following should be complete:

- The Meridian Application Server is installed and configured. The SDN Table contains all local SDNs.
- The prime switch location is installed and configured. The CDNs and the phantom DNs are set up.
- The satellite switch locations are installed and configured. However, the phantom DNs and the dummy ACD-DNs must be set up.
- Adequate trunks are installed on all switch locations.

Administrator cooperation

Configuring the switch locations in an NMS network requires cooperation among the administrators of all switch locations.

The following process is recommended:

- Gather the required information from the prime switch.
- Configure each satellite switch based on the gathered information.
- Complete the configuration of the SDN Table on the messaging server.

See also

For a general discussion of phantom DNs, SDN Tables, and how switches must be configured for CallPilot, consult the relevant sections in the *Advanced Administration Guide*.

Dummy ACD-DNs on satellite switch locations

Introduction

CDNs exist on the prime switch only. Satellite switch locations have dummy ACD-DNs.

A dummy ACD-DN forwards a request for a service by a user on the satellite switch location to a CDN on the prime switch.

To provide the service, a dummy ACD-DN forwards the request through a night call forward (NCFW) DN. The NCFW DN determines the CDN to which calls are routed.

Number of dummy ACD-DNs required

The number of dummy ACD-DNs on a satellite switch location must be the same as the number of CDNs on the prime switch.

For example, if there are two CDNs on the prime switch, one for voice and one for fax, there must be two dummy ACD-DNs on each satellite switch location, one for voice and one for fax.

Phantom DNs and SDNs in an NMS network

Introduction

You must understand how the switch locations handle messages to understand the switch configuration that is required for NMS.

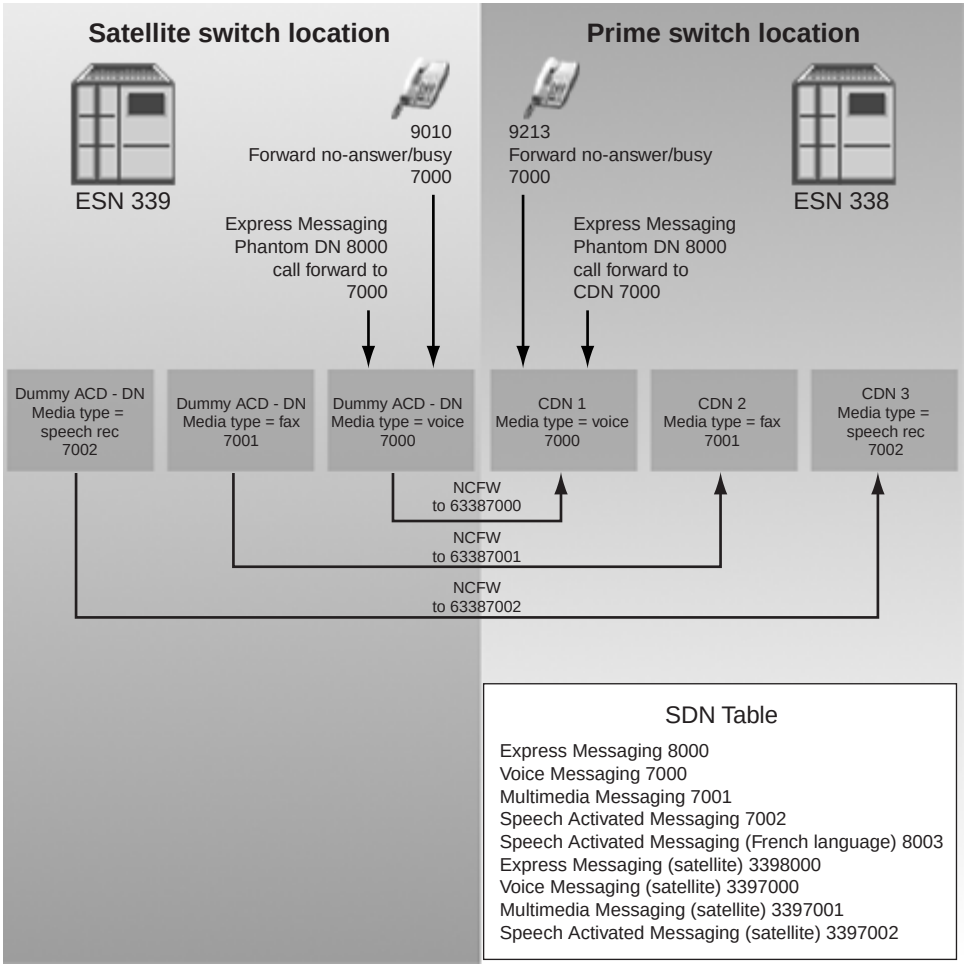
All switch locations in an NMS network have phantom directory numbers (DNs).

The phantom DNs of satellite switch locations are configured differently from the phantom DNs of the prime switch location.

Interrelationships

The following diagram illustrates the relationship among the phantom DNs on a satellite switch location, the dummy ACD-DNs on a satellite switch location, the CDNs on a prime switch location, and the SDN Table.

The phantom DNs of the prime switch location are set up before you begin to implement NMS. Information about the configuration is required to set up the phantom DNs on the satellite switch locations. The SDN Table already exists on the messaging server. You add additional entries to the table for the services provided on each of the satellite switch locations.



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Satellite switch location phantom DNs

The phantom DNs of the satellite switch location are separately defined on the satellite switch.

This allows users on the satellite switch to dial a local number rather than using the prime switch phantom DNs with a prefix. For example, a user enters 63388000 for Express Messaging.

In this diagram, the phantom DNs of the satellite switch location are set up so that users on any switch location can use the same digits to access the service. However, this is not a requirement. Different phantom DNs and dummy ACD queue numbers can be used on the satellite switch as long as the corresponding network numbers are entered in the SDN Table.

SDN Table

The SDN Table on the messaging server contains the SDNs that correspond to the phantom DNs, CDNs, and dummy ACD queues of both the satellite switch locations and the prime switch location.

The number dialed is used to locate the requested service. In the diagram, the 3397000 matches the Voice Messaging Service for the satellite switch location. A user on a satellite switch dials 7000 to reach the service, but the SDN configuration must contain the number in the network format as seen by the prime switch (for example, 3397000).

The SDN is the dialable number that provides the service to the user on the satellite switch location.

Satellite switch location SDNs

The dialing plan prefix distinguishes the SDNs for satellite switch locations from the SDNs for the prime switch location.

If an ESN dialing plan is used, the satellite switch location SDN entries do not include the ESN access code. Only the location code is required.

Example: If the ESN access code is 6, the location code is 339, and the DN is 8000, enter 3398000 for the service in the SDN Table.

Switch overlays

Introduction

Satellite switch locations for NMS are configured on the following overlays:

Task	Overlay
Define a dummy ACD-DN.	23
Configure a phantom DN.	10

Responses to overlay prompts

To program an overlay, you respond to a series of prompts. The procedures in this section mention only those prompts that are relevant to NMS. You must respond to these prompts in a certain way.

Any prompt that is not mentioned can be programmed in any way. To accept the default value for other prompts, press Enter.

When working with overlays, follow the general steps below.

To work with overlays

1. Load the appropriate overlay.
2. Respond to prompts as shown in the tables in this section.
3. Press Enter after each prompt until you get to the next one to be defined.
4. When configuration is complete, enter **** in response to the REQ prompt.

   Result: You exit the overlay.

Prime switch configuration

Introduction

The prime switch provides the call handling services required by NMS. All requests for services from the satellite switch locations are forwarded to the prime switch location.

The configuration of a satellite switch location must be coordinated with the configuration of the prime switch location. Gather configuration information from the prime switch location before configuring a satellite switch location.

Required information

You must gather complete details of the configuration of the CDNs and phantom DNs on the prime switch location. This information is used to configure a satellite switch location.

Phantom DNs

While some services are accessed by directly dialing a CDN, many services are accessed by dialing a phantom DN.

A phantom DN forwards incoming calls to a controlled directory number (CDN) for further call handling. A phantom DN is created for each service offered by the switch. This ensures that each CallPilot service has a unique number that users dial.

Example

A user dials 8000 to access Express Messaging and 7040 to access Fax Item Maintenance. Phantom DNs must exist for both services.

Determine the CDNs and the phantom DNs on the prime switch

You must know the CDNs and the phantom DNs used on the prime switch to configure the phantom DNs on the satellite switches.

Ask the switch technician for a complete list of the CDNs and the phantom DNs, as well as the services they provide.

Coordinate with the administrators of satellite switches

The administrators of the satellite switches must know the phantom DNs used on the prime switch.

Ensure that every administrator has a complete and accurate list of the phantom DNs and the services they provide.

See also

For detailed information about phantom DNs and how a switch must be configured for CallPilot, consult the relevant sections in the *Advanced Administration Guide*.

Configuring satellite switch locations

Introduction

Although the satellite switch locations are installed and set up before you implement NMS, some additional configuration is required.

The additional configuration consists of two main steps:

- Configure the dummy ACD-DNs to forward to the CDNs on the prime switch.
- Configure the phantom DNs to forward to the dummy ACD-DNs.

