Reference and Configuration Manual
Volume 1, Reference Information

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About This Manual

This manual describes how to configure the NuPoint Voice™ software in any of these NuPoint Messenger™ servers:

- Model 640
- Model 120
- Model 70

Who Should Read This Manual

This manual is intended for technicians and administrators who are responsible for configuring software on the NuPoint Messenger system.

How to Use This Manual

This manual contains two volumes. Volume 1 includes reference chapters and a glossary. Volume 2 includes tasks lists, procedures, and user aids, such as worksheets and menu maps.

Reference Chapters

The reference chapters, 1 through 12, located in Volume 1, provide details about the NuPoint Messenger software configuration. These chapters discuss how components are related, elaborate on concepts, give operational details, and contain tables and figures about configuration. The *System Implementation Guide* gives suggestions and recommendations on preparing for a NuPoint Messenger server installation. The *Installation and Service Manual* (for your system) provides installation procedures.

Task List

Task lists appear in Volume 2. To use a task list, start with a principal task (shown in **boldface**) to configure a new system. Each task listed is described in more detail in a procedure. If you want to perform other tasks on a system that is already configured, look up the task you want to perform in the task list.

Procedures

Each reference chapter in Volume 1 contains a list, by title and number, of related Procedures (CPs). The collection of those configuration CPs follows the task lists in Volume 2; the number of a CP does not indicate a sequence of performance. Follow the steps in the CPs to accomplish desired tasks. A reference list in each CP contains pointers to supplemental information, such as other procedures, other manuals, menu maps, and so forth.

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Worksheets

Volume 1 includes information about completing worksheets, which helps you perform procedures. Volume 2 includes blank worksheets. You many need to complete a worksheet before you begin performing the steps in a CP.

Navigation Aids

Volume 1 contains a glossary of NuPoint Messenger, telecommunications and telephony terms. Volume 2 contains menu maps, or “road maps,” which help you reach a menu or see which task to perform next.

Which Document Do I Use?

Topics listed below are described in NuPoint Messenger documents, as indicated. This table lists documents for the base hardware and software only, not optional features.

Topics	Notice to Installer	Installation and Service Manual	Technical Reference Manual	Reference and Configuration Manual	Diagnostics Manual (Model 640 only)
Activating an inactive configuration				√	
Administration by Phone				√	
Billing				√	
Call placement				√	
Card configuration			√	√	
Card replacement		√			
Defining a line group				√	
Diagnostics					√
DID NuPoint Voice™ application				√	
Disk replacement		√			
Distribution lists				√	
Duplicating a configuration				√	
Error Log messages					√
Event Recorder messages					√
FCOSs and feature bits				√	
Floppy backup and restore		√			
FPSA				√	
GCOSs and groups				√	
Glossary				√	

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Greetings				√	
Hardware changes	√	√			
Hardware descriptions			√		
Installation procedures	√	√			
LCOSs and limits				√	
Mailboxes				√	
Message delivery				√	
Message waiting lights				√	
Paging				√	
Passcode - mailbox				√	
Password - console		√			
Phoneline exceptions			√		
Power information			√		
Prompts		√		√	
RCOSs (NPA/NXX)				√	
Release Notes	√				
Repairing a server		√			
Replacing a server		√			
Reports				√	
Resource Manager			√		
Service procedures		√			
Site preparation		√			
System administration				√	
System maintenance		√			
System security				√	
System verify		√			
Testing a configuration		√		√	
Troubleshooting					√
Updating	√	√			
Upgrading	√	√			
Verifying configuration parameters				√	
NuPoint Voice application				√	

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What If Information Is Missing?

If information you need is not available in the documents listed above, go to these documents:

- *Release Notes*
- Other documents, as applicable

How Do I Obtain the Documents I Need?

To obtain other documents, contact your distributor.

Conventions Used in This Manual

The procedures, located in Volume 2, use certain conventions to describe how you enter configuration data and to indicate information displayed at the server maintenance console.

Press **Enter**	Press the **Enter** key. For example, “Press Enter if the current number is correct.” On some keyboards, this key is labeled “Return” or has a return arrow.
Enter	Type the text shown, then press the Enter key. For example, “Enter the line number (1-24)” means to type a number from 1 through 24 then press the **Enter** key.
bold	Words or characters in bold type indicate either a value to be entered by you exactly as shown or, when used to indicate a variable entry, describe the type of value to be supplied by you.

Note: Unless otherwise stated, press **Enter** after each response you enter.

User Advisories

Reader advisories are given in this manual as shown below.

Note Information especially useful in relation to this procedure.

CAUTION!
Information that helps you prevent equipment or software damage.

CAUTION!
Information that helps you avoid electrostatic discharge (ESD) damage to the equipment.

WARNING!
Information that helps you prevent an interruption to telecommunications traffic.

WARNING!
A hazard that can cause you personal injury.

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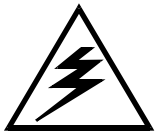

DANGER!
Warns of a condition that could severely injure or kill you.

Before You Start

This manual assumes that you are familiar with using a console and keyboard. This section describes how to use the NuPoint Messenger server effectively.

Console Tips and Techniques

The tips and techniques offered in the following paragraphs can make configuration entry sessions at the NuPoint Messenger server console more productive.

Viewing Menus

- When you finish entering a value for a parameter, the server displays an abbreviated form of the current menu, called the "short menu." To view the complete current menu when a short menu is displayed, press **Enter**.
- To return to the Main Menu from any NuPoint Voice configuration menu, press **X** (Exit), until the Main Menu appears.

Accepting Defaults

- To accept a default displayed in a prompt, just press **Enter**.
- To accept a default displayed in a menu, no action is necessary.

Quitting an Entry Session

You can quit at any point during entry of offline or online parameters and Class of Service menus. Quitting discards all entries you have made and leaves the NuPoint Voice configuration the way it was before you started entering parameters.

To quit from the NuPoint Voice Configuration Offline or Online menu:

Select: (Q) Quit -- Forget Changes

Prompt: `Quit and Forget changes? (y/n) =`

Response: **Y** to return to the NuPoint Voice Configuration Main Menu.

Shortcut Commands

You can use the Ctrl (Control) key or the / (slash) key while simultaneously pressing another key to execute shortcut commands at a system maintenance console.

To do this...	Type...
Activate a timed-out console	any key
Exit from the offline or online menus, or FCOS, LCOS, GCOS menus, and save any entries.	**X**

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Exit from the offline or online menus, or FCOS, LCOS, GCOS menus, without saving any entries.	**Q** + **Y**
Stop scrolling a displayed report.	**Ctrl-S**
Resume scrolling a displayed report.	**Ctrl-Q**
Return to the NuPoint Voice application when a # prompt is displayed.	**Ctrl-D** or type **exit**
Return to the Reports Menu if you paused the display	**Q** + **return** or **Esc,Esc** + **return**

Preparing for a Configuration Session

- Before you begin a configuration session, you need the following:
- The *Reference and Configuration Manual*
- A NuPoint Messenger server console (video monitor and keyboard) and NuPoint Voice module, with power on
- At least two telephones for configuration testing
- A blank 3.5-inch diskette on which you can copy your configuration
- Completed worksheets (blank worksheets are included in Volume 2)

1 Using NuPoint Voice Software

The NuPoint Messenger server (the server) is a set of hardware and software used for adaptive information processing. When you configure your software, you need to choose one or more applications, then configure a number of modifiers common to all of the applications. Each application is discussed in its own chapter. The modifiers are discussed in this chapter and following chapters where applicable. When one of the modifiers operates differently in one application compared to the others, this is highlighted in the application chapter.

“Configuration” is the process of organizing application and modifier data on worksheets, then entering the data at a server console. This data is stored in a configuration file on the hard disk, and controls call processing.

Procedures

The following frequently-used procedures do not fit into any one category. You must use them when performing many other procedures that are mentioned elsewhere in this manual. These procedures are located in Volume 2 of this manual.

Procedure	**Number**
Activate the Inactive Configuration	CP 7002
Add or Delete Feature Bits	CP 5011
Assign an FCOS to a Mailbox	CP 5003
Customize an FCOS Copy	CP 5007
Define a Line Group	CP 5010
Duplicate a Configuration	CP 5044
Perform a Floppy Backup	CP 5703
Run a System Configuration Report	CP 4353

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Applications

These are the applications provided with your NuPoint Messenger server. Your server may use one or more of them. Each of these applications must be in a separate *line group* (a group of telephone lines connected to the server) if you have more than one application running, with the exception of NP Receptionist and NuPoint Agent™.

NuPoint Voice Application

This is the basic business application, used for message taking and retrieval. Most of the modifiers discussed later are explained in terms of this application. In addition, many of the modifiers are discussed in some detail in the NuPoint Voice Application chapter.

DID NuPoint Voice Application

Similar to the NuPoint Voice application, but for direct-inward dial telephone lines. The hardware setup is very different, and additional configuration steps are needed.

Pager Application

This application is used for a number of features that place telephone calls out of the server. *Paging* can call a radio pager to let the user know there is a message waiting. The user must call into the server to receive the message. *Message delivery* calls a telephone and allows the user to log in and receive a message. *Call placement* calls a telephone number to deliver a message. Some optional features, such as NuPoint Fax™ and Cut-through Paging, also use this application to place outdials.

Message Waiting Applications

These applications allow a message waiting indicator at users' phones to signal that a new message has arrived. Typically, these indicators are lights, but this depends on the telephone equipment and switch installed. The software supports 24 kinds of message waiting indicators.

Optional Features

Optional features are not discussed in this manual. If you purchase them, you will receive the documentation to place in your Optional Features Manual. However, they are configured with many of the same modifiers discussed in this manual. Optional features often purchased are listed below.

- AMIS Analog Network
- NP WakeUp
- NuPoint Agent
- Call Detail Recorder
- NP CSO
- Cut-Through Paging

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- NuPoint Fax
- Integrations
- NP Forms
- NP Net Digital Network
- NP Receptionist

Note: NP Receptionist and NuPoint Agent can work in the same line group as the NuPoint Voice application, depending on your integrations. Most other optional features use different line groups.

Use by the Hearing Impaired

Almost all the functions and capabilities in a standard NuPoint Messenger server are available to hearing-impaired mailbox owners and callers. NP TDD is an optional feature that you can configure at any NuPoint Messenger server site where a TDD machine is installed.

Modifiers

These characteristics of NuPoint Messenger server software are common to all applications. By configuring the modifiers, the capabilities and behavior of the application can change.

Most modifiers are introduced in the NuPoint Voice Application chapter.

Types of Configuration

The NuPoint Messenger server has two different kinds of configuration, online and offline configuration. *Offline configuration* handles server settings that cannot be changed immediately. This includes setting up line groups. *Online configuration* includes the remainder of server settings that can be modified at any time. However, since many offline and online configuration settings work together, there are two kinds of online configuration as well: the active and the inactive configuration. The *active configuration* is the online configuration currently in use, and any changes you make to it take effect immediately. The *inactive configuration* is the online configuration that is in reserve, and this option should be used when you also make changes in the offline configuration. Then activate the configuration to implement all the changes you made, both online (inactive) and offline.

Line Groups

A *line group* is a set of one or more incoming telephone lines, which come into line card ports on the server hardware. Each application you use must be assigned to its own line group (except for NP Receptionist and NuPoint Agent). Any of the various operations involving outdials can, however, use the same line group assigned to the Pager application. Most of the modifications you may want to make to an application are made to its line group.

Dialing Plan

To configure each application, you must define its dialing plan, which is the structure of how the mailboxes are numbered. Related features include which key a user presses to speak to a system attendant, or to use call placement.

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Day and Night Hours

This feature of the NuPoint Voice application lets you set the work schedule: both office hours and which days are handled as weekends. This also handles certain situations such as a user wishing to speak to a system attendant.

Mailboxes

Every user of the server needs a mailbox, and all applications require mailboxes. The administrator's mailbox and attendant's mailbox are special mailboxes that interact with applications; they are discussed in the NuPoint Voice Application chapter. Other special mailboxes – tree, rotational, and broadcast, for example – are discussed in the Mailboxes chapter. Mailbox features, such as Distribution Lists and receipts, are also discussed in that chapter.