Note: The procedures that follow are for new satellite switch locations. If you are upgrading an existing satellite switch location, review the section “Upgrade an existing satellite switch” on page 106.

Before you begin

You must know the CDNs and phantom DNs that are used on the prime switch location to configure the phantom DNs and dummy ACD-DNs on the satellite switch locations.

Define the dummy ACD-DNs

Define a dummy ACD-DN for each media type used.

Usually, for each type of CDN on the prime switch, there is a corresponding dummy ACD-DN on the satellite switch.

If this is on the prime switch	Then this is on a satellite switch
CDN Media type: Voice	Dummy ACD-DN Media type: Voice
CDN Media type: Fax	Dummy ACD-DN Media type: Fax
CDN Media type: Speech recognition	Dummy ACD-DN Media type: Speech recognition

If a satellite switch does not provide any of the services provided by a type of CDN queue, it is not necessary to define a dummy ACD-DN. For example, if a satellite switch does not provide any speech recognition services, a speech recognition dummy ACD-DN is not required.

Setting the dummy ACD-DNs to night call forward

Every dummy ACD-DN must be configured to night call forward to the corresponding CDN on the prime switch location.

The forwarding address must be in network format. For example, to night call forward to 63387000,

- ESN access code = 6
- Location code of prime switch = 338
- Voice CDN on prime switch = 7000

By configuring night call forwarding in this way, users on the satellite switch location can access the CallPilot service by entering the local satellite switch ACD queue number, 7000. They do not have to explicitly dial the CDN on the prime switch location.

To define a dummy ACD-DN on a satellite switch

1. Load overlay 23.
2. For each prompt listed in the following table, enter the response indicated. For prompts that are not listed, click Enter to accept the default.

Prompt	Response	Description
REQ	NEW	Indicates creation of a new DN
TYPE	ACD	
CUST	0	
ACDN	x...x	For example, 7000 ■ 7 digits maximum length
MWC	YES	Indicates this is a message center DN

Prompt	Response	Description
MAXP	1	Even though there is no agent for this DN, one is required
NCFW	x...x	Night call forwarded DN ■ up to 31 digits, network number of CDN on the prime switch

3 To define another dummy ACD-DN, at the REQ prompt enter **YES**.

4 To exit the overlay, enter ****.

Phantom DNs

Add phantom DNs for services that you want available at that satellite switch location.

Note: You can add additional phantom DNs to account for additional services that you plan to implement in the future.

Add phantom DNs

For detailed instructions on how to add a phantom DN to a satellite switch location, consult the *Advanced Administration Guide.* The procedures for entering phantom DNs on the prime switch are the same as the procedures for entering phantom DNs on a satellite switch.

Forward phantom DNs

Every phantom DN that is added to a satellite switch location must be call forwarded to the dummy ACD-DN on a satellite switch.

To forward a phantom DN

1. Load overlay 10.
2. Define the phantom DNs to default call forward to the dummy ACD-DN. At the FTR prompt, enter **DCFW**, the number of digits in the default forward DN (only certain values are accepted), and the default DN.

   Example: FTR DCFW 4 7000 (where 7000 is the dummy ACD-DN on the satellite).
3. To exit the overlay when configuration is complete, enter **** at the REQ prompt.

Configuring telephones of users on satellite switch locations

Introduction

To configure a user's telephone on a satellite switch, you use a procedure similar to the one used on the prime switch. However, on a satellite switch, a dummy ACD-DN is used instead of a CDN.

The local ACD-DN is specified as the local forward DN and the Hunt DN for the user's phone. The same DN is also defined as the message center DN on the Message Waiting key.

Example

- FDN 7000
- HUNT 7000
- KEY 8 MWK 7000

To configure a telephone

1. Load overlay 11.
2. For each prompt listed in the following table, enter the response indicated. For prompts that are not listed, click Enter to accept the default.

Prompt	Response	Description
FDN	xxxx	ACD-DN (at the satellite switch) as forward-no-answer DN
HUNT	xxxx	Hunt to ACD-DN
KEY	8 MWK xxxx	ACD-DN as message center DN

3. To exit the overlay, enter ****.

Upgrade an existing satellite switch

Introduction

The configuration of satellite switches for NMS in CallPilot is different from the configuration for Meridian Mail.

Meridian Mail uses dummy ACD-DNs, rather than phantom DNs, to forward a call to another ACD-DN on a satellite switch. These ACD-DNs forward to ACD-DNs for Meridian Mail on the prime switch.

If you are upgrading an existing system, you must decide how you will configure the satellite switches. You can either reuse the existing legacy configuration or reconfigure the system.

Continued use of ACD-DNs

To continue to use the dummy ACD-DNs instead of phantom DNs with CallPilot, make sure that the ACD-DN that is forwarded to is, in turn, configured to night call forward to the CDN on the prime switch, specified in network format.

For the procedures for night call forwarding the dummy ACD-DNs, consult the original switch documentation.

Upgrade to phantom DNs

You can also upgrade the existing dummy ACD-DNs and replace them with phantom DNs.

To upgrade the system, follow the procedure in “Configuring satellite switch locations” on page 101.

Remove the unused dummy ACD-DNs.

SDN Table and NMS

Introduction

A Service Directory Number (SDN) Table already exists on the Meridian Application Server. It contains all of the SDNs required by the prime switch.

However, you must add entries to the SDN Table to satisfy the needs of the satellite switch locations. These additional entries are the services used at each of the satellite locations.

After all satellite switch locations are configured, their phantom DNs and dummy ACD-DNs must be added to the SDN Table.

Definition: SDN

A service directory number (SDN) enables a user to access a CallPilot service. Each SDN must be unique so CallPilot can identify the requested service and play the appropriate prompts.

SDNs and NMS

The services offered by the prime switch location must be available to the satellite switches. For this reason, SDNs corresponding to the services offered by the satellite switches must be added to the SDN Table.

Inbound SDNs

In an NMS site, the satellite switch locations require only inbound SDNs. An inbound SDN is a directly dialable number used to access services.

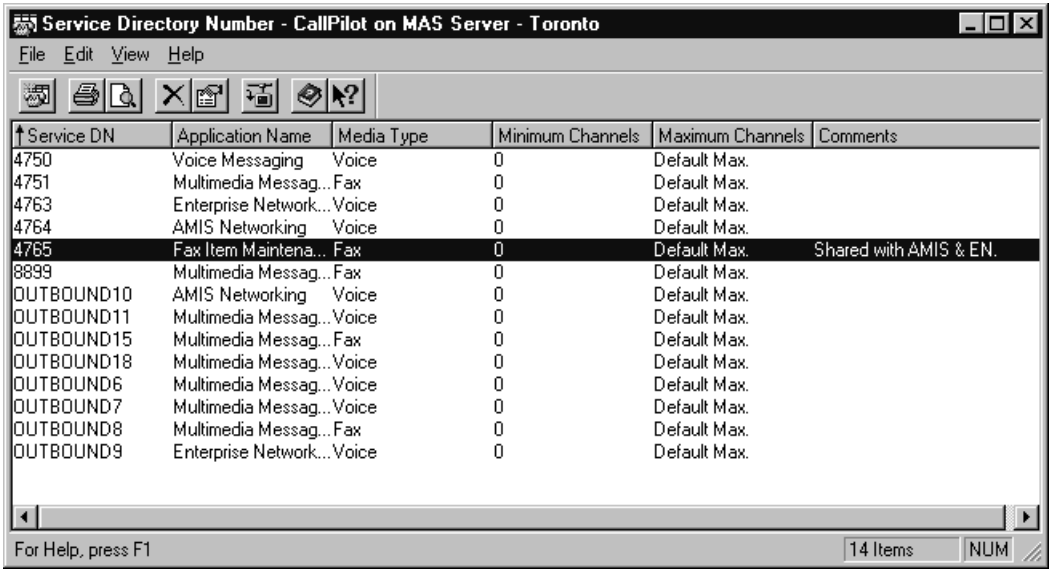
SDN Table

The SDN Table is created during the initial installation of CallPilot on the server. The SDN Table lists all SDNs and provides details about their settings.

CallPilot uses the SDN Table to map directory numbers (DNs) to services. The SDN Table lists both inbound and outbound SDNs.

Example

The following SDN Table contains the SDNs for both the prime switch and a satellite switch. The satellite switch SDNs consist of two main parts: the same SDN used for the prime switch, and the location code of the satellite switch. In this example, an ESN dialing plan is used.