Classes of Service

There are several classes of service, which are groups of characteristics that affect how the server operates. The different classes of service are assigned to each mailbox by the system administrator.

Features Class of Service

The NuPoint Voice software has over two hundred *feature bits* that allow users to perform functions or that control how the server can be used. These features are grouped into a set called a Features Class of Service (FCOS), that define who can do what, and how. One FCOS is assigned to each mailbox. FCOSs are explained in the Features Class of Service chapter.

Limits Class of Service

A Limits Class of Service (LCOS) is a group of limitations on each user, such as length and number of messages. LCOSs also affect how some optional features work. One LCOS is assigned to each mailbox. These are explained in the Other Classes of Service chapter.

Group Class of Service

A Group Class of Service (GCOS) determines which users can send messages or respond to messages from other users. There are two kinds of GCOSs, affinity and bit-mapped. One GCOS is assigned to each mailbox. These are explained in the Other Classes of Service chapter.

Network Class of Service

A Network Class of Service (NCOS) controls users' network access and is a part of the NP Net Digital Network optional feature. More NCOS information is contained in the *NuPoint Voice NP Net Optional Feature Manual.*

Restriction Class of Service

A Restriction Class of Service (RCOS) is an element of NPA/NXX call screening that restricts mailbox outdials to certain area codes or to certain prefixes within an area code. One RCOS is assigned to each mailbox. These are explained in the Other Classes of Service chapter.

Tenant Class of Service

A Tenant Class of Service (TCOS) is used with the ESMDI "Multi-Tenant" application, to govern

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mailbox interaction between user communities. Refer to the *NuPoint Voice Enhanced SMDI Integration Manual* for more information.

Billing and Reports

You can generate reports from information on the existing applications and whatever modifications you have put into effect. Billing is an application that collects call and message information so users can be billed for their server usage. Refer to the Billing chapter for information on how to set up billing and different rate structures, and to the Reports chapter for more information on different reports available.

Worksheets

Worksheets are supplied (see Volume 2 of this manual) to help you organize configuration data before you enter it at the NuPoint Messenger server maintenance console. There is a worksheet for each application, for different kinds of mailboxes, and for FCOSs, LCOSs, and GCOSs.

Complete the worksheets for all applications that you wish to add to the configuration before you begin entering data at a server maintenance console. This prevents duplication of line group assignments, and gives an accurate picture of how server resources have been divided among the applications. Fields of data on these worksheets are explained in the application chapters that follow.

Optional features are shipped with instructions similar to the worksheet format.

NuPoint Messenger Server Software at a Glance

Figure 1-1 shows how the various parts of NuPoint Messenger server software work together. It illustrates how line groups are made up of phone lines, how each application is assigned one line group, and how modifiers work on all applications. In addition, it shows how mailboxes have a number of different configuration parameters. Finally, it shows how Billing and Reports use all server information.

Figure 1-1 NuPoint Messenger Server Software Overview

2 NuPoint Voice Application

This chapter covers:

- Overview of the NuPoint Voice application
- Default software configuration
- NuPoint Voice Application Worksheet
- Line group definition
- Configuring the application
- Using the NuPoint Voice application

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Overview

The NuPoint Voice application provides voice messaging capability where each server user can have a personal mailbox. It is the standard business application for NuPoint Messenger servers.

The NuPoint Voice application can be used with most Central Offices (COs), PBXs, and with all key systems. Other applications, such as DID NuPoint Voice or the Pager application are *variations* of the NuPoint Voice application, and are used either together with, or instead of, the NuPoint Voice application.

Numerous customized integrations, which are also variations of the NuPoint Voice application, are available. These are optional features; they provide message waiting control, and functions such as personal greetings for forwarded calls. See the specific integration documents in the for more information.

To use the NuPoint Voice application on your server, you must perform any necessary system level configuration. System level configuration through the NuPoint Voice application involves two steps: defining the line group, and configuring the application. In the first step, you assign server ports to the NuPoint Voice application. In the second step, you customize the application for your server. Procedures covering these steps are available in Volume 2 of this manual.

Once you have completed the NuPoint Voice configuration, you must activate changes, create mailboxes, record a company greeting, and test the configuration. Procedures covering these steps are listed below.

Procedures

You can perform the following procedures with the NuPoint Voice application. These procedures are located in Volume 2 of this manual.

Procedure	Number
NuPoint Voice Application Configuration	CP 3301
Configure a Dialing Plan	CP 5002
Configure for Transfer to a System Attendant	CP 5020
Configure for Unaddressed Messages	CP 3314
Configure Speech Quality for an Application	CP 5053
Configure NP TDD	CP 3291
Enable Multiple Messages for Outside Callers	CP 5022
Enable the Dial-by-Name Function	CP 3309
Prevent Unaddressed Messages	CP 5023
Test the NuPoint Voice Application	CP 5315

Default Software Configuration

The NuPoint Voice application is the only application that is pre-installed in the factory configuration. To add capabilities, and to meet the requirements of a particular site, you usually must change one or more of the defaults. All of the defaults can be changed at a server maintenance console.

The default configuration has the values shown in Table 2-1.

Table 2-1 NuPoint Voice Application Defaults

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Parameter	NuPoint Voice Application Default
Administrator's mailbox number	998
Allow dial an extension for callers	N
Allow dial an extension for users	N
Allow multiple messages for outside caller	Y
Answer delay	0
Attendant's mailbox number	999
Attendant transfer string	S+
Dial by name, last name first	Y
Exact match break	Y
General greeting mailbox number	None
Group name	None
Key 0 for attendant transfer	N
Line group number	1
Line(s) in group	All on server
Mailbox dialing plan	3,3,3,3,3,3,3,3,3
Number of names threshold	3 names
Passcode length	4 digits min. – 10 digits max.
Passcode trip count	5
Passcode trip period	24 hours
Pre-company name dial string	None
Pre-mailbox greeting dial string	None
Prompts language	English
Single digit access	None
Speech quality for messages	18
Speech quality for names and greetings	18
Suppress mailbox number	None
System attendant's extension	0
Wait prompt	Y
Weekend days table	DDDDDNN
Work day	8 a.m. – 5 p.m.

NuPoint Voice Application Worksheet

Use the NuPoint Voice Application Worksheet (Figure 2-2) to organize the data. The rest of this chapter explains concepts you need to know for completing the worksheet and using it to configure the NuPoint Voice application.

The following paragraphs explain sections of the worksheet. Pre-programmed (default) values are given, where applicable. If you want to use a default value, indicate that fact on the worksheet. Then you do not have to select or enter any information for that parameter during reconfiguration.

Configuration Types

The NuPoint Voice application has two different kinds of configuration, online and offline. The

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NuPoint Voice Application Worksheet is divided into these two types to help you enter settings into the console in the right order.

Offline configuration handles server settings that cannot be changed immediately, such as setting up line groups. *Online configuration* includes the remainder of server settings that can be modified at any time. Many offline and online configuration settings work together, so there are two kinds of online configuration: the active and the inactive configuration.

The *active configuration* is the online configuration currently in use, and any changes you make to it take effect immediately after exiting the menus. The *inactive configuration* is the online configuration that is in reserve; changes made to it do not take effect until you perform an additional step. This option should be used when you also make changes in the offline configuration. Then you *activate the configuration* to implement all the changes you made, both online (inactive) and offline.

Figure 2-1 shows the relationship between the different configuration types.

Figure 2-1 Handling Configuration Types

Figure 2-2 Sample NuPoint Voice Application Worksheet

Defining a Line Group

All NuPoint Messenger server ports (telephone lines) are assigned to line groups. Each line group, in turn, is assigned to a single application, and any programming that is done for that application applies to every port in the line group. The number of ports you assign to each line group depends on how heavy you expect the phone traffic to be for the particular application.

At the PBX or CO level, all telephone lines connected to the ports of an individual line group are typically assigned to a hunt group, ACD group, UCD group, etc. to ensure that incoming calls are answered by the first port that is available for the particular application.

Line Group Number

Each line group is represented by a discrete number. Valid line group numbers are 1 through 24. The preset default for the NuPoint Voice application is 1.

Group Name

The group name identifies the line group's purpose. For example, a line group could be called "Message Center." There is no default group name.

Line(s) in Group

You identify each line (or port) in a group with three identifiers, which indicate a module, a line card, and a port on a line card. "Module" refers to a CPU, the server's main processor. Modules are numbered from 1 through 4. Line cards are numbered 0 through 15. Each line card has a number of ports, and you can connect one telephone line to each port. Port numbering also starts at 0 and the upper limit depends on the type of line card you are using. The set of three identifiers (module, line card, and port) is called a "triplet," and is used in this format:

The default setting has all telephone lines on the server assigned to group 1.

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If you have more than one line in the group, separate the line numbers by commas as you enter them on the worksheet. For example, write 1:0:0,1:0:1,1:1:0 since this is how you must enter them. If you are entering a range of lines, you must use the full triplet on both sides of the range, such as 1:0:0-2:7:2 for everything on module 1, and everything on module 2 up to slot 7, port 2. (You can omit the module number if it is module 1; for example, 0:1-3:7.) For each module, line card, and port,s.here are several valid values. Table 2-2 describes them.

Table 2-2 Module, Line Card, and Port Values and Interpretations

	Valid Value	Interpretation
Module	blank	Module 1
	number	Specified module
Line card	*	All line cards controlled by the specified host
	number	Specified line card
Port	*	All ports on the specified line card(s)
	number	Specified port

As Table 2-2 implies, there are many possible combinations. Table 2-3 shows several examples of valid module, line card, and port combinations and how the server interprets them.

Table 2-3 Module, Line Card, and Port Combinations

Expression	Interpretation
1:*	All the line cards controlled by module 1 on a multi-module server; for a single-module server this means all ports on line card 1
1:2:*	All ports controlled by module 1, line card 2
1:0-3:7	Module 1, all ports on line cards 1-3 (assuming 8-port cards)
2:1:2, 2:2:0-2:3:7	Module 2, line card 1, port 2 plus all ports on line cards 2 and 3 (assuming 8-port cards)

Configuring the Application

Configuring the NuPoint Voice application consists of establishing day and night hours, establishing a mailbox dialing plan, specifying call transfers and the use of attendants, and identifying administrator's and attendant's mailboxes.

You must also decide whether to configure other operations such as a wait prompt, the default language for prompts, and passcodes.

Day and Night Hours

The NuPoint Voice application can issue different company greetings for day answering and night/weekend answering. With the NP Receptionist optional feature, the software can treat individual extensions differently when calls are received during night and weekend hours, rather than during normal business hours. The hours that constitute a normal work day, and the days of the week that are considered a weekend, can be customized for the individual installation. The company greeting is the greeting in the administrator's mailbox.

Day and night hours are scheduled for each line group. If you have different day and night/weekend hours for each line group on the server, the greeting that an outside caller hears

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depends on the line group used to access the mailbox. Of course, if you don't record any custom greetings then all callers hear the same default greeting.

Start Time of the Work Day

This is the time for the start of the work day in the format "hh:mm AM (or PM)"; where hh is the hour and mm is the minute. The default start time for the work day is 8 a.m. If neither AM nor PM is specified, the server assumes that the time is AM.

End Time of the Work Day

This is the time for the end of the work day in the format "hh:mm AM (or PM)"; where hh is the hour and mm is the minute. The default end time for the work day is 5 p.m. If neither AM nor PM is specified, the server assumes that the time is PM.

If you want to use the same greeting 24 hours a day, enter "12:00AM" in both Start and End time.

Weekend Days Table

This is a table that tells the NuPoint Voice application when to treat calls that are answered during the work day interval (as specified in the two entries above) as day calls, and when to treat these calls as night/weekend calls. The table starts with Monday. The default value is DDDDDNN, which means that the work days are Monday through Friday, and the weekend days are Saturday and Sunday.

Mailbox Dialing Plan

The mailbox dialing plan is a string of nine elements. The elements in the string define, by position, the number of digits in valid mailbox numbers. The first element shows the number of digits allowed for mailboxes that begin with 1. The next element shows the number of digits allowed for mailboxes that begin with 2, and so on up to mailboxes that begin with 9. Each element is separated by commas.