Service DN	Application Name	Media Type	Minimum Channels	Maximum Channels	Comments
4750	Voice Messaging	Voice	0	Default Max.	
4751	Multimedia Messag...	Fax	0	Default Max.	
4763	Enterprise Network...	Voice	0	Default Max.	
4764	AMIS Networking	Voice	0	Default Max.	
4765	Fax Item Maintena...	Fax	0	Default Max.	Shared with AMIS & EN.
8899	Multimedia Messag...	Fax	0	Default Max.	
OUTBOUND10	AMIS Networking	Voice	0	Default Max.	
OUTBOUND11	Multimedia Messag...	Voice	0	Default Max.	
OUTBOUND15	Multimedia Messag...	Fax	0	Default Max.	
OUTBOUND18	Multimedia Messag...	Voice	0	Default Max.	
OUTBOUND6	Multimedia Messag...	Voice	0	Default Max.	
OUTBOUND7	Multimedia Messag...	Voice	0	Default Max.	
OUTBOUND8	Multimedia Messag...	Fax	0	Default Max.	
OUTBOUND9	Enterprise Network...	Voice	0	Default Max.	

Satellite switch SDNs

The services provided on the satellite switches are entered in the SDN Table on the CallPilot server.

To enter a satellite switch SDN, you must know the phantom DNs and ACD-DNs that are set on the satellite switch, and the location codes of the switch in the dialing plan. Usually (for example, if an ESN dialing plan is used) the phantom DNs on the satellite switches are numbered the same as those on the prime switch.

For an example of satellite switch SDNs, see the diagram under “Phantom DNs and SDNs in an NMS network” on page 95.

See also

For detailed information on SDNs and SDN Tables, consult the relevant sections in the *Advanced Administration Guide*.

Services not in the SDN Table

Introduction

All directly dialed services, such as Express Messaging, must have a corresponding entry in the SDN Table.

However, Call Answering services do not have an entry and are treated as a special case. These services do not have an entry because the number dialed (for example, a user's telephone number) is not in the SDN Table.

Since the dialed number is not found, the CDN used to route the call to CallPilot is used to determine the appropriate type of call answering service to start.

CDNs used

The CDNs are the prime switch CDNs, even for call answering calls from satellite locations. Typically, two CDNs are used. One CDN is for call answering with the Multimedia Messaging service configured against it, with the media type set to Voice. The second CDN is for voice and fax call answering with the Multimedia Messaging service configured against it, with the media type set to Fax.

A result of this configuration is that even if fax call answering is used only on satellites, a corresponding CDN queue and SDN entry for Multimedia (fax media) must be configured.

Adding and configuring SDNs in the SDN Table

Introduction

NMS requires inbound and outbound SDNs for the services available on each satellite switch location as well as the services available on the prime switch location. Outbound SDNs are created automatically by the system.

Inbound SDNs

An inbound SDN is not created automatically. You must add and configure each one.

Before you begin

The SDN number must correspond to a dummy ACD-DN or phantom DN on the switch. Therefore, make sure you know these numbers before beginning the configuration.

Note: The voice or fax call answering on a satellite switch location uses the CDN on the prime switch location and is therefore not added to the SDN Table.

SDN format for prime switch location

When adding SDNs for services at the prime switch location, enter them in local format.

Example

Create an SDN for Express Messaging at the prime switch location with a phantom DN of 8365.

SDN format for satellite location

When adding an SDN for a service at a satellite location, the SDN must be in a network format that is dialable from the prime location (when prefixed with the access code) because this is the number the switch passes to CallPilot.

Therefore, the SDN must include the ESN location code or the CDP steering code for the satellite switch location.

Example

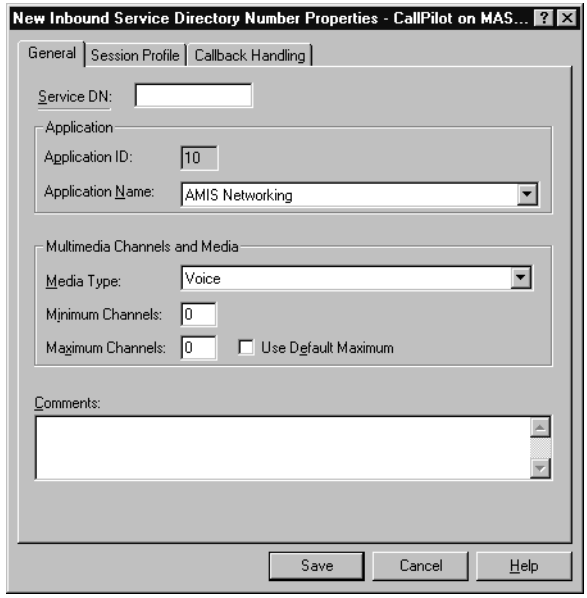
- ESN location code for satellite = 444
- Phantom DN for express messaging on satellite = 3544
- SDN for express messaging = 4443544

Getting there Nortel SMI > Meridian Application Server > System Configuration > Service Administration > Service Directory Number

To add and configure a new inbound SDN

1 From the SDN Table, select New from the File menu.

Result: The New Inbound Service Directory Number Properties dialog box appears.



2 On the General tab, enter the SDN number in the Service DN box.

Note: This number must correspond to a CDN or phantom DN on the switch.

3 Select an application from the Application Name list.

Result: The corresponding application ID appears above the application name in the Application ID box.

4 Select the type of channel required by the service in the Media Type list.

5 If you want to reserve a minimum number of channels for the service, enter the number in the Minimum Channels box.

6 Do one of the following:

- Select the Use Default Maximum box.

Note: This is the recommended option.

- Enter the maximum number of channels that a service can use at one time in the Maximum Channels box.

Note: The maximum number of channels cannot exceed the total number of channels available on the server. If you enter a number larger than the total number of channels, a warning box appears asking you to change the number.

7 Enter any comments in the Comments box.

8 Click Save to add the SDN to the SDN Table.

9 Repeat steps 1–8 for every phantom DN and dummy ACD-DN on every satellite switch location.

chapter 5

Configuring CallPilot for NMS

This chapter describes how to configure CallPilot during the NMS installation process.

The chapter introduces the concepts that are necessary to understand the configuration process and provides detailed configuration procedures.

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Configuring the Meridian Application Server

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Configuring the local messaging server 120

Overview

Introduction

The implementation of NMS requires additional configuration of CallPilot. This configuration determines how the switch locations of an NMS site exchange messages.

The configuration process consists of three main steps:

- configuring the Meridian Application Server
- configuring the prime switch location
- adding and configuring each satellite switch location in the messaging network

CallPilot automatically assigns the prime switch location to the Meridian Application Server. The prime switch location requires additional configuration.

Each satellite switch location must be manually added. Each requires configuration.

Before you begin

Before you begin to configure CallPilot, your switch locations must be completely set up and properly configured. The SDN Table must contain all necessary entries.

Dialing plan information is an important part of the configuration process. All dialing plan information must be gathered and available before beginning.

Use your messaging network representation as a guide for entering required information.

ATTENTION!

It is strongly recommended that you perform each step in the configuration process in the order presented.

Recommended procedure

Configure the prime switch location before configuring the satellite switches.

The process of configuring the prime switch location is almost identical to the process of configuring a satellite switch location.

Capacity

A Meridian Application Server with NMS can support one prime switch location and up to 59 satellite switch locations.

Messaging Network Configuration tree view

The Messaging Network Configuration tree view contains a graphical representation of your NMS network. The tree view shows the local Meridian Application Server and all switch locations.

Use the tree view to gain access to the Properties dialog boxes where you configure the Meridian Application Server and the prime switch location, and add and configure the satellite switch locations.

See also

For a detailed discussion of the Messaging Network Configuration tree view and the Properties dialog boxes, consult the *Networking Planning Guide*.

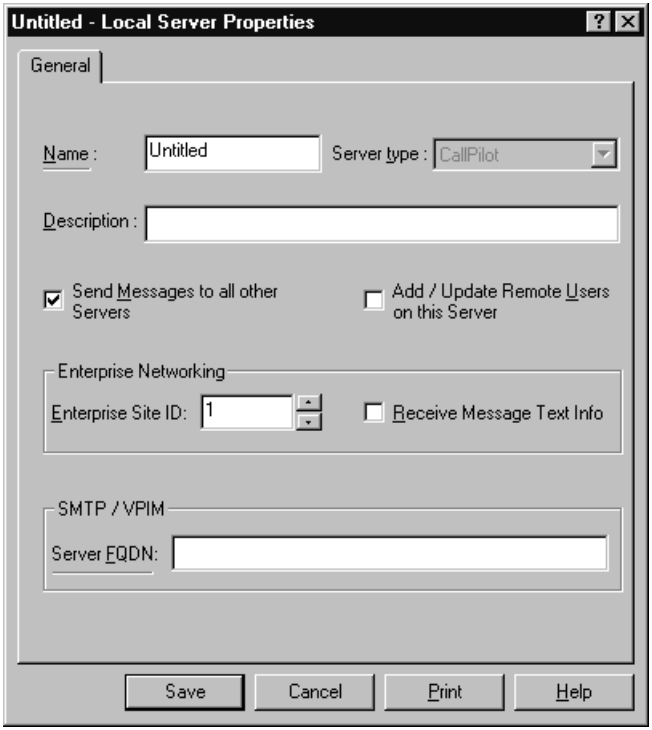
Configuring the local messaging server

Introduction

When CallPilot is initially installed on your system, a Meridian Application Server and local switch location are automatically added to the Messaging Network Configuration tree view.

The Meridian Application Server must be configured. Configuring the server consists of saving general information about the server, such as name and description, to the network database.

The local messaging server is configured on the Local Messaging Server Properties—General tab.



If another messaging solution is installed

If Enterprise Networking, VPIM Networking, or both are installed on the local server, you must add placeholders to certain boxes on the Messaging Network Configuration—Local Server dialog box.

The dialog box cannot be saved if these boxes are left empty.

Enterprise Networking

If Enterprise Networking is installed, you must provide a placeholder for the Enterprise site ID. You replace this placeholder with the actual site ID when implementing Enterprise Networking.

If you know the Enterprise site ID, enter it during configuration.

VPIM Networking

If VPIM Networking is installed, you must provide a placeholder for the SMTP/VPIM Networking server FQDN. You replace this placeholder with the actual server FQDN when implementing VPIM Networking.

If you know the server FQDN, enter it during configuration.

Name

The messaging server is usually given a name that corresponds to its geographic location. The name given to the messaging server becomes the name of the NMS network.

By default, both the Meridian Application Server and the prime switch location are assigned the name “Untitled.” You assign a new name to the server and prime switch location during configuration.

Server type

The local server is always CallPilot.

Description

A brief description of the Meridian Application Server or implementation notes, such as when the messaging server was configured or who completed the configuration, may be useful here.

Remaining boxes

All other boxes on the General tab are configured only if a CallPilot networking solution is implemented. These boxes are completed during the implementation of that solution's messaging server.

Enterprise Networking and VPIM Networking

Enter required placeholders if Enterprise Networking, VPIM Networking, or both, are installed on the messaging server. If Enterprise Networking is installed, you require an Enterprise Site ID. If VPIM Networking is installed, you require a Server FQDN.

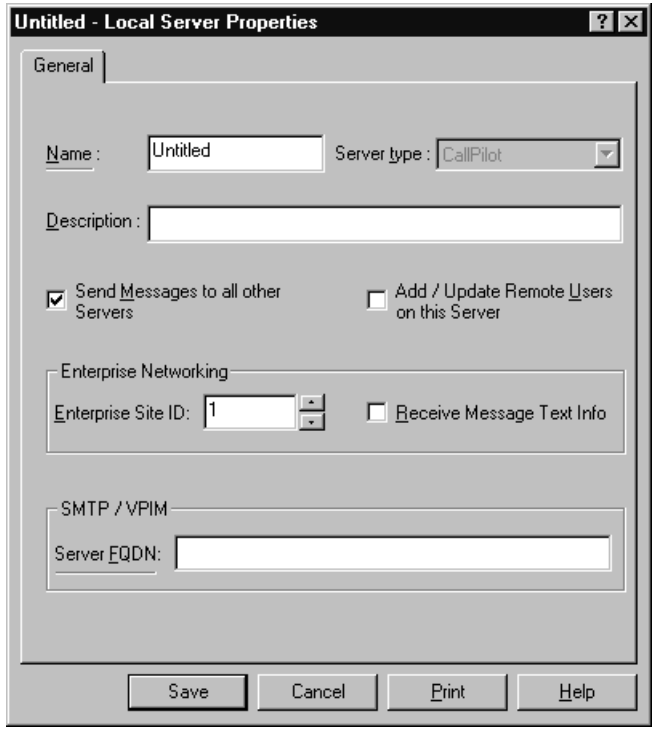
If known, enter the required information.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To configure the local messaging server

1. In the Messaging Network Configuration tree view, select the local messaging server.
2. On the File menu, click Open.

   Result: The Local Prime Server Properties—General tab appears.



3. To change the name of the local messaging server, enter a new name in the Name box.

   Tip: The name given to the messaging server is also the name of the NMS network.

   Note: The server type is always CallPilot and cannot be changed.
4. In the Description box, enter details about the local messaging server.
5. Click Save.

   Result: The information is validated and saved to the network database.

What's next?

After configuring the local messaging server, configure the local prime switch location.

Configuring the switch locations

In this section

About configuring the local prime switch location 126
Configuring the ESN information 132
Configuring the CDP information 135
Adding and configuring a satellite switch location 138
Recording a spoken name 141
Importing a spoken name 143

About configuring the local prime switch location

Introduction

When NMS is initially installed on the Meridian Application Server, a local messaging server and a local switch location are automatically added to the Messaging Network Configuration tree view.

Configure the local prime switch location to implement NMS.

Prime Switch Location Properties dialog box

The local prime switch location is configured on the Prime Switch Location Properties dialog box, which has four tabs:

- General
- ESN
- CDP
- SMTP/VPIM

General tab

Complete the General tab regardless of which dialing plan your site uses.

ESN tab

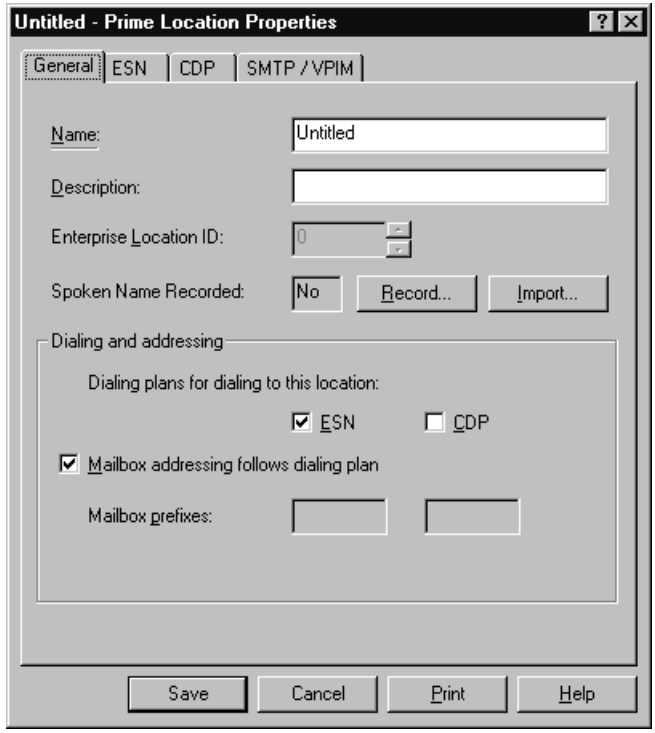
Complete the ESN tab if the local site uses the ESN or a hybrid dialing plan.

CDP tab

Complete the CDP tab if the local site uses the CDP or a hybrid dialing plan.

SMTP/VPIM tab

The SMTP/VPIM tab is enabled only if VPIM Networking is installed on your local switch location. The SMTP/VPIM tab is completed during the implementation of VPIM Networking.



Name

Each switch location must be assigned a name that is unique in the NMS network.

Usually, the name assigned to the prime switch location corresponds to the name of the messaging server. This ensures that the identity of the switch location within the network is immediately apparent. A geographic name is common.

For example, if a messaging server is named “Moscow,” the prime switch location is usually also named “Moscow.”

By default, the local prime switch location is given the name “Untitled.” This name must be changed.

Description

This box is useful for short notes, reminders, or comments about the switch location.

You may find it useful to specify your switch model, the date of the switch configuration, or contact information for the switch technician.

Enterprise Location ID

The Enterprise location ID of the prime switch location is set to 0 by default and cannot be changed.

Spoken Name Recorded

The Spoken Name Recorded check box is enabled if NMS is installed.

When a user on a satellite switch location composes and sends a message to a user on the prime switch location, or uses the Play feature to hear who sent a message, the user hears the spoken name. This can be useful as a confirmation, especially when several switch locations use the same mailbox number.

If a spoken name is not recorded, local users hear the full address, such as “Mailbox 64441234.” If a recording is available, local users hear the switch location name followed by the mailbox number.

You can either record a message using the telephone or import a prerecorded WAV file.

If you do not want your local users to hear the name of this switch location when composing messages or using playback, do not record a message. For example, if you are using the CDP dialing plan and users dial in the same way as they send messages, you may feel that a spoken name is unnecessary.

Dialing plans for dialing to this location

When configuring the local prime switch location, you are specifying the dialing plan that is used to dial to the local site.

You must specify the dialing plan used to dial to the local switch location:

- ESN
- CDP
- hybrid, combining ESN and CDP

If ESN is used anywhere in the messaging network, ESN must be selected, because an ESN access code is required.

Mailbox addressing follows dialing plan

This box is dynamically enabled and disabled depending on the dialing plan specified.

A mailbox is often the same as the number used to dial a user, but this is not a requirement. For example, Joan Chen's mailbox number is 7575, but her extension number is 8888.

You must specify if, at your local site, the mailbox number is the name as the number dialed.

In most cases, the mailbox follows the dialing plan, and a mailbox prefix is not required.

However, if the mailbox does not follow the dialing plan, you must specify at least one mailbox prefix. The mailbox prefix identifies the location of the mailbox.

ATTENTION!

It is strongly recommended that the mailbox follow the dialing plan. If the mailbox does not follow the dialing plan, some features, such as Call Sender, will not work.