You must reenter the entire mailbox dialing plan when you change any element.

Valid mailbox numbers can be up to 11 digits long, so valid numeric elements can be 0 (zero) through 11. When an element is zero, no mailboxes beginning with that digit are allowed.

For example, if your dialing plan is *0, 3, 3, 7, 3, 3, 3, 3, 10,* the NuPoint Voice application interprets the string as follows:

Table 2-4 Mailbox Dialing Plan Example (0,3,3,7,3,3,3,3,10)

Digit	Element	Interpretation
1	0	No mailboxes start with 1. Mailbox numbers 1, 11, 111, and so on are all invalid.
2	3	Mailboxes starting with 2 are three digits long. Mailbox numbers 2, 22, 2222 are invalid. Mailbox numbers 222 and 246 are valid.
3	3	Mailboxes starting with 3 are three digits long. Mailbox numbers 3, 33, and 3333 are invalid. Mailbox number 333 is valid.
4	7	Mailboxes starting with 4 are seven digits long. Valid mailboxes are 434-1234 and 499-8765.

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5 6 7 8	3 3 3 3	Mailboxes starting with 5, 6, 7, and 8 are three digits long.
9	10	Mailbox numbers starting with 9 are ten digits long. Valid mailbox numbers are 916-456-7777 and 912-456-7777.
1	0	No mailboxes start with 1. Mailbox numbers 1, 11, 111, and so on are all invalid.

The default dialing plan is *3,3,3,3,3,3,3,3,3,3* meaning all mailboxes have 3 digits.

Other entries allowed in the dialing plan allow other NuPoint Messenger server features. Table 2-5 lists these entries for your reference.

Table 2-5 Dialing Plan Elements

Element	Explanation
0-11	Length of the mailbox. Zero means none may start with this number.
V	Variable number (1 through 11) of digits; server uses timeout to determine end of mailbox number
M	Analog networking (AMIS) mailboxes leading digit
A	Dial-by-Name (ASCII) leading digit
T	Call placement leading digit
An	Networked mailboxes, n = mailbox number length. NV (variable number length) acceptable
Pn	Network mailbox prefix used, n = mailbox length including prefix digit

If the extension numbers at your site use too many starting digits to implement all these capabilities in your dialing plan, you could use the optional star prefix dialing plan, described below.

Optional Star Prefix Dialing Plan

The dialing plan described above tells the NuPoint Voice application how to handle DTMF digits 1 through 9. If you have mailbox numbers and other features that use all ten of these digits, you can implement the optional star prefix dialing plan. This allows additional features using digit entry followed by the star (*) key. You can implement several features with the optional dialing plan, as shown in Table 2-6.

Table 2-6 Optional Star Prefix Dialing Plan Capabilities

Optional Dialing Plan Choices	Counterpart in Regular Dialing Plan
Dial-by-Name	A
Analog Networking	M
Networking without prefix	N
Networking with prefix	P
Call Placement	T

PBX Considerations

A PBX only allows a certain range of extension numbers. Ideally, employees' mailbox numbers

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should match their extension numbers. This makes it easier for callers to remember the proper mailbox number. If the numbers do not match, and the optional NP Receptionist program is installed, you can program certain conversion factors to allow the NuPoint Voice application to match the extension with the correct mailbox number.

If the company has employees in the field who do not have regular PBX extension numbers, you can give them mailbox numbers that do not fall in the range of allowable PBX extensions, even if there are enough mailbox numbers in this range. You can reserve these extra mailboxes for future expansion of in-house staff. For example, if the PBX allows extensions 200 to 399, you can keep the dialing plan at the default setting of *3,3,3,3,3,3,3,3,3,3*, and assign all field personnel mailboxes 600 through 799.

Dial-by-Name

To configure the Dial-by-Name function, you need to:

- Change the dialing plan to specify a digit for Dial-by-Name.
- Specify the name dialing sequence.
- Set a threshold for playing matching names.
- Specify whether a caller must enter a complete name or just enough letters to get a match.
- Specify whether a caller can press a single digit to reach a mailbox or must enter the entire mailbox number.
- Specify whether a caller hears matched names and mailbox numbers or just the matched names.
- Determine the grouping of access within the Dial-by-Name database (sometimes called “Partitioned Dial-by-Name”). Even though mailbox owners may all be in the same Dial-by-Name database, they can only reach others in the database who share the same GCOS group (in a bit-mapped GCOS) or affinity group. Refer to the GCOS section in Chapter 8 for more information on GCOSs,

Dialing Plan

In the Dialing Plan Menu, coding a digit with the A element reserves that digit for dialing names.

Name Dialing Sequence

You specify the name dialing sequence with the Last Name First Flag parameter. This parameter determines whether a user’s name must be dialed in the last name-first name sequence or the first name-last name sequence. In most cases, callers need not enter user’s full name. When a caller finishes pressing a series of keys, the NuPoint Messenger server searches a special file for entries that match the series. If it finds more than one match, it plays the names and mailbox numbers of the partial matches. If the server finds a unique match, it plays either the user’s name or personal greeting.

Matching Threshold

Setting a threshold for playing matching names determines the maximum number of names and mailboxes the server plays in response to a partial name match. A partial name match occurs in either of these cases:

- Callers enter some portion, but not all, of a recipient’s name.
- Callers enter a complete name, but the server finds more than one recipient that matches the entry.

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If more than one name is found that matches the name dialed, the server plays the specified number of matching names. A threshold of 3, for example, means that up to three matching names will be recited, even if there are more than three. If the number of names for a partial match is greater than the threshold, the server prompts a caller to continue entering letters.

Exact Match Break

Specifying an exact match break determines how callers can enter the partial name of a user. When “yes” is specified, the caller hears the name and mailbox number play as soon as there is a match. The caller can, however, end a name entry with the pound (#) key; the caller hears whatever names match. When “no” is specified and a caller stops entering letters, the server waits for a time out period before responding; if a caller presses the # key, the server responds immediately. If the server can determine exactly who the intended recipient is, it plays that recipient’s name (and mailbox number if not suppressed). Alternatively, the server plays, for outside callers, that recipient’s personal greeting. If more than one recipient’s name matches the caller’s input, the server plays the names and mailbox numbers of the possible recipients. A caller can interrupt the server during name or greeting play by pressing any key on the telephone keypad.

Single Digit Access

Specifying single digit access means that a caller can enter a single digit to reach a mailbox after matched names have been played, similar to a tree mailbox operation. When single digit access is allowed, a match with the name dialed by a caller causes the server to play a prompt such as:

“There are three entries: Jean Brown, mailbox 4321, press 1; John Brown, mailbox 4222, press 2; Jill Brown, mailbox 4567, press 3. Enter a mailbox number. Press 0 to return to Dial-by-Name.”

The caller can then press the appropriate digit to reach the desired person instead of entering the entire mailbox number.

When no single digit access is allowed, a caller must enter an entire mailbox number to reach a mailbox after matched names have been played. A match with the name dialed by a caller causes the server to play a prompt like the one shown above except that there is no single digit stated. The caller must enter the entire mailbox number.

Suppressing Mailbox Numbers

Suppressing the mailbox number means the server omits the mailbox numbers in the list of names played when there is a match with a dialed name. The default is to include the mailbox number.

Dial-by-Name Database

Each mailbox that can be reached by name must be configured with an FCOS that includes feature bit 92, which places users’ mailbox numbers in the Dial-by-Name database. The server searches this database for entries to match a caller’s input. See the FCOS chapter for more information on this feature bit and how to implement FCOSs.

Even with all the parameters just described set, a mailbox owner’s name can be listed only when the mailbox owner’s name is specified in the mailbox configuration. Once all these requirements are met, the name goes into the database as soon as you exit from the respective configuration menus.

To make sure there is only one mailbox per user’s name, you can print out a phone book for your

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site. This phone book shows the mailbox owners accessible through the Dial-by-Name function and their mailbox numbers.

Same Digit for Dial-by-Name and Mailbox Numbers

Occasionally you may need the same digit for a Dial-by-Name trigger *and* in a mailbox number. With the optional star prefix dialing plan (described above), the digit specified for Dial-by-Name can still be used for mailbox numbers when the digit is *not* followed by a star (*). Suppose, for example, that your server has mailboxes beginning with 1 but you also need the digit 1 for Dial-by-Name. You can specify 1 as the Dial-by-Name dialing plan digit, which causes the server to prompt the caller to press 1 and * to dial by name.

Transfers and Attendants

The NuPoint Voice application allows you to specify dial strings and methods for transferring callers, and to specify the use of a wait prompt. If the NP Receptionist optional feature is installed, you can specify the conditions for a company greeting and mailbox greeting.

Attendant's Transfer String and System Attendant's Extension

These two dial strings together describe the steps needed to transfer a call to a live attendant, or other general assistance number. These steps are PBX-dependent, and can be determined by actually transferring a call to the attendant from a station set. Use the dial string characters in Table 2-7.

The attendant's transfer string contains the coding for all the steps that the PBX must take before dialing the attendant's extension number. The default attendant's transfer string is S+ which means "do a switch hook flash, then pause for one second." This string is also used when transferring a caller to a mailbox attendant's extension number.

The system attendant's extension consists of the PBX extension number of the live attendant (or a "must answer" number, with no mailbox), plus coding that describes any subsequent steps necessary to complete the call. Up to 30 characters can be entered in this field.

Table 2-7 Transfer Dial String Characters

Character	Explanation
0-9, *, #	Keys on a standard pushbutton telephone
(	The following digits should be dial pulsed (10 PPS)
)	Stop pulsing; resume sending DTMF tones
+	Pause for one second
A-D	Fourth column DTMF keys
E	Go off-hook, wait for dial tone or other steady tone (pager go-ahead or confirmation tone, for example), then do next item in string
F	Switch hook flash and wait for dial tone
G	Greet - Wait for a voice or computer tone answer
H	Hang up (go on-hook)
L	Answer supervision - Wait for telephony signal from destination. Use only with trunk (four-wire) connections.
N	Start a new activity; do not go off-hook
O	Ring once
P	Go off-hook, do not wait for dial tone
S	Switch hook flash, no wait required

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T	Go off-hook, wait for dial tone
V	Voice pager: play the first unplayed message and update mailbox

The default system attendant's extension number is 0. In addition, the NuPoint Voice application automatically appends an H (hang up) command to the end of the string. This allows the PBX to drop the call if the caller hangs up before the NuPoint Messenger server completes the transfer to the attendant. If your PBX does not allow blind transfers to the attendant, add a G (the code for "wait for a greeting") to the end of the system attendant's extension.

If the PBX allows trunk-to-trunk transfer, you can program an off-site system attendant's extension number.

Each mailbox can be programmed to direct calls to an intermediate attendant when the caller requires assistance. In the absence of an intermediate attendant, calls are routed to the system attendant. Transfer to an attendant can occur in the following situations:

1. When the Key_0 for Attendant Transfer During Greeting parameter is enabled, a caller can press 0 while listening either to the server greeting or to a mailbox greeting. When 0 is pressed during the server greeting, the caller is transferred to the system attendant's extension. When 0 is pressed during a mailbox greeting, the server first checks the mailbox for the attendant's extension number; if none is present, the caller is transferred to the system attendant's extension.
2. While logged in, a mailbox owner can press 0 to be transferred to an attendant, if the mailbox's FCOS includes feature bit 002 (Can Reach Mailbox Attendant). The server first checks the mailbox for the attendant's extension number; if none is present, the caller is transferred to the system attendant's extension. (See the Features Class of Service chapter for more information on FCOSs and feature bits.)
3. If the called party's mailbox FCOS includes outside caller functions, a caller can press 0, after recording a message, to send the message and transfer to an attendant. If the message is left in the attendant's mailbox, the caller is always transferred to the system attendant. If the message is left in a personal mailbox, the caller is transferred to the system attendant only if no attendant's extension number is present in the mailbox.
4. If the attendant's mailbox has been deleted, or has a Greeting-Only FCOS, and the wait prompt is enabled, the outside caller who waits is transferred to the system attendant's extension.