Mailbox prefixes

This box is dynamically enabled and disabled depending on the dialing plan specified.

A mailbox prefix is a leading string of digits that uniquely identifies a mailbox number as belonging to a particular site. A mailbox prefix is required only if the mailbox does not follow the dialing plan, that is, if users address a message differently than they dial.

The mailbox prefix is similar to an ESN location code or a CDP steering code. However, the mailbox prefix does not reflect a dialing plan. Instead, the prefix identifies a switch location in an NMS network.

If the local site has NMS installed, the mailbox prefix or prefixes must be configured.

Note: Two mailbox prefixes provide flexibility of addressing.

If a spoken name is not recorded, users hear the mailbox prefix combined with the mailbox number.

Example

A switch location, Toronto, has the following mailbox prefixes:

- 83
- 1214597

Users can address to Toronto mailbox 1234 by entering 83 1234 or 1214597 1234.

Mailbox prefixes cannot conflict with other prefixes, such as the VPIM compose prefix and the AMIS compose prefix. Avoiding conflict may mean inserting leading digits—for example, 81214597.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To configure the Prime Switch Location Properties dialog box

1. In the Messaging Network Configuration tree view, select the local prime switch location.
2. On the File menu, click Open.

   Result: The Messaging Network Configuration—Prime Switch Location Properties—General tab appears.
3. To change the name of the local prime switch location, enter a name in the Name box.
4. In the Description box, enter details about the local prime switch location.

   Note: The location ID is always 0 and cannot be changed.
5. To include recorded a spoken name, either
   - Click Record to record a message, or
   - Click Import to import a prerecorded message.

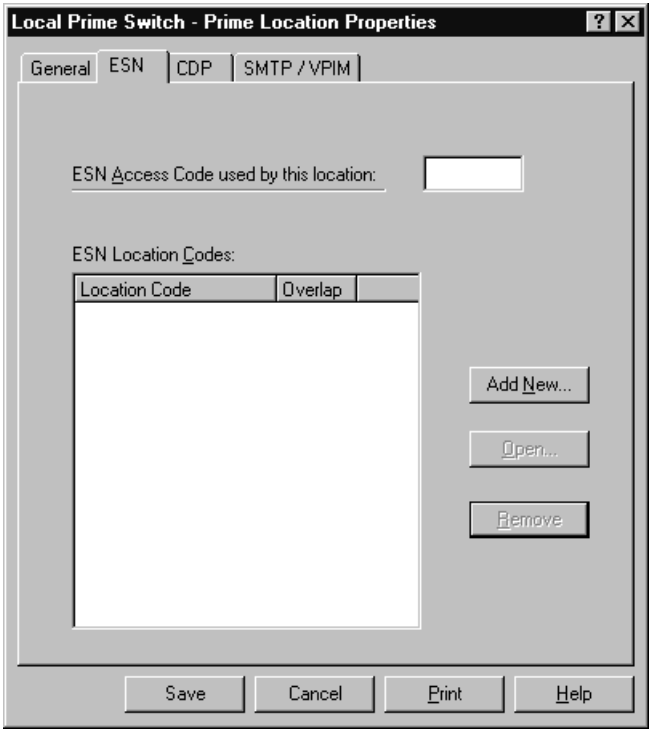
   Note: For detailed instructions on how to record a spoken name, consult “Sharing the configuration information” on page 146. For detailed instructions on how to import a prerecorded spoken name, consult “Importing a spoken name” on page 143.
6. Specify the dialing plan used to dial the local prime switch location. Select the
   - ESN check box if ESN is used
   - CDP check box if CDP is used
   - ESN and CDP check boxes if a hybrid dialing plan is used
7. If users address messages in the same way that they dial, select the Mailbox addressing follows dialing plan box.
8. If users do not address messages in the same way that they dial, enter at least one mailbox prefix.
9. Select the tab you must complete next to continue the configuration.

Configuring the ESN information

Introduction

If the local prime switch location uses either an ESN dialing plan or a hybrid dialing plan, you must complete the ESN tab.

You must provide the ESN access codes and ESN location codes. These are combined to create the ESN prefix.



See also

For a general description of the ESN dialing plan and how it works, consult the *Networking Planning Guide*.

ESN Access Code used by this location

The ESN access code is used to access ESN routing in the same way that an access code, such as 9, is used to call out to the public network from a private network.

Typically, all switches in a messaging network use the same ESN access code.

ESN Location Codes

An ESN location code is a routing prefix that identifies a location within a network. It is usually three digits long, but can be up to ten digits long.

You must also indicate the number of digits in the ESN location code that overlap with the mailbox number.

The ESN Location Codes list contains all ESN location codes currently assigned to the NMS network. The list also indicates the overlap between the ESN location code and the mailbox directory numbers.

ESN location codes can be added, modified, or deleted at any time. However, if overlaps are defined, then deletion may affect the remote user entries defined.

ESN location code capacity

The maximum number of ESN location codes for a switch location is 30.

ESN location code overlap

The ESN location code overlap is the number of digits shared by the location code and an extension number.

If there is overlap between the rightmost digit or digits of the location code and the leftmost digit or digits of the extension number, enter the amount of overlap.

The following table gives two examples of ESN location code overlap:

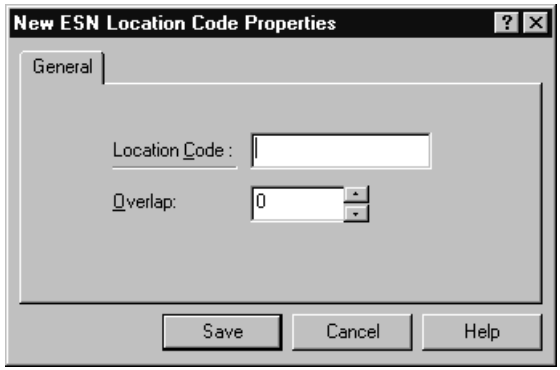
Access code	Location code	Extension number	Number dialed by users at other sites	Overlap
6	33**8**	**8**3000	633**88**3000	0
6	33**8**	**8**3000	633**8**3000	1

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To configure the ESN information

1. Open the Prime Switch Location Properties—ESN tab.
2. Enter the ESN access code.
3. To add a new location code, click the Add New button.

   Result: The New ESN Location Code Properties dialog box appears.



4. In the Location Code box, enter the location code.
5. In the Overlap box, enter the number of digits in the extension number that overlap the location code.
6. Click Save.

   Result: The location code and overlap are validated and appear in the ESN Location Codes list box on the ESN tab.
7. Repeat steps 3–6 for each ESN location code required.
8. When you have finished configuring the ESN information, determine if you must configure CDP information.

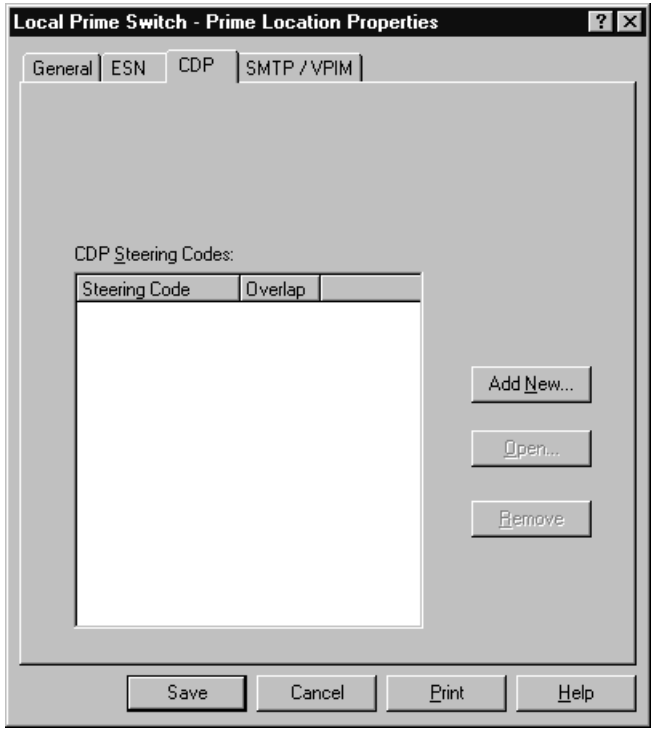
   - If yes, click the CDP tab.
   - If no, click Save to validate the ESN configuration and save it to the database.

Configuring the CDP information

Introduction

If the local switch location uses either a CDP dialing plan or a hybrid dialing plan, complete the CDP tab.

You must provide the CDP steering codes.



See also

For a general description of the CDP dialing plan and how it works, consult the *Networking Planning Guide*.

CDP Steering Codes

A CDP steering code is a site prefix that identifies the site and location within the network. Therefore, a CDP prefix must be unique for all switches in the messaging network.

The CDP steering codes must still be defined here, because the system must be able to identify the steering code in the mailbox number to determine the site and location.

The CDP Steering Codes list box contains all CDP steering codes currently assigned to the switch location. The list also indicates the overlap between the CDP steering code and the mailbox directory numbers.

CDP steering codes can be added, modified, or deleted.