Key_0 for Attendant Transfer During Greeting

This function designates the 0 key as either an attendant access number or a log in code. The default is N, or disabled.

To enable the Key_0 function, you must enter Y. If this function is enabled, be sure to define a suitable system attendant's extension number and dial string.

When the Key_0 for Attendant Transfer During Greeting parameter is enabled:

- The server allows an outside caller to press the zero key, while either the company greeting or a mailbox greeting is playing, to be transferred to the system attendant's extension.
- Mailbox owners must log in by pressing the star (*) key either before or after entering their mailbox numbers. The zero key cannot be used to signal a login.

When the Key_0 for Attendant Transfer During Greeting parameter is disabled:

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- Mailbox owners can press either the zero or star (*) key, before or after entering their mailbox number, to log in. (The zero option is essential when telephones at the installation-site do not have a * key.)

Automatic access to the attendant on time out (that is, when the caller waits in response to the "Please enter a mailbox number or wait" prompt) can be provided, if necessary, by assigning a Greeting-Only class of service to the attendant's mailbox. The attendant's mailbox can then be used only to make messages of the day.

Pre-Company Name Dial String

The NuPoint Voice application outputs this dial string immediately after going off-hook, and before playing the Company Greeting (either the standard "Welcome to the message center" prompt, or the Administrator's mailbox greeting).

This string is used only if the NP Receptionist (Receptionist) optional feature has been installed on your server, *and* employees can manually call forward their phones directly to the message center number. In this situation, an NP Receptionist port may inadvertently be connected to one of the ports that is running the message center application. The pre-company name dial string forces NP Receptionist to drop the call, and instructs the server to wait a designated number of seconds before playing the company greeting.

There is no pre-programmed default.

- The pre-company name dial string must include a pound sign (#). You can configure DTMF A (fourth column DTMF key) in place of the pound sign if the PBX recognizes the pound tone as a code for some other function. The port that answers the call issues this tone, which forces NP Receptionist to release the call. Be aware that callers and mailbox owners always hear this dial string when a mailbox is reached through the NuPoint Voice application.
- To give the PBX time to make the connection before the company greeting is played, program a series of plus signs (+++) after the # or A. Each + in the NuPoint Voice application configuration means "wait one second." To determine how many pluses are needed, forward one station to another station, make a test call to the first station, then count the number of seconds that elapse before the second station rings.
- If the test call showed that it takes two seconds for a forwarded call to connect to the second extension, for example, use "#++" for the pre-company name dial string.
- You can experiment to find the optimum number of seconds to wait for call connection. If the first half of the message center greeting does not play when NP Receptionist calls are forwarded, add more pluses to the string. If there is a long silence before the greeting is played, delete pluses from the string.

Pre-Mailbox Greeting Dial String

The NuPoint Voice application outputs this dial string immediately after receiving a valid mailbox number, and before playing the mailbox's greeting.

This string is used only if 1) the NP Receptionist optional feature has been installed on your server and 2) employees may manually call forward their phones directly to their mailboxes. In this situation, an NP Receptionist port may inadvertently be connected to one of the ports that is running the message center application. The pre-mailbox greeting dial string forces NP Receptionist to drop the call, and instructs the server to wait a designated number of seconds before playing the mailbox greeting.

There is no pre-programmed default. The same conditions apply as listed above in "Pre-Company Name Dial String."

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Wait Prompt

When the Wait prompt is enabled, the server issues the prompt “Please enter a mailbox number, or wait” immediately after the server greeting is played. The default value is Y (enabled).

To disable this prompt, you must enter N. In some cases, you must disable the Wait prompt for any number of reasons, among them:

- To record the company greeting (administrator’s mailbox greeting) and the Wait prompt in the same voice. The text of the Wait prompt is recorded as the last sentence of the company greeting.
- When neither a system attendant’s number nor an attendant’s mailbox is defined, and the Wait prompt is enabled, callers who wait are thanked for calling, then disconnected.
- If you disable the Wait prompt and are using the Dial-by-Name function, you must record the “Press [digit] to dial by name” prompt in your own voice. The server prompt for Dial-by-Name plays if the Wait prompt is enabled.

Administrator’s Mailbox Number

The initial software installation contains 10 possible default administrator’s mailboxes. They are as follows:

98	9999998
998	99999998
9998	999999998
99998	9999999998
999998	99999999998

Since the default dialing plan is 3,3,3,3,3,3,3,3,3, the default administrator’s mailbox number is 998. If the ninth position digit is changed to any number between 2 and 11, the default administrator’s mailbox number should be changed to the corresponding 9.....8 number. An error message is generated if the number does not match the mailbox dialing plan.

The administrator’s mailbox can be any mailbox number on the server; but if you select a mailbox number other than one of the defaults, you must create the mailbox before it can be used. The mailbox number you select must be allowed by the Dialing Plan.

Note: For server security, you should change the administrator’s mailbox number from the default. (See “Mailboxes” in the task list for administrator’s mailbox procedures, Volume 2 of this manual.)

The administrator’s mailbox number has special privileges:

- The administrator’s mailbox day and night greetings are the day and night company greetings. If you do not record one or both of these greetings, the default (“Welcome to the message center”) is played instead.
- Distribution lists that are created from the administrator’s mailbox are server-wide master lists that can be used by any mailbox owner on the server.
- The system administrator may add/delete/modify mailboxes over the telephone, from the Telephone Administration Menu.

Attendant’s Mailbox Number

The initial software installation contains 10 possible default attendant’s mailboxes. They are as

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follows:

99	9999999
999	99999999
9999	999999999
99999	9999999999
999999	99999999999

Since the default dialing plan is 3,3,3,3,3,3,3,3,3, the default attendant's mailbox number is 999. If the ninth position digit is changed to any number between 2 and 11, the default attendant's mailbox number should be changed to the corresponding 9.....9 number. An error message is generated if the number does not match the mailbox dialing plan.

The attendant's mailbox can be any mailbox number on the server; but if you select a mailbox number other than one of the defaults, you must create the mailbox before it can be used. The mailbox number you select must be allowed by the Dialing Plan.

Note: For server security, you should change the attendant's mailbox number from the default. (See "Mailboxes" in the task list for attendant's mailbox procedures, Volume 2 of this manual.)

The attendant's mailbox also has special privileges:

- Its greeting is the message of the day. This message is heard by all mailbox owners whose FCOSs include feature bit 043 immediately after they log in. The message is played twice (after two separate logins), the first time hard-played and the second time soft-played. (Hard-played prompts cannot be interrupted; soft-played prompts can.)
- The message of the day is stored only in the attendant's mailbox. Once it has been deleted, no mailbox owners hear the message, even if they have not logged in since the last message was created. Conversely, if an old message of the day is not deleted, or replaced by a new message, all newly created mailboxes receive the outdated message. For procedures on enabling and disabling the message of the day, see "NuPoint Voice Application" in the task list, Volume 2 of this manual.
- A customized site tutorial greeting can also be recorded from the attendant's mailbox. When the system administrator presses G to record a company greeting, the server prompts, "Press M to record the message of the day; press T to record a site tutorial." See "NuPoint Voice Application" in the task list for procedures on recording a site tutorial, Volume 2 of this manual.
- When outside callers access the message center, they are prompted to "Please enter a mailbox number or wait" after the company greeting is played. Callers who wait (because they have rotary dial phones, or do not know the correct mailbox number, for example) are then prompted, "Please leave your name, the name of the person you are calling, and a message." These unaddressed messages go into the attendant's mailbox.

Multiple Attendant's Mailboxes

If a large number of unaddressed messages is expected, up to five Attendant's Mailboxes may be configured by entering the mailbox numbers, separated by commas (for example, 999, 910, 911, 912, 913). The message of the day and the site tutorial can be made only from the first attendant's mailbox that is configured; the other mailboxes are used only for storing unaddressed messages. When the first mailbox is full, NuPoint Voice begins using the second mailbox until it is full, and so on until all attendant's mailboxes are full.

You can configure any mailbox as the attendant's mailbox by entering the mailbox number in this field. If you select a mailbox number other than one of the defaults, you must create the mailbox before it can be used. (See "Mailboxes" in the task list.)

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Disabling the Attendant's Mailbox

When an outside caller accesses the message center number, NuPoint Voice issues the prompt, "Please enter a mailbox number or wait." Callers who wait are prompted to leave a message in the attendant's mailbox. Some installations require these callers to be transferred to the system attendant's extension, instead. There are two ways to do this:

- If the system administrator does not issue messages of the day, delete the attendant's mailbox.
- Assign a Greeting-Only FCOS to the attendant's mailbox.

Note: If you disable the attendant's mailbox, and you do not define a system attendant's extension number, be sure to disable the Wait prompt. Otherwise, when a caller waits, NuPoint Voice says "Thank you for calling," then hangs up!

Default Language for Prompts

This entry specifies the primary language in which prompts are issued. The default language is English. You must purchase and install language prompts diskettes in order to use any other language on your server. Table 2-8 lists some of the languages available. Contact your distributor for further information.

A mailbox's LCOS can specify a different prompts language. The prompts set of diskettes in the secondary language must be installed before these mailboxes issue any prompts at all. Callers hear prompts in the default language.

Table 2-8 Some Supported Languages

Full Set and Hotel Set	Full Set Only
American English	Australian, British, or New Zealand English
French	NP TDD
Japanese	
German	
Korean	
Latin American or Mexican Spanish	
Mandarin	
Portuguese	

A server can have one default language and up to eleven alternate languages, depending on the number and size of the hard drives. For more details about the number and kinds of languages supported, see the Other Classes of Service chapter.

NP TDD can be installed like any of the language prompts. If NP TDD is installed, selecting it as a response to the Default Language for Prompts parameter enables the NP TDD feature of the NuPoint Voice application in the current line group. When any mailbox owner receives or makes a call through that line group, NP TDD replaces voice prompts with TDD tones. (See "NP TDD for the Hearing Impaired" below for more information.)

NP TDD for the Hearing Impaired

The NP TDD feature of the NuPoint Voice application supports telecommunications devices for the deaf (TDDs). With NP TDD, hearing-impaired mailbox owners can receive TDD-generated

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text from other users.

NP TDD users can be notified about messages by message waiting lights or any other message waiting indication supported by a NuPoint Messenger server, just as other users can.

Outside callers with a TDD can call a mailbox configured for NP TDD prompts, be answered by a TDD greeting, and leave a message for the mailbox owner. Standard user options such as reviewing and recording over a message, making a message urgent, appending to a message, and dialing an extension are also allowed.

Configuring NP TDD

You can configure NP TDD to apply to either an entire line group or specific mailboxes. To configure NP TDD, make the following changes:

- Set the default language for prompts to TDD in the NuPoint Voice application (if configuring the line group).
- Assign an NP TDD LCOS or another LCOS specifying NP TDD as the prompts language to any mailboxes using NP TDD. This LCOS should also have the Greeting Length and User Name Length limits parameters appropriately set for NP TDD.
- Change the Stop Record Timeout and Dial Tone Detect Time telephony parameters (phoneline exceptions) for the line group in which NP TDD is configured.

Refer to the Task List (Volume 2 of this manual) for specific instructions on configuring NP TDD. For more information configuring NP TDD, refer to *NP TDD Configuration Note 14*.

Effect of NP TDD on Other Server Features

Certain NuPoint Messenger server features and user options are not available to any mailbox associated with the line group in which NP TDD is configured. These features are:

- NP WakeUp optional feature
- Call scheduling for pages
- Future delivery
- Standard tutorial

Answer Delay

You may set a variable answer delay with the Delay Before Answer parameter. The default for this parameter is zero (no delay), and in most cases, it does not need to be changed. A delay of up to 1/2 second can be required for certain applications (for example, the NuPoint Voice application and the NP Receptionist optional feature) that use E & M trunks.

Users need to use this delay if the application software sometimes answers an incoming call before all the digits are received, causing the switch to stop sending digits. This can happen when E & M trunks are being used.