CDP steering code capacity

The maximum number of CDP steering codes for a switch location is 500.

CDP steering code overlap

The CDP steering code overlap is the number of digits shared by the steering code and an extension number.

If there is overlap between the last digit or digits of the steering code and the first digit or digits of the extension number, enter the amount of overlap.

The steering code often overlaps with the first few digits of a local extension number. A full overlap, in which every digit of the steering code overlaps the extension, is typical.

The following table gives three examples of CDP steering code overlap:

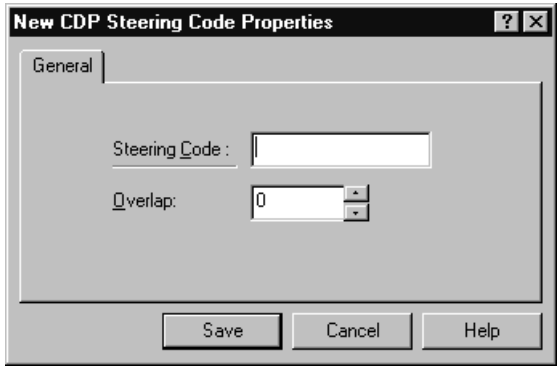
Steering code	Extension number	Number dialed by users at other sites	Overlap
22	**22**345	**2222**345	0
22	**22**345	**222**345	1
22	**22**345	**22**345	2

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To configure the CDP information

1. Open the Prime Switch Location Properties—CDP tab.
2. Click the Add New button.

   Result: The New CDP Steering Code Properties dialog box appears.



3. In the Steering Code box, enter the steering code.
4. In the Overlap box, enter the number of digits in the extension number that overlap the steering code.
5. Click Save.

   Result: The steering code and overlap are validated and appear in the CDP Steering Codes list box on the CDP tab.
6. Repeat steps 2–5 for each CDP steering code required.
7. When you have added all necessary CDP steering codes, click Save.

   Result: The information is validated and saved to the network database.

What's next?

You have completed the configuration of the prime switch location and are ready to begin adding and configuring satellite switch locations.

Adding and configuring a satellite switch location

Introduction

You must add and configure each satellite switch location in the NMS network.

The process of configuring a satellite switch location is almost identical to the process of configuring the prime switch location.

Satellite Switch Location Properties dialog box

A satellite switch location is configured on the Satellite Switch Location Properties dialog box. This dialog box consists of four tabs:

- General
- ESN
- CDP
- SMTP/VPIM

General tab

You must complete the General tab regardless of which dialing plan your site uses.

ESN tab

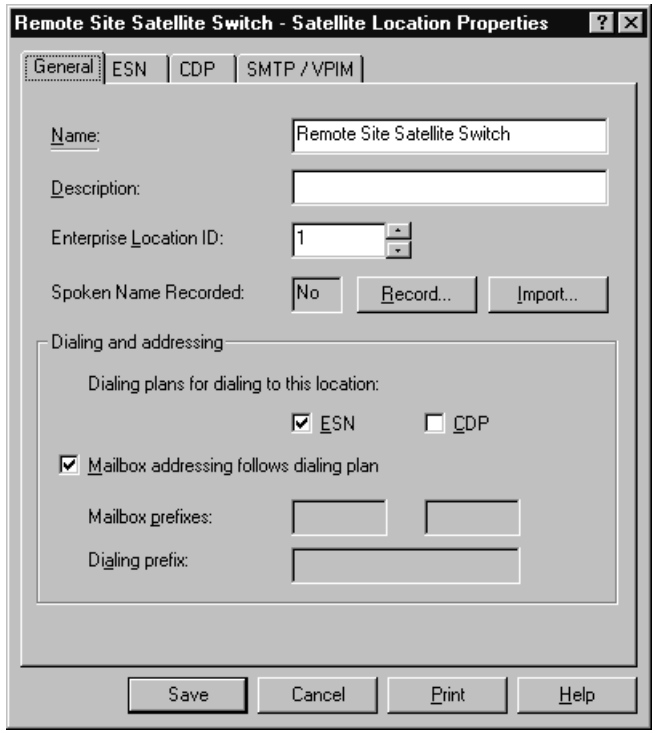
Complete the ESN tab if the local site uses the ESN or a hybrid dialing plan.

CDP tab

Complete the CDP tab if the local site uses the CDP or a hybrid dialing plan.

SMTP/VPIM tab

The SMTP/VPIM tab is enabled only if VPIM Networking is installed on your local switch location. The SMTP/VPIM tab is completed during the implementation of VPIM Networking.



Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To configure a satellite switch location

1. In the Messaging Network Configuration tree view, select the local messaging server.
2. On the File menu, select New > Switch location.

   Result: The Satellite Switch Location Properties dialog box appears.
3. In the Satellite Switch Location Properties dialog box, complete the General tab.

   Note: For instructions on how to record a spoken name, consult “Sharing the configuration information” on page 146. For instructions on how to import a spoken name, consult “Importing a spoken name” on page 143.
4. Complete the ESN tab and the CDP tab as required.
5. Click Save.

   Result: The information is validated, and the satellite switch location is added to the remote site.
6. Repeat steps 1–5 for each satellite switch location required.
7. When all satellite switch locations are added, on the Messaging Network Configuration tree view, click Save to add the configured satellite switch locations to the network database.

What’s next?

If your NMS network is an NMS site within a larger messaging network, you must share the configuration details with all other network administrators.

Recording a spoken name

Introduction

You can create a recording of the name of a switch location. A recorded name is heard by a local user whenever an address is played back. A recorded name for a site is played if a user does not have a personal recorded name.

Local switch location

If your local site is not an NMS site, a spoken name is not required for the local site.

If your local site is an NMS site, you can decide if you want to record a spoken name. For example, if the NMS site uses CDP, you may decide a spoken name is not necessary.

Remote switch location

A spoken name should be available for every remote site in your Message Delivery Configuration tree view.

The recording is played when local users compose messages to the remote site.

Importing a spoken name

If you do not want to record your own voice using the telephone, you can import a prerecorded WAV file. See “Importing a spoken name” on page 143.

Before you begin

You need a telephone as a microphone.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To record a spoken name

1. In the Messaging Network Configuration tree view, select the switch location of the site for which you want to record a spoken name.
2. On the File menu, select Open.

   Result: The Switch Location Properties dialog box appears.
3. On the General tab, click Record.

   Result: The Specify Phoneset dialog box appears.



4. Enter the telephone number of the telephone to be used as a microphone, and click Dial.

   Result: The telephone rings and the Voice Recorder dialog box appears.
5. Answer the telephone.
6. In the Voice Recorder dialog box, click Record.
7. Speak the name of the site into the telephone.
8. Click Stop.
9. To review the recording, click Play.
10. If you are satisfied with the recording, click Done.

Importing a spoken name

Introduction

You can import a prerecorded file of the name of a switch location. The recording is heard by a local user whenever an address is played back. A recording for a site is played if a user does not have a personal spoken name.

Local switch location

If your local site is not an NMS site, a spoken name is not required for the local site.

If your local site is an NMS site, you can decide if you want to import a spoken name. For example, if the NMS site uses CDP, you may decide a spoken name is not necessary.

Remote switch location

A spoken name should be available for every remote site in your Message Delivery Configuration tree view.

The recording is played when local users compose messages to the remote site.

Instead of importing a spoken name

If you do not want to import a prerecorded spoken name, you can record your own voice message using the telephone.

Before you begin

A prerecorded WAV file must be available. Check the quality of the recording before importing the file.

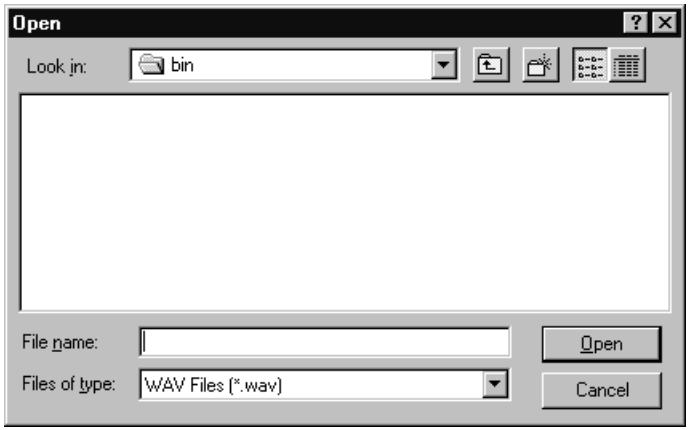
Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To import a prerecorded file

1. In the Messaging Network Configuration tree view, select the switch location of the site for which you want to import a prerecorded file.
2. On the File menu, select Open.

   Result: The Switch Location Properties dialog box appears.
3. On the General tab, click Import.

   Result: The Open dialog box appears.



4. Select the WAV file, and click Open.

   Result: The file is imported.
5. Close the Open dialog box.

Additional administrative tasks

In this section

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Sharing the configuration information

Introduction

If your NMS network is an NMS site within a larger messaging network, you must share the details of your configuration with the network administrators of all sites with which your site exchanges messages.