The Delay Before Answer parameter can be helpful with other types of trunks and applications. In cases where the DID application does not work for a customer because the server answers too fast, this parameter should resolve the problem.

Note: The answer delay for the first call into a port after any online configuration change (FCOS, LCOS, GCOS, NCOS, line group, phoneline exceptions) is up to a second longer than for subsequent calls

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on the port. Consequently, changes to the answer delay parameter do not become effective until the second call is made into the port.

Mailbox Passcodes

NuPoint Messenger includes security devices to protect your installation at a server level and mailbox level. A device for use at the mailbox level is mailbox passcodes, which you configure through the NuPoint Voice application. The following paragraphs outline the configuration of mailbox passcodes; for more complete information, see the Server Security chapter.

Minimum and Maximum Passcode Length

Minimum and maximum passcode length sets the range for the number of digits a passcode can be.

Enter the minimum number of digits that constitute a valid passcode for users of this line group. The minimum passcode length can be any number from 4 through 10. The default value is 4. This means no user can enter a new passcode shorter than 4 digits. If you want users to have longer passcodes (for security reasons) then you can specify a larger minimum length.

Enter the maximum number of digits that constitute a valid passcode for users of this line group. The maximum passcode length can be any number from 4 through 10. The default value is 10.

If you leave the maximum passcode length at the default, 10, then all passcodes can be no longer than 10 digits. You cannot enter a value greater than 10, and users cannot enter a passcode longer than 10 digits.

Passcode Trip Count, Passcode Trip Period

These two entries set the parameters for the passcode break-in warning, which is a server security feature. The default values for the passcode trip count and the passcode trip period are 5 and 24. This means that a warning is issued to a mailbox if someone attempts to enter an incorrect passcode for that mailbox at least 5 times (the passcode trip count) within a 24 hour period (the passcode trip period).

The passcode trip count can be set to any value from 0 to 255. The passcode trip period can range from 0 to 240 hours. In both cases, zero means the passcode break-in warning function is disabled.

The passcode break-in warning function is enabled when you configure both a trip count and trip period.

Using the NuPoint Voice Application

This section covers the final steps toward using the NuPoint Voice application.

Activate Changes

After the necessary configuring has been completed, and you have returned to the Main Menu, the NuPoint Messenger server makes all active configuration online changes effective immediately.

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WARNING!

Activating the inactive configuration causes the server to restart all tasks, resulting in an interruption to call processing. You should perform the next step only during periods of low call traffic.

To make offline and inactive online configuration changes take effect, activate the inactive configuration. When you activate the inactive configuration, the server automatically shuts down and resets the software to the new configuration, then returns to the NuPoint Voice Active Configuration Menu.

Create Mailboxes

The final step for making NuPoint Voice operational is to create mailboxes. Refer to the Mailboxes chapter for more information.

If the administrator's or the attendant's mailbox is set to a number other than the default, you must create the mailbox before using it. Identifying the mailboxes in the NuPoint Voice application line group gives them the ability to perform their special functions, but the functions are not enabled until the mailboxes are added to the server. The recommended FCOS for both mailboxes is 10 (VIP), the LCOS is 1 (Default), the GCOS is 1, and the message waiting type should be whatever is available for your server.

Record a Company Greeting

When callers reach NuPoint Voice by dialing its number, they hear the administrator's mailbox greeting, which is the company greeting. (DID callers hear the mailbox's personal greeting.) It is possible to record separate day and night greetings. See the Mailboxes chapter for more information.

Test the Configuration

After phone lines have been installed, and you have completed all the applicable steps discussed so far, test your NuPoint Voice application. See the task list for the procedure in Volume 2 of this manual.

3 DID NuPoint Voice Application

This chapter covers:

- Overview of the DID NuPoint Voice application
- Default software configuration
- DID NuPoint Voice Application Worksheet
- Line group definition
- Configuring the application
- Using the DID NuPoint Voice application
- Usage Considerations

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Overview

The DID NuPoint Voice application is a software application that uses the DID lines to answer a call with the mailbox owner's personal greeting. In other words, the DID NuPoint Voice application gives the server the ability to manipulate and translate the digits received from the Central Office (CO).

Each voice mailbox owner has either a four digit telephone number or seven digit telephone number, depending on the digits received from the CO. Calling that number causes the telephone company's central office to seize one of the several DID lines connecting the CO to the NuPoint Messenger server, and to dial some or all of those digits into the server. The server matches the dialed number to the appropriate mailbox, and answers with the personal greeting of the mailbox owner.

DID mailboxes allow callers to dial a telephone number that is answered with the mailbox greeting. While some servers can use the PBX's forwarding capability to allow the server to answer calls with the user's mailbox greeting, DID mailboxes answer the calls directly.

To use the DID NuPoint Voice application on your server, you should confirm that the line cards are set to DID settings. You must also perform any necessary server level configuration. Server level configuration through the DID NuPoint Voice application involves two steps: defining the line group, and configuring the application. In the first step, you assign server ports to the DID NuPoint Voice application. In the second step, you customize the application for your server. Procedures covering these steps are listed below, and presented in detail in Volume 2 of this manual.

A third step is necessary if your CO requires wink start: you need to make a phoneline exception.

Once you have completed the DID NuPoint Voice application configuration, you need to activate changes, create mailboxes, and test the configuration. Procedures covering these steps are listed below.

When configuring the DID NuPoint Voice application, it helps to keep in mind the DID sequence that occurs between the server and the CO. Figure 3-1 gives a general view of the progress of a typical DID call into the server.

Figure 3-1 Typical Steps in the DID Sequence

Procedures

You can perform the following procedures with the DID NuPoint Voice application. These procedures are located in Volume 2 of this manual.

Procedure	Number
DID VoiceMemoConfiguration	CP 3320
Set Parameters for Digit Absorption and Offset	CP 6000
Test the DID NuPoint Voice Application	CP 3413

DID NuPoint Voice Application Worksheet

Use the DID NuPoint Voice Application Worksheet (Figure 3-2) to organize the data. The rest of

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this chapter explains concepts you need to know for completing the worksheet and using it to configure the DID NuPoint Voice application.

Sections of the worksheet are explained in the following paragraphs. Pre-programmed (default) values are given, where applicable. If you want to use a default value, indicate that fact on the worksheet. Then you do not have to select or enter any information for that parameter during reconfiguration.

Many of the parameters on this worksheet are identical to those explained in the NuPoint Voice Application chapter. The parameters that are the same are identified in the following sections, and you can refer to the NuPoint Voice Application chapter for the information you need.

Defining a Line Group

When you configure a line group, you dedicate certain ports to a single application. After you arrange line groups, you set parameters for the entire group, which eliminates the need to enter information for each individual port. For example, you can assign all ports for the DID NuPoint Voice application to a single line group; then you can specify the dial plan, dial strings, etc., for this entire group. The server software recognizes line groups by their number.

Line Group Number

Each line group is represented by a discrete number. Valid line group numbers are 1 through 24.

Group Name

The group name, though optional, should identify the line group's purpose. For example, a line group could be called "DID SYS." There is no default group name.

Line(s) in Group

You identify each line (or port) in a group the same as for the NuPoint Voice application. For more information on identifying lines in a group, see the NuPoint Voice Application chapter.

Configuring the Application

Configuring the DID NuPoint Voice application consists of configuring digit manipulation, then, as with the NuPoint Voice application, establishing day and night hours, establishing a mailbox dialing plan, specifying call transfers and the use of attendants, and identifying administrator's and attendant's mailboxes. You must also decide whether to configure other operations such as a Wait prompt, the default language for prompts, and passcodes.

Digit Manipulation

The CO typically transmits, as requested, the last three, four, five, or seven digits of the dialed number. The server accepts the transmitted digits and the application software manipulates them. Digit manipulation means one or more of the following:

- Ignoring one or more of the leading transmitted digits
- Adding a fixed quantity (offset) to the received digits
- Subtracting a fixed quantity from the received digits

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When the server has received the proper number of digits, it answers the call with the mailbox owner's greeting.

Digits Expected

Enter the number of digits that are supplied by the CO to this DID trunk group (1-11 digits).

Digits Absorbed

If the number of digits expected is greater than the number of digits in a valid mailbox number, the DID NuPoint Voice application can be programmed to ignore or "absorb" these extra digits.

The digits are absorbed in the order received. For example, if Digits Absorbed = 2, the software absorbs (ignores) the first two digits that it receives. See examples 1 and 2 at the end of this discussion for a more complete illustration of this operation.

On the DID NuPoint Voice Application Worksheet, enter the number of digits supplied by the CO to this DID trunk group that are to be ignored or "absorbed" (1 through 9 digits).

Offset (+/-)

Ideally, the digits that the server receives from the CO should match the mailbox number. If this is not possible, the server must map these digits (or convert them) into the corresponding mailbox numbers. One method of doing this is to absorb digits, as mentioned above. Another option (which can be combined with the absorption of digits) is to add a signed offset number:

- To subtract from prefix digits, use a minus (-) offset.
- To add to prefix digits, use a + offset.
- Use offset = 0 to pass digits through unchanged.

The process of mapping DID received digits into mailbox numbers can be seen in the following examples:

Figure 3-2 Sample DID NuPoint Voice Application Worksheet

Example 1. Assume:

Digits expected	4
Digits absorbed	1
Offset	-100

This means that any set of four digits, as received on DID, maps as follows:

3275	(digits received on DID)
275	(absorb one digit)
-100	(add signed offset)
175	(mailbox number)

Under the same circumstances, receiving a sequence of 3276 results in mailbox number 176, a 3280 is converted to mailbox number 180, and so on.

Example 2. Assume:

Digits expected	2

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Digits absorbed	0
Offset	200

This means that any set of two digits received on DID maps as follows:

17	(digits received on DID)
17	(do not absorb any digits)
+200	(add signed offset)
217	(mailbox number)

Notice that, given the DID parameters in example 2, only mailbox numbers 200 through 299 can be accessed from this DID trunk.

Example 3. This example illustrates a situation where the offset plus the dialed number leads to digit carrying. Assume:

Digits expected	4
Digits absorbed	0
Offset	250

This means that any set of four digits received on DID will map as follows:

1587	(digits received on DID)
1587	(do not absorb any digits)
+250	(add signed offset)
1837	(mailbox number)

Note: DID NuPoint Voice uses “normal” addition, adding 1587 and 250 to get 1837. Applications using “no-carry” math, such as Enhanced Inband, add each digit separately, discarding any carried digits.

Day and Night Hours

Parameters that establish day and night hours (and work days versus weekend days) operate in the DID NuPoint Voice application the same as in the NuPoint Voice application. See the NuPoint Voice Application chapter for more information.

Mailbox Dialing Plan

The available DID number block may only allow a certain range of extension numbers. Ideally, mailbox numbers should match the DID numbers. This makes it easier for callers to remember the proper mailbox number. While a mailbox owner with a single mailbox could get along fine without ever knowing his mailbox number, owners of multiple mailboxes often need access to a series of mailboxes without the inconvenience of making a telephone call to each DID number. This is a particularly valuable feature for mailbox owners who are traveling and call from a long distance away.

In all other respects, you establish a DID NuPoint Voice mailbox dialing plan the same as described for NuPoint Voice. For more information on the dialing plan, see the NuPoint Voice Application chapter.

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Transfers and Attendants

Note: Transfers involving a pre-company name dial string, a pre-mailbox greeting dial string, and a system attendant's extension generally are not used in DID applications. However, if the switch integrated with your installation does support these operations, the following paragraphs apply.

Pre-Company Name Dial String

This string is the sequence of digits or pauses that the server inserts before playing the company greeting (administrator's mailbox greeting). It is generally not used in DID applications.

Pre-Mailbox Greeting Dial String

Similarly, this is the string of activities that the server executes before playing out a mailbox greeting. In some telephone offices, the forwarding and answer is so fast that it is disconcerting to some callers. Putting a + sign in this position causes the server to wait a second after answering, before playing the greeting.

For more information, see the NuPoint Voice Application chapter.

System Attendant's Extension (Optional)

The DID NuPoint Voice application supports Return to Operator for DID line groups. The system attendant's extension is used to process the call being returned to the operator.

In most cases, DID NuPoint Voice does not use a system attendant's mailbox, extension, or dial string. This is because only some COs support this feature. If your CO does support Return to Operator, then you should also configure the Key_0 for Attendant Transfer During Greeting parameter and the Attendant's Transfer String parameter when setting up this application. See the NuPoint Voice Application chapter for more information on these parameters.

Wait Prompt

The Wait prompt operates in DID NuPoint Voice the same as in NuPoint Voice. See the NuPoint Voice Application chapter for more information.

Administrator's and Attendant's Mailboxes

For most DID applications it is appropriate to remove these mailboxes. If you do use them, however, the following information applies.

The default mailbox file contains 10 possible default administrator's mailboxes. It also contains 10 possible default attendant's mailboxes. The defaults are:

Administrator's Mailbox Defaults	Attendant's Mailbox Defaults
98	99
998	999
9998	9999
99998	99999

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999998	999999
9999998	9999999
99999998	99999999
999999998	999999999
9999999998	9999999999
99999999998	99999999999

See the NuPoint Voice Application chapter for more information on these two mailboxes.

While 0 through 11 are acceptable entries for each position in the dial plan, if you wish to use one of these default mailboxes, the dial plan entry for mailboxes that begin with 9 must be within the range 2-11.

Mailbox Passcodes

Passcode parameters operate in the DID NuPoint Voice application the same as in the NuPoint Voice application. See the NuPoint Voice Application chapter for more information.

Default Language For Prompts

The default language for prompts operates in the DID NuPoint Voice application the same as in the NuPoint Voice application. See the NuPoint Voice Application chapter for more information.

Answer Delay

You may set a variable answer delay. The default for this parameter is zero (no delay), and in most cases, it does not need not be changed. A delay of up to 1/2 second may be required for certain applications (for example, NuPoint Voice and NP Receptionist) that use E & M trunks.

Users need this delay if the application software sometimes answers an incoming call before all the digits are received, causing the switch to stop sending digits. In cases where the DID NuPoint Voice application does not work for a customer because the server answers too fast, this parameter should solve the problem.

For more information on this parameter, see the NuPoint Voice Application chapter.

Making a Phoneline Exception for Wink Start

The NuPoint Messenger server is compatible with both rotary and DTMF outpulsing from the CO. However, the telephone company normally requires wink start operation with DID service. To enable the NuPoint Messenger server to send wink to the CO on seizure, you must change the Wink Start telephony parameter (24) to 1 (yes) for each DID trunk. See “DID NuPoint Voice Application” in the task list for the procedure, Volume 2 of this manual.

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Using the DID NuPoint Voice Application

This section covers the final steps to take in order to use the DID NuPoint Voice application.

Activating Changes

Activating changes for the DID NuPoint Voice application is identical to activating changes as discussed in the NuPoint Voice Application chapter.

Creating Mailboxes

The final step for making DID NuPoint Voice operational is to create mailboxes. Refer to Chapter 6, Mailboxes, for more information.

If the administrator's or the attendant's mailbox is desired and is set to a number other than the default, you must create the mailbox before using it. Identifying the mailbox numbers in the DID NuPoint Voice application gives the mailboxes the ability to perform their special functions, but the functions are not enabled until the mailboxes are configured. The recommended FCOS for both mailboxes is 10 (VIP), the LCOS is 1 (Default), the GCOS is 1, and the message waiting type should be whatever is available for your server.

Testing

After phone lines have been installed, and you have completed all the applicable steps discussed so far, test your DID NuPoint Voice application. In addition to the testing tips listed in the following paragraphs, see the task list for the procedure in Volume 2 of this manual.

- For test purposes, standard single line telephones perfectly mimic a CO; a rotary dial telephone mimics dial pulse signaling, and a pushbutton phone generates the DTMF of tone trunks.
- Unplugging a CO line makes the line neither idle nor busy to the CO. The CO's automatic testing eventually discovers the unplugged line, and takes it out of service. You must then call the telephone company and have them reactivate the line manually, unless the local phone company has configured the trunk group for auto-restore. Whenever possible, it is better to make a line busy to the CO than to unplug it. Make a line busy by reversing its polarity (grounding the M lead).
- Once the server is working, use caution when substituting telephone line cords. Two kinds of line cords are commonly available. You can tell them apart by the positions of the two tabs on their end connectors. The standard cord (that is, the most readily available) has tabs on opposite sides of the line cord. The other type, which is sometimes called a data cord, has tabs that are both on the same side of the line cord. Replacing an existing line cord with a different type can take the port out of service.
  - The standard cord (tabs on opposite sides) reverses the positions of the E & M leads, but maintains Tip & Ring polarity. Plugging in a cord that switches E & M lead positions between the Tellabs cards and the NuPoint Messenger server immediately takes the server off-hook, and holds the port out of service.
  - The data cord (tabs on the same side) maintains E & M continuity, but reverses Tip & Ring polarity. Plugging in a cord that reverses polarity between the CO and the Tellabs equipment automatically makes the trunk busy, and effectively takes it out of service.

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Usage Considerations

In a DID environment, there are mailbox login differences if you are using Greeting-Only DID mailboxes. In addition, a DID environment can confuse new mailbox owners when they record their first greeting. These considerations are discussed in the following paragraphs.

Logging Into Greeting-Only DID Mailboxes

DID mailboxes with FCOS 6 (Greeting Only) or with any other FCOS that issues greetings but does not allow receipt of outside caller messages, have a different login procedure. To log into one of these DID mailboxes, a mailbox owner must:

1. Press the star (*) or zero key during the playing of the greeting. This does not interrupt the greeting.
2. When the entire greeting has been played, the server asks the mailbox owner to enter a passcode, if there is one. The mailbox owner is not required to wait for the prompt, but is required to wait until the entire greeting plays before entering the passcode. The mailbox owner is now logged in.

Recording the First Greeting for Greeting-Only DID Mailboxes

Newly created Greeting-Only DID mailboxes do not have greetings; when new mailbox owners try to reach their mailbox to record a greeting, the server responds, “That is not a valid mailbox number.”

Mailbox owners can log into a Greeting-Only mailbox that does not have a greeting by pressing the star (*) key or zero key during the playing of “That is not a valid mailbox number,” then entering the passcode after the prompt has finished playing. However, this procedure can be confusing to a new mailbox owner and can make the first experience with the server unnecessarily difficult.

To avoid this situation and to create goodwill, follow this procedure:

1. Initially assign FCOS 1 (Unlimited) to the mailbox when you create it.
2. Log into the mailbox and record a greeting that welcomes the new mailbox owner.
3. After the greeting is recorded, modify the mailbox configuration to give the mailbox the correct FCOS.

4 Pager Application

This chapter covers:

- Paging, Message Delivery, and Call Placement
- Configuration Requirements and Worksheets
- Line Group Definition
- Mailbox Configuration
- Examples
- Testing the Configuration
- Billing Issues

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- The User Interface

Overview

The Pager application causes the NuPoint Messenger server to initiate, rather than receive, a telephone call. Don't let the name "Pager application" confuse you. It is used for paging, but also for a number of other functions that require outdials. An outdial is a call placed by the server. Two other uses of this application are message delivery and call placement. Some optional features, such as NuPoint Fax and Cut-through Paging, use the Pager application as well.

Paging is a function that allows the server to notify a mailbox owner when a message arrives in the mailbox by activating a radio pager. Parameters can be set to limit the hours that a page may be sent, or the types of messages that activate a page. For information on Cut-through Paging, see the Cut-through Paging optional feature documentation.

Message delivery is a function that allows the server to notify a mailbox owner when a message has been received, by calling the mailbox owner at a predefined telephone number and allowing the owner to log into the mailbox. Parameters can be set to limit the hours that a message delivery may be made, or the types of messages that activate the message delivery.

Call placement is similar to message delivery, in that it places a call to a telephone number. In this case, the message is made *by* (rather than to) the mailbox owner. The message is addressed to a telephone number rather than to a mailbox. The answering party does not have to log in to hear the message. Call placement was formerly known as "off-system messaging."

Procedures

You can perform the following procedures with the Pager application. These procedures are located in Volume 2 of this manual.

Procedure	Number
Call Placement	
Enable Call Placement	CP 3306
Test Call Placement	CP 3362
Message Delivery Configuration	
Message Delivery Configuration	CP 3337
Allow Mailbox Owners to Control Message Delivery	CP 3339
Allow Receipt of Urgent Pages or Urgent Message Delivery Only	CP 3344
Configure a Mailbox For Message Delivery	CP 5018
Define a Pager System for Message Delivery	CP 5013
Set Limits for Message Delivery	CP 3338
Set Paging or Message Delivery Schedules and Intervals	CP 3321
Test Message Delivery	CP 3361
Turn All Pagers or Message Delivery in a Mailbox On or Off	CP 5014
Paging	
Display Pager Configuration	CP 3330
Tone Pager Configuration	CP 3343
Voice Pager Configuration	CP 3335
Allow Mailbox Owners to Control Paging	CP 3332
Allow Receipt of Urgent Pages or Urgent Message Delivery Only	CP 3344
Assign an Alternate Pager to a Mailbox	CP 3334
Configure a Mailbox for Paging	CP 5019

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Define a Pager System	CP 5012
Set Limits for Paging	CP 3336
Set Paging or Message Delivery Schedules and Intervals	CP 3321
Test a Pager	CP 3358
Turn All Pagers or Message Delivery in a Mailbox On or Off	CP 5014
View Pager Configuration	CP 6001

Paging

The NuPoint Messenger server supports three pager types: tone pagers that beep when they are activated, display pagers that show the paging party's telephone number, and voice pagers that play a few seconds of a message that was left. Servers can access any of these types of pagers, and can activate the display of a display pager or issue a message for a voice pager when the message is left in a mailbox.

Figure 4-1 shows one way paging works in the server. When a message is left in a mailbox configured for paging, the server places a call to the paging company (through the PBX and the CO). The pager then indicates the call. BBL paging and the TNPP integration are optional features that supply a direct RS-232 link to the paging system, rather than the dial-up system shown here.

Figure 4-1 Pager Call Processing

Paging has these features:

- Three types of pager support (tone, display, voice)
- Paging can be activated for specific types of messages.
- Users can specify the hours available for paging.
- Users can enter the number to be paged.
- Limits for paging can be set through the Limits Class of Service (LCOS).
- The server can track number of pages for billing purposes.
- Pages can be billed to a credit card or other billing account.

Message Delivery

Message delivery provides message waiting indication by calling a mailbox owner at a pre-configured telephone number. When the phone is answered, the server says, "Hello [user's name]. You have [number] unplayed message(s) in your mailbox. Please enter your passcode." When the mailbox owner enters a passcode, the server says, "You have [number] unplayed messages in your mailbox. Press P to play the first message." The mailbox owner is now logged into the mailbox, and can use any of the features (Play, Make, Give, etc.) available to that mailbox.

The server prompts for the passcode once, then waits 30 seconds for a response. If someone other than the user answers, and does not know the passcode, the server says "Call back when you can remember your passcode. Good-bye." and hangs up.

Message delivery is particularly valuable for users who do not work on-site, and so cannot use ordinary message waiting indicators. Without message delivery, they might have to call in many times a day to receive messages in a timely manner.

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Message delivery has these features:

- Message delivery can be activated for specific types of messages.
- Users can specify the hours available for message delivery.
- Users can enter the number to be called.
- Limits for message delivery can be set through the LCOS.
- The server can track number of messages delivered for billing purposes.
- Message delivery calls can be billed to a mailbox owner's credit card or other billing account.

Call Placement

Call placement (formerly known as "off-system messaging") allows server users to send messages to the telephones of people who are not server users, that is, who do not have mailboxes. For example, users can send messages when their time at a phone is limited (at a pay phone, for example) and expect the other party to receive their information. A company can send a product announcement to many target customers at once, or a volunteer group can notify its members of a meeting time change. Any mailbox owner can have this feature if you configure the mailbox properly.

Call placement provides voice message delivery by dialing a telephone number entered by the caller. When the phone is answered, the server says, "Hello [recipient's name]. You have a call from [user name]." The recipient can accept, reject, delay, or hold the call for 30 seconds. If the call is accepted, the message plays and the recipient can reply to the message.