These remote network administrators add your NMS site to their network databases.

How to share configuration information

The easiest way to share the configuration information is to print the contents of Properties dialog boxes and to distribute the printouts to all network administrators.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Messaging Network Configuration

To print a Properties dialog box

1. From the Messaging Network Configuration tree view, open the Properties dialog box that you want to print.
2. Click Print.

   Result: The contents of the selected Properties dialog box are printed. The printout includes the contents of all tabs.

Adding local users

Introduction

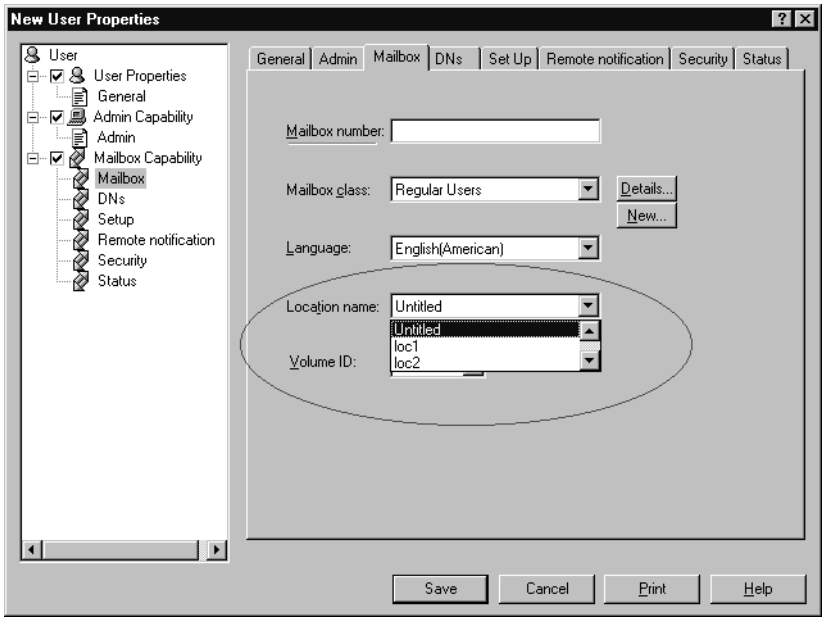
All users in an NMS network must be added to the Meridian Application Server as local users.

Users on the prime switch location

Users on the prime switch location are added as local users.

Users on the satellite switch locations

Users on the satellite switch locations are also added as local users. However, during the configuration of these users, the location must be specified from a drop-down list on the New User Properties dialog box—Mailbox tab.



Getting there Nortel SMI > Meridian Application Server > User Administration > User Creation Templates

To add a new satellite switch location user

1. In the New User Properties dialog box, select the type of template to be used.

   Result: The template opens.

2. Complete all information that is required to create any user.
3. On the Mailbox tab, in the Location name drop-down list, select satellite.
4. Enter the name assigned to the satellite switch location in the Location name box.
5. When all required information is complete, click Save.

See also

For detailed instructions on how to add local users, consult the relevant section in the *Basic Administration Guide*.

chapter 6

Testing and backing up NMS

This chapter describes how to test the configuration of your NMS network. The test suite ensures that NMS is working properly both locally and with remote sites.

This chapter also describes how to create a backup of your system to ensure that the configuration is not lost due to system failure.

In this chapter

Tests and backups 151

Tests and backups

In this section

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Backups 155

Overview

Introduction

After configuring CallPilot for NMS, test the system to ensure that it is working properly.

The NMS test suite determines if the NMS network is properly configured and if the switch locations can exchange messages.

Perform the tests in the sequence presented. If any test in the suite fails, resolve the problem before continuing with the tests.

When to test the system

The NMS network should be tested

- after the initial setup and configuration of the NMS network
- after any subsequent changes are made to the configuration
- as part of the regular maintenance

Before you begin

To run the tests, add some users to each switch location for the purpose of testing.

Enable the Auto-Login feature for some of the mailboxes so that this feature can be tested.

See also

For instructions on how to add users, consult the relevant section in the *Basic Administration Guide*.

For instructions on how to enable the Auto-Login feature, consult the *Basic Administration Guide*.

Testing the NMS network

Introduction

After CallPilot is configured for NMS, the system must be tested.

The tests must be performed to ensure that the configuration is correct. If a test is not successful, resolve the problem and retry the test before continuing.

DN test

The DN test determines that DNs are properly configured.

To perform the DN test

From a telephone on any switch in the network:

Dial each of the Voice Messaging DNs on every switch in the network. Use the full ESN or CDP number of the Voice Messaging service.

The test is successful if you reach the Voice Messaging service for each switch.

Auto-login test

The auto-login test determines if the Auto-Login feature, if enabled, is available to users on all switch locations in the NMS network.

To perform the auto-login test

From a telephone that has the Auto-Login feature enabled:

1. Attempt auto-login by dialing the Voice Messaging service for the switch.
2. Repeat the test from a telephone with Auto-Login enabled on each switch.

The test is successful if you are logged in automatically and are not prompted for a mailbox number and password.

Thru-dial test

The thru-dial test determines if users are able to use the Thru-Dial feature among switches in the NMS network.

To perform the thru-dial test

From a telephone on a switch:

1. Log on to CallPilot.
2. Try to thru-dial an extension on another switch in the NMS network.
3. Repeat this test from a telephone on every switch in the network.

The test is successful if you are able to thru-dial to that extension.

Features test

The features test determines if CallPilot features, such as Message Waiting Indicator (MWI) and Call Sender, are available throughout the NMS network.

To perform the features test

From a telephone on a switch:

1. Compose and send a message to several mailboxes at each switch.
2. Confirm that the MWI lights are activated on all receiving telephones.
3. Call in to each mailbox, access each message, and use the Call Sender feature.
4. Repeat from a telephone on every switch in the NMS network. Address by all ESN, CDP, and local extension combinations.

The test is successful if you are able to send messages and the received messages offer full features.

What's next?

After successfully completing the NMS test suite, perform a backup of your system.

Backups

Introduction

When all tests of the system are successfully completed and NMS is working properly, perform a backup.

The backup ensures that the configuration is not lost in the event of a system failure.

Backup schedule

Perform backups as part of the implementation process and as part of regular maintenance activities.

Implementation backup

Perform a manual backup as the final step in the NMS implementation process. This backup is needed even if the system is configured to perform an automatic backup.

In the unlikely event that the system experiences a disk failure before the automatic backup takes place, the network configuration could be lost.

Maintenance backup

Perform a backup whenever the NMS configuration information is modified.

System backup components

A system backup consists of two parts:

- a switch backup
- a CallPilot backup

Switch backup

For detailed instructions on how to perform a switch backup, consult your switch documentation.

CallPilot backup

You can perform a full or partial backup of your CallPilot server.

For detailed instructions on performing a CallPilot backup, consult the relevant section in the *Basic Administration Guide*.

chapter 7

Maintaining NMS

After you complete the NMS implementation process, you only need to perform regular maintenance.

This chapter describes maintenance procedures that must be performed regularly. The chapter also describes maintenance procedures that you perform only when required.

In this chapter

About maintaining NMS 159

Regularly scheduled maintenance tasks 165

As-required maintenance tasks 169

About maintaining NMS

In this section

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Printing configuration information 163

Overview

Introduction

After you successfully implement and test NMS, the system only requires maintenance.

There are two types of maintenance tasks:

- regularly scheduled tasks
- as-required tasks

Regularly scheduled tasks

Regularly scheduled tasks include

- checking the network status
- reviewing Operational Measurement (OM) reports

Although you can perform regularly scheduled tasks at any time, perform these tasks at least once a week. Because these tasks do not interfere with the operation of NMS, you can schedule them at a convenient time during a regular workday.

If you monitor the performance of your messaging network, you avoid future problems. Careful monitoring shows bottlenecks in the system and indicates how the system can be improved.

Monitoring can also help you to plan and forecast future messaging network requirements.

As-required tasks

Perform as-required tasks as needs arise. As-required tasks include

- modifying networking parameters
- disabling and enabling NMS
- modifications to the NMS configuration

When to perform as-required tasks

Since as-required tasks may affect the entire system, perform these tasks when the system is not in heavy use.

Modifications to the configuration may be necessary for the following reasons:

- New legal delivery times are announced for computer-generated calls.
- The system performance suggests that adjustments to the parameters are required.
- The system access number is changed.

ATTENTION!

Because as-required tasks may affect the performance of the entire system, schedule them for off-peak hours.

Note: There is no way to temporarily disable an NMS network.

Perform a backup following maintenance

Perform a backup of the system whenever you modify the network parameters as part of your maintenance.

Network history

Introduction

Keep detailed records of your network's history. These records can

- Indicate significant performance or equipment issues that real-time monitoring may not detect.
- Provide a background for comparing the current information.
- Contain information needed during support calls.