Call placement is compatible with all applications and integrations. It has these features:

- Users can send a single message to any number and combination of mailboxes and call placement numbers.
- The server retries delivery until successful.
- The server administrator can adjust redialing interval and frequency.
- A user can give an existing message to an outside number.
- Calls can be passcode protected, to ensure only the intended recipient can play the message.
- Limits for call placement can be set through the LCOS and RCOS (see the Other Classes of Service chapter).
- The server notifies users about calls that cannot be delivered.
- The server can track the number of calls for billing purposes.
- Message delivery calls can be billed to a mailbox owner's credit card or other billing account.

Summary of Configuration Requirements

Paging configuration occurs in two primary areas, the server configuration data and the mailbox configuration of each mailbox that uses the Pager application. You may also need to set up the Feature Class of Service (FCOS) and Limits Class of Service (LCOS) used in the mailbox configuration.

Message delivery is implemented the same way as paging, with one addition: when configuring a mailbox, the Message Delivery parameter is set to Yes. The Busy Pager Attempts parameter and Busy Pager Interval parameter are not listed. The server uses only the Pager Frequency

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parameter and Pager Interval parameter in the message delivery process.

Call placement configuration occurs in the same two areas for each mailbox: the NuPoint Voice application configuration data and the mailbox configuration file. Message waiting indicators are not used with call placement.

NuPoint Voice Configuration Data

Paging, message delivery, and call placement require this information in the NuPoint Voice configuration data:

- The line group used for outdials
- Pager system names. These are unique names, also called “pager names,” to help you identify which pager system you are referring to. An example of a pager system name is “Outside Access.”
- Hold time. This is the number of seconds that the outdial port remains off-hook after all outdialing is performed. It should be long enough to allow a reorder or busy tone to be returned, which alerts the server that a page has failed. The default value is 20 seconds. The maximum hold time allowed is 90 seconds. Set a value of 3 seconds to clear the port more quickly.
- Pager systems. These are outdial indexes that outdial a certain dial string when accessed. Each pager system is represented by a number. (You later enter this number as an internal outdial index, billed outdial index, or unbilled outdial index, and specify the access code index when adding a pager, message delivery, call placement, or fax retrieval to a mailbox.)

Message delivery also requires the server features that make it possible for the user to log into a mailbox, and to interact with the server .

Call placement also requires:

- Server features that make it possible for the user to send messages to outside telephone numbers
- Modification of the NuPoint Voice line group’s dialing plan

Mailbox Configuration Data

Paging, message delivery, and call placement require this information in the user’s mailbox configuration:

- A properly modified FCOS
- A properly modified LCOS
- The outdial indexes (which point to a specific pager system)
- The pager access type (which points to an internal outdial index, billed outdial index, or unbilled outdial index)

Both paging and message delivery need this information:

- The pager number (the telephone number that the server outdials to)
- The pager frequency (the number of times that the server attempts to notify the user of an unplayed message)
- The pager interval (the number of minutes the server waits between repages)

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For paging you also need:

- The post-pager number (used with display pagers). Once the server has reached the pager number and the call is answered, it then sends the post-pager number to be displayed on the pager.
- The busy pager attempts (the number of times that the server attempts to notify the user of an unplayed message when it receives a busy tone on the last page attempt)
- The busy pager interval (the number of minutes the server waits between repages when it receives a busy tone on the last page attempt)

Pager Application Worksheets

Use the combined information from three worksheets to organize data for configuring a Pager application: the NuPoint Voice (or DID NuPoint Voice) Application Worksheet, the Mailbox Individual Worksheet, and the Outdial Line Group Worksheet.

- The NuPoint Voice (or DID NuPoint Voice) Application Worksheet you completed for the NuPoint Voice or DID NuPoint Voice application contains information applicable to message delivery and call placement.
- If you are including message delivery in this application, you set all parameters in the Other Pager Features Menu to the same settings as the primary application that is configured on your server. For example, if the NuPoint Voice application is used for processing most calls on your server, copy the entries from the NuPoint Voice Worksheet into the Other Pager Features Menu. (The primary application could be NuPoint Voice, or one of the integrations, such as SL-1/IVMS, NEC 2400, Intecom, ITT, or Centrex.)
- If you are including call placement in this application, establish a dialing plan on this worksheet that tells the server that mailboxes starting with the specified digit are actually telephone numbers. Figure 4-2 shows a sample NuPoint Voice Application Worksheet for call placement. See the NuPoint Voice Application chapter for more information.
- The Mailbox Worksheet organizes information you need to configure individual mailboxes for paging, message delivery, or call placement, or any combination of these functions. Figure 4-3 shows a sample Mailbox Worksheet for paging.
- If you are including call placement in this application, specify the appropriate outdial index and access type for call placement. Also specify the appropriate FCOS and LCOS for call placement.
- The Outdial Line Group Worksheet organizes information you need to configure the line group that outdials paging and message delivery calls and identify the pager system. Figure 4-4 shows a sample Outdial Line Group Worksheet for paging.

Figure 4-2 Sample NuPoint Voice Application Worksheet for Call Placement

Figure 4-3 Sample Mailbox Worksheet for Paging

Figure 4-4 Sample Outdial Line Group Worksheet for Paging

Defining a Line Group

Use the information in the following paragraphs for entries on the NuPoint Voice Worksheet and Outdial Line Group Worksheet.

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Guidelines for Port Allocation

The server requires at least one port to outdial calls for paging, message delivery, and call placement. Outdialing ports must be dedicated exclusively; this means that there are fewer ports available to accept incoming calls. If not enough ports are reserved to handle the outdial traffic, however, the requests are queued, and users do not receive message waiting notification or messages in a timely manner. In addition, certain other types of message waiting indicators require the exclusive use of at least one server line card port. Before assigning pagers or message delivery to mailboxes, you should analyze call traffic flow and decide how much of the server you wish to devote to outdials.

Each call to a radio pager ties up an outdialing port for less than a minute; queuing becomes a problem only when there are a great many users with pagers. Message delivery can require more ports than paging, since each port is tied up for the entire time that the user is logged in. For example, if a user does more than simply play the unplayed message(s) that activated message delivery, the outdialing port can be in use for a considerable amount of time. Call placement is more like message delivery because ports are in use for more time than for paging.

Note: The server installation site, as the calling party, is responsible for any charges that accrue when paging, message delivery or call placement calls are made to numbers outside of the PBX system.

Line Group Information

All the server ports are assigned to line groups. Each line group, in turn, is assigned to a single application, and any configuring that is done for that application applies to every port in the line group. The number of ports in each line group depends on how heavy the phone traffic is expected to be for the particular application.

Line Group Number

Each line group is represented by a discrete number. Valid line group numbers are 1 through 24.

Group Name

The group name should identify the line group's purpose. For example, "Pager Outdialer."

Line(s) in Group

You identify each line (or port) in a group by a triplet, which represent the module, slot (line card), and port on a line card. Module refers to a CPU, the server's main processor. Modules are numbered 1 through 4. Slots are numbered 0 through 15. Ports are numbered from 0 to the number of ports on the line card; you can connect one telephone line to each port.

For more information on line groups, see the NuPoint Voice Application chapter.

Call Placement

To use call placement, you must change the dialing plan. Use the letter T as a dialing plan entry. For example, if you entered T in position 8 of the plan, users would enter 8 from the keypad to activate the call placement function. You can use T in any position of the dialing plan, but only once. Refer to the NuPoint Voice Application chapter for more information on the dialing plan.

You may also want to define a new pager system or dial string (see the following) to implement call placement.

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Pager Systems Supported

You can configure the server with up to 16 different outdial access codes, each identified by an index number (0-15). Each outdial line group does not need to support all access codes; for example, a line group dedicated to radio paging for the local area code does not need to support an access code designed for long distance call placement. Assigning only the required access codes to an outdial line group makes it easier to plan and control traffic and prevent abuse.

The mailbox configuration specifies these access codes for use in placing internal calls, unbilled external calls, and external calls charged to a billing number. You enter the appropriate pager system numbers as the internal outdial index, billed outdial index, and unbilled outdial index.

The Pager Systems supported parameter assigns specific pager systems to the line group that is currently selected. You should analyze your needs carefully before assigning pager systems. For example, if your server will have message delivery, call placement, and outdialing to radio pagers, you should take into account the fact that a single message delivery can take several minutes (while the user plays the message, answers it, etc.), while activating a radio pager takes a fraction of that time. Therefore, you might want to assign pager systems that outdial call placement or message delivery calls to a larger line group.

Configuring a Dial String

Use the information in the following paragraphs for entries on the Mailbox Worksheet and Outdial Line Group Worksheet.

When you are configuring the server to outdial, you want it to duplicate the steps that you would perform to dial a pager or place a phone call.

Paging

Many telephone switches require that you dial an access code to get an outside line. To call the pager, you usually dial the pager company telephone number, listen for a pager tone, then dial the code number of the pager. Before you dial the pager company telephone number, however, you pick up the receiver on the telephone, and listen for a dial tone to be sure that the telephone system is ready to accept the number that you dial. The steps for successfully activating this pager, therefore, are to (1) go off-hook and listen for the dial tone, (2) dial any access code necessary to get an outside line, (3) dial the pager company telephone number, (4) listen for the pager tone, then (5) dial the pager number. All these steps must be configured.

Message Delivery and Call Placement

Many telephone switches require that you dial an access code to get an outside line. Anything you must do, such as waiting for tones, other than dialing the actual number, must be configured.

Translate Operations to a Dial String

The server recognizes certain characters, which allow you to duplicate the steps required to page or place a telephone call. The pager dial strings consist of the characters listed in Table 4-1.

Note: The server always assumes a G (wait for greeting) as the last character in a message delivery dial string.

Pager System Dial Strings

The server divides the characters for the sequence of events into three parts: the access code

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(defined in one of the 16 pager systems), the pager number and the post-pager number. The access code contains the part of the dial string that is stored in the online configuration. The pager number and post-pager number are the parts of the dial string that are stored in an individual user's mailbox configuration. Assign dial strings to each section using the following structure:

- The access code, identified by the pager system index number, contains the first part of the dial string necessary to reach the user's pager. It is usually the part of the dial string that is common to some group of users.
- The pager number is the balance of the dial string necessary to reach the user's pager.
- The post-pager number is used as the data to display on a display pager.

Note: If there is no pager or post pager dial string entered, a page will not be sent.

Table 4-1 Pager Dial String Characters

Character	Explanation
0-9, *, #	Keys on a standard pushbutton telephone
(	The following digits should be dial pulsed (10 PPS)
)	Stop pulsing; resume sending DTMF tones
+	Pause for one second
A-D	Fourth column DTMF keys
E	Go off-hook, wait for dial tone or other steady tone (pager go- ahead or confirmation tone, for example), then do next item in string
F	Switch hook flash followed immediately by dialing
G	Greet - Wait for a voice or computer tone answer
H	Hang up (go on-hook)
L	Answer Supervision - Wait for telephony signal from destination. Use only with trunk (four-wire) connections.
N	Start a new activity; do not go off-hook
O	Ring once
P	Go off-hook, do not wait for dial tone
S	Switch hook flash, no wait required
T	Go off-hook, wait for dial tone
V	Voice pager: play first unplayed message (and update mailbox to count it as played)

When designing your dial strings, observe the following rules in assigning each of the three components:

- The first character in the dial string must make the server go off-hook and wait for a dial tone. A T is recommended.
- An F (switch hook flash) produces the switch hook flash followed immediately by dialing
- The access code is always outdialed before the pager number. The dial string used is dependent on the pager system selected.
- The pager system part of the dial string is limited to 30 characters.
- Only 16 pager systems can be stored in the NuPoint Voice configuration at any one time, regardless of the number of paging groups configured. However, each pager system can be shared by many users or line groups.

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- The pager number is limited to 16 characters. The server administrator enters it in a mailbox's configuration.

For example, you might configure a pager system of T9T, since everyone must dial this to reach an outside number. You would then configure the digits of the mailbox owner's telephone number as the pager number when entering a pager message waiting type into the mailbox's configuration. As an alternative, if many mailbox owners have message delivery to the local prefix 292 you might choose to configure a pager system of T9T292.

The choice of where to assign each portion of the dial string is flexible. In this example, you have three pager systems available, which contain the following dial strings:

Pager System Index Number	Access Code*
0	T9T
2	T9T1408
4	T

* Same as "Dial String" in the report of outdial indexes, Figure 4-5.

If the dial string that you have formulated is T9T14085551313++G1234#, you can set up your pager number in three different ways, depending on which access code you select:

Pager System Index Number	Access Code*	Pager Number	Post-Pager Number
0	T9T	14085551313++G	1234#
2	T9T1408	5551313++G	++G1234#
4	T	9T14085551313++G	++G1234#

* Same as "Dial String" in the report of outdial indexes, Figure 4-5.

In each of these examples, the individual pager number was put in the post-pager number. You can see that the page works no matter how the balance of the string is split between pager and post-pager numbers.

Note: When designing your paging setup, choose your pager system dial strings carefully. You can only refer to 16 pager system access codes *per server*.

Mailbox Configuration

To use the Pager application, you must configure mailbox parameters as well as offline and online parameters. Use this section to see which parameters you must change. You must set different mailbox parameters for each capability (paging, message delivery, call placement). The specifics of each capability are discussed at the end of this section.

General Considerations

Since you are configuring the server to outdial, you want it to duplicate the steps that you would take to activate the pager, or to place the phone call. You must configure these steps into the

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pager system and pager number. You can configure up to four pagers per mailbox.

Creating or Modifying Mailboxes for a Pager Application

After specifying the classes of service, you identify the outdial index for the pager system as an internal outdial, billed outdial, or unbilled outdial.

When you select message waiting type 5 (pager) while creating or modifying a mailbox, you must set the parameters in the following list:

- Pager access type
- Pager access code index
- Pager number
- Post-pager number
- Pager frequency
- Pager interval
- Message delivery enabled or disabled
- Suppressing of pages enabled or disabled
- Busy pager attempts
- Busy pager interval
- Pager start time
- Pager stop time
- Additional pager , if any
- Call placement access type pager access code index
- Pager/outcall notification enabled or disabled

For procedures on creating or modifying mailboxes with paging or message delivery notification or call placement ability, see “Message Delivery” or “Paging” in the task list, Volume 2 of this manual. The material in this section explains how the mailbox configuration works.

Pager System Access Code

The dial string that you formulate is divided into three parts. The first part of the string is the pager system access code, which is represented in the mailbox by the internal outdial index, billed outdial index, or unbilled outdial index. The balance of the string is split between the pager number and the post-pager number. See “Pager System Dial Strings” in the previous section for information on configuring the pager system.

An outdial index is a number from 0 to 15. It assigns a pager system to the mailbox. Even if you want to enter the entire outdial string into the pager number field, you still must choose an outdial index to assign a pager system. If you do not select an outdial index for a pager schedule, the server cannot issue a page when a message is left in that mailbox.

You can obtain a printout of pager systems, and their indexes and dial strings, either by running the pager access codes report from the Reports Menu or, when you are creating a mailbox and the server prompts for the outdial index, by requesting help. The server displays the available indexes, dial strings, and pager names (“paging system names”) as in the following example (Figure 4-5).

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Figure 4-5 Sample Report of Pager Systems Access Codes

```
Enter one of the following index numbers:
Index        Dial String       Paging System Name
0...          T9T               Outside line
1...          T9T1415           415 Area Code
2...          T9T1408           408 Area Code
3...          T9T1916325        PAGER 916-325
4...          T                 Internal Pager calls
5...                            Empty
6...                            [ No Name ]
7...                            [ No Name ]
8...                            [ No Name ]
9...                            [ No Name ]
10...                           [ No Name ]
11...                           [ No Name ]
12...                           [ No Name ]
13...                           [ No Name ]
14...                           [ No Name ]
15...                           [ No Name ]
```

Note that, in this sample, pager systems 6 through 15 have no name. These are pager systems that are not yet set up. Pager system 5 (Empty) is set up for use with pagers whose entire dial strings are contained in the pager number.

If you need to add a pager that requires the outdialing of more than 16 characters (thus the coding string is too long to fit into the pager number field) and no appropriate outdial index already exists, you must configure a new pager system before you can add the pager.

Pager Number

The pager number tells the server what numbers and/or characters to dial after the pager system dial string, and before the post-pager number. See “Pager System Dial Strings” in the previous section.

Pager numbers are limited to 16 characters.

A mailbox FCOS with feature bit 124 (User can change paging phone number) or 143 (User can change message delivery number) allows the user to change the pager number without affecting the post-pager number. Refer to the Features Class of Service chapter for more information about FCOSs and feature bits.

Post-Pager Number

The post-pager number is used in two cases. With display pagers, the post-pager number (typically the NuPoint Voice telephone number or the mailbox owner’s mailbox number) is displayed on the pager screen. A second use is when the mailbox owner can change the pager number, and non-numeric pager dial string characters must be transmitted after the pager number to ensure a successful page. If the mailbox owner changes the pager number, then these non-numeric characters cannot be entered on the telephone set. In this case the post-pager number tells the server what numbers and/or characters to dial after the paging or message delivery number a user enters from the keypad. Such characters include G, +, and T. Mailbox owners cannot alter this post-pager number from the keypad.

Post-pager numbers are limited to 24 digits.

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Pager Frequency

The pager frequency is the maximum number of times that the server attempts to notify the user of an unplayed message, if each page is successful. The default pager frequency is 3.

A page is considered successful if the server places the call and it is answered. In other words, the server does not encounter a busy signal, reorder tone, or Ring No Answer after the pager/message delivery call is made. After a successful page is made, the server waits the number of minutes that are specified for the pager interval (see below), then, if there is still an unplayed message in the mailbox, repeats the page.

If the page is unsuccessful, the server retries the number until a successful page is made. For this reason, it is very important that you make a test call to verify that pager configuration is correct.

Alternate Pagers

Each mailbox can be configured with up to three message waiting types, and all are activated simultaneously. For example, the first message waiting type could be a pager, and the second message waiting type could be a message waiting light. You do not need a message waiting type to use call placement.

Note: You cannot use the third message waiting type for the Pager application, because it can only be used for the Centrex message waiting type.

By setting up two message waiting types as pagers, each with a primary and an alternate number, your mailbox can be configured to contact up to four pagers or four message delivery numbers, or any combination of the two. Message waiting type 1 and message waiting type 2 both can have a primary pager number and an alternate pager number. When you designate two message waiting types as pagers, *both* are activated. The alternate pager numbers, however, are only activated if the primary pager numbers do not get a successful response. If you want to use one pager number as a primary and one as a backup, and no other message waiting function, then set up one primary and one alternate pager number (for example, through just the first message waiting type parameter).

The alternate pager numbers can also be used to assign a second frequency and/or interval to the same pager number. The pager frequency is the maximum number of times that the server attempts to notify the mailbox owner of an unplayed message, if each page is successful. The pager interval is the number of minutes that the server waits before re-paging, when the previous page was successful. If you want the server to place a page twice, five minutes apart, then (if the message still has not been played) to page the mailbox owner three times, at 30 minute intervals, you would assign a frequency of 2 and an interval of 5 to the primary pager in the mailbox, and a frequency of 3 and an interval of 30 to the alternate pager (both through the first message waiting type parameter).

Note: The pager numbers are sometimes called “pager 1,” “pager 2,” “pager 3,” and “pager 4.” Pager 2 is an alternate for pager 1, using the first message waiting type parameter, and pager 4 is an alternate for pager 3, using the second message waiting type parameter. See the following table. (These numbers are allocated by how many pager numbers are set up, however.)

Designation	Message Waiting Type Parameter 1	Message Waiting Type Parameter 2

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Primary	Pager 1	Pager 3
Alternate	Pager 2	Pager 4

Paging and Message Delivery in the Same Mailbox

You cannot assign both paging and message delivery to the same Message Waiting Indicator. If you want to assign both Paging and Message Delivery to the same mailbox, be sure each has a different indicator. You can use any of the four different indicators: MWI1 primary, MWI1 alternate, MWI2 primary, MWI2 alternate to accomplish this.

Other Mailbox Parameters

Other Pager application parameters that you can set in the mailbox configuration are listed below.

Pager interval

This is the length of time (0-255 minutes) the server waits between pages. The default is 30 (wait half an hour between pages).

Busy pager attempts

This is the number of times (0-255) the server retries the page until it completes the specified number of pages or completes a successful page. Set the number of attempts to a high number if the server will be encountering busy pager systems.

The default is 0, unlimited retries.

Busy pager interval

This is the length of time (0-255 minutes) the server waits between pages when a busy signal has been received. Set the Busy Pager Interval lower than the Pager Interval setting. The idea is that if a busy signal has been received, the page should be retried sooner than if speech or silence was received.

The default is 0, retry every minute.

Message delivery

This activates the message delivery option of paging. When enabled (set to Y), a new message causes the server to call the telephone number defined for message delivery, and ask whomever answers to log into the user's mailbox. Then the user can hear the message and perform other NuPoint Voice operations.

If message delivery is enabled, paging is not available for that message waiting type. However, you can set one message waiting type can for paging and another for message delivery. Or, on the same message waiting type, you can set the primary for paging and the alternate for message delivery.

The default is N, no message delivery.

Suppress pages

This parameter turns off the paging feature without removing all the settings. Use this option to temporarily remove the paging option from a mailbox.

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Enter Y or N; Y to suppress pages. The default is N, do not suppress pages. Set this field to N to resume the paging option after turning it off.

Pager start time

This is the time that the server starts sending pages for this mailbox. By setting both start and stop time to 12:00 a.m., paging is available 24 hours.

Enter the time in the form “hh:mm xm”, where “hh” is hours, “mm” is minutes, and “xm” is either a.m. or p.m. The default is 12:00 a.m.

Pager stop time

This works with Pager start time, above, and is the time the server stops sending pages for this mailbox. The default is 12:00 a.m.

Paging Considerations

This section covers specifics applicable only to paging.

Changes by the Server Administrator

You can alter the following mailbox information to use paging:

- FCOS
- LCOS
- Pager number
- Post-pager number

Changes by Mailbox Owners

From a pushbutton telephone, mailbox owners can modify the following parameters:

- Telephone number to send pages
- Time at which the server starts paging
- Time at which the server stops paging

To allow mailbox owners to reset these parameters, you might need to modify the mailbox owners’ mailbox configuration:

- An FCOS that includes feature bit 070, and either 077 or 124 or both
- The LCOS that sets limits for the length of paging phone numbers
- The post-pager number

Feature Bits Used in Paging Mailboxes

Feature bits listed in Table 4-2 control paging. Two that deserve special mention affect changes to the weekday/weekend schedule and pager re-queuing.

Change Weekday/Weekend Schedule

With one exception users of any Pager application can set schedules for weekdays or weekends, showing when they can be reached. The exception is that when NP TDD is enabled, call scheduling is not available.

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To change a paging schedule, a mailbox owner's mailbox must have an FCOS that includes feature bit 077 (Change pager schedule). To change a paging number, a mailbox owner's mailbox must have an FCOS that includes bit 124 (Change paging phone number). Both these bits require bit 070 (User Options Menu) to work. The mailbox owner's mailbox FCOS must contain bit 182 or 183 to change the schedule according to the weekday or weekend.

Note: If mailbox owners' pager numbers contain characters not on the keypad, such as G or T, put a post-pager number in their mailboxes to transmit these codes.

Table 4-2 Feature Bits That Control Paging

Feature	Function
070	User Options Menu
077	Enable paging from a telephone; allow schedule changes from a telephone
079	Set message wait # 1 for urgent messages only
080	Set message wait # 2 for urgent messages only
124	Change paging number
168	Message wait 1, pager requeue
169	Message wait 2, pager requeue
181	Paging over message delivery, message waiting 1 over message waiting 2
182	Use pri/alt as week/weekend for MWI (message waiting type) 