Information to record

A network history should include the following types of information:

- installation dates and descriptions
- contact information for all key personnel involved in the system installation and configuration
- details of software installed on the messaging server, including versions
- installation process and results, including tests
- diagrams of the initial and subsequent network configurations
- any problems encountered and their solutions
- hardware and software changes
- changes to the messaging network layout

Where to keep the records

Make the records of your messaging network easy to access and read. Graphics, including hand-drawn sketches, can be very useful.

Keep records in a log or online. Note, however, that online records cannot be accessed if the system crashes.

See also

For a detailed description of messaging network histories, consult the *Networking Planning Guide*.

Printing configuration information

Introduction

Printouts of the system configuration are often included in a network history. You can print all configuration information contained in your local network database.

To print configuration information, you must open the relevant Properties dialog box. For example, to print an item in the Messaging Network Configuration tree view, you must open the Properties dialog box of the item.

If a Properties dialog box consists of more than one tab, the contents of all tabs are printed.

Note: You cannot print the tree view of the messaging network contained in the Messaging Network Configuration dialog box.

When to print configuration information

Although configuration information is always available in the most recent backup of your network database, you may find it convenient to make printouts as well.

Printouts of the configuration information are especially useful in the following situations:

- You must fax information to a remote network administrator.
- You are keeping a network history.
- You are planning to change a configuration or delete an item from the Messaging Network Configuration tree view, and you want a hard copy of the original configuration.

Getting there Nortel SMI > Meridian Application Server > CallPilot > Networking > Message Delivery Configuration or Messaging Network Configuration

To print configuration information

1. Open the dialog box that you want to print.
2. With the dialog box open, click the Print button.

   Result: The contents of the dialog box print. The printout includes the contents of all tabs.

Regularly scheduled maintenance tasks

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Reviewing OM reports and alerts 166

Reviewing OM reports and alerts

Introduction

Operational Measurement (OM) reports and alerts provide detailed information on the status and performance of NMS.

No reports specifically provide NMS information because, to CallPilot, users on the satellite switches are local users.

However, the reports that provide information specific to each switch location are useful for determining the system's performance.

Primary reports

The following reports provide useful information:

- System Traffic
- Channel Usage
- Disk Usage Monitor
- MMFS Usage Monitor
- Service Quality Detail
- Service Quality Summary

Additional reports

Statistics for each switch location are also provided in reports that are associated with individual users or where users can be used as a filtering or grouping criterion, even though the switch location is not displayed.

These reports are

- 800 Access Bill-back
- Messaging Usage Bill-back
- Network User Bill-back
- RN Usage Bill-back
- DTT Usage Bill-back
- Call Answering/User Reponsiveness (filter only)

- Mailbox Counts (group only)
- Messaging Usage (filter only)
- Users Exceeding Storage Limit
- Top Users of Storage

Although you can review OM reports at any time, you should review them at least weekly.

Access to OM reports is restricted

The generation of OM reports is a restricted activity that is determined by access level. If you do not have the necessary access, you must ask your system administrator to generate the reports.

The OM report request screens let you choose the reports that you want to view and print. For many reports, you can also customize the displayed results so that you receive the information in a format that best suits your needs.

See also

For additional information on OM reports, including how to generate and interpret them, consult the *Reporter Guide*.

As-required maintenance tasks

In this section

Modify the local messaging server 170
Modify the prime switch location 171
Adding, modifying, and deleting satellite switch locations 173

Modify the local messaging server

Introduction

It is unlikely that you will have to modify the configuration of the local messaging server. However, if necessary, it can be modified.

NMS network

The configuration of the local messaging server to implement an NMS network is simple. This configuration requires the name assigned to the messaging server and a description. These can be changed easily and will not affect any other aspect of the system.

NMS site

If the local NMS network is part of a larger messaging network—that is, it is an NMS site—modifications to the local messaging server are more complicated.

For detailed instructions on modifying the local messaging server, consult the appropriate implementation and administration guides.

Modify the prime switch location

Introduction

You can modify the configuration of the prime switch location.



Risk of loss of functionality

Changes to the networking configuration should be done during hours when users are not logged on. Making changes to the configuration while users are logged on may result in loss of messaging functionality.

NMS network modifications

You can change the configuration of your prime switch location.

Common modifications include changes to the spoken name recorded, to ESN prefixes, and to CDP steering codes.

Uncommon modifications, such as changes to the dialing plan, should be made only when absolutely necessary.

To make any modifications to the prime switch location, use the process described for the original implementation.

NMS site modifications

If your NMS network is a site within a larger network, any additions, modifications, or deletions that you make affect the entire network.

To ensure the continued integrity of the network, follow these steps:

1. Make all required changes.
2. Perform the NMS networking suite of tests to ensure that the changes are acceptable.
3. Perform all necessary networking solution test suites.
4. Perform a backup of your system.
5. Inform the system administrators of all other sites on the network of the changes that you have made.
6. Ask the system administrators to change their Messaging Network Configuration entries to reflect your changes.

Adding, modifying, and deleting satellite switch locations

Introduction

If your NMS network is a site within a larger network, any modifications that you make affect the entire network.



Risk of loss of functionality

Changes to the networking configuration should be done during hours when users are not logged on. Making changes to the configuration while users are logged on may result in loss of messaging functionality.

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Adding a satellite switch location

To add a new satellite switch location to the NMS network, follow the instructions described in “Adding and configuring a satellite switch location” on page 138.

Note: If the NMS network is a site in a larger network, deleting a satellite switch location at your location will affect the configuration of all other sites in the network with which you exchange messages. You must contact the administrators of all other sites and ask them to add the satellite switch location from their Messaging Network Configuration tree views also.

To modify a satellite switch location configuration

1. In the Messaging Network Configuration tree view, highlight the satellite switch that you want to modify.
2. On the File menu, select Properties.

   Result: The Satellite Switch Location Properties dialog box for the selected switch appears.
3. Make all required changes to the tabs, and click Save.
4. Test and back up the system.

Note: If your NMS network is a site in a larger network, any modifications that you make to your switch setting will affect the entire network. Inform remote network administrators of all changes.

Deleting a satellite switch location

When a satellite switch location is no longer required in an NMS network, it must be removed from the Messaging Network Configuration tree view.

To delete a satellite switch location

1. In the Messaging Network Configuration tree view, highlight the satellite switch that you want to delete.
2. On the File menu, select Delete.
3. Press Save.

   Result: The deleted satellite location no longer appears in the Messaging Network Configuration tree view.

chapter 8

Troubleshooting NMS

Although testing and regular maintenance ensure that your NMS site is working properly, the system may experience occasional problems.

This chapter describes how to diagnose and correct these problems.

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Problem: User unable to log in to mailbox 179

Overview

Introduction

If you are experiencing problems with NMS, this chapter will help you to identify and solve these problems.

Common causes of NMS problems include the following:

- Networking information is incorrect or incomplete.
- The switch is configured incorrectly.

Identifying the source of the problem

To identify the source of the NMS problem, first determine if NMS is disabled.

Note: You cannot temporarily disable NMS on the Meridian Application Server. NMS is disabled on the switch. To determine if NMS is disabled, check the restrictions on the switch.

If NMS is not disabled, then review the following:

- appropriate Alarm and Event reports
- network status
- Operational Measurement (OM) reports

Switch-related problems

If you are unable to identify the problem using CallPilot, the problem may be switch-related. Perform the call trace test to determine if there is a problem with the switch configuration.

Call trace

Call trace helps you to determine if network calls are being blocked for one or more of the following reasons:

- Digit manipulation is performed incorrectly. Either not enough or too many digits are inserted or deleted.
- Class of service restrictions are either too stringent or too loose.
- Dialing is incorrect. More digits are required by the trunks or trunk routes.

Note: You can perform a call trace on a telephone or on a trunk and a trunk route.

Hardware problems

If you are unable to locate the problem in the CallPilot configuration or in the switch, your system may be experiencing hardware problems that are not related to networking.

Perform a basic hardware check. Examine all connections.

Problem: User unable to log in to mailbox

Introduction

When a user on a satellite switch phones the voice only messaging DN on the satellite switch, the user should be able to enter the mailbox with only a mailbox number and a password. No prefix should be necessary.

If a user is unable to log in properly, you must determine the cause of the problem.

Diagnostic

There are two likely causes for the problem:

- The switch is incorrectly configured.
  - The DNs are incorrect.
- CallPilot is incorrectly configured.
  - The SDN Table is incorrect or incomplete.

Note: If the system worked before but is not currently working, check if the user login is disabled.

Solution

If you determine that the problem is not switch-related, check the configuration of the SDN Table.

There must be entries in the SDN Table for all services provided by the satellite switch location.

If a CDP dialing plan is used, ensure that the SDN is in a format that is dialable from the prime switch location.

If an ESN dialing plan is used, ensure that the SDN is in a format that is dialable from the prime, but do not include the ESN access code.

Other necessary actions

After making changes to the SDN table, complete the NMS test suite. If the problem is corrected, perform a partial backup of the system.

Contact technical support

If you are unable to correct the problem and must contact technical support, have the following information available:

- network history
- error messages
- network representation with dialing plan information

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CallPilot

NMS Implementation and Administration Guide

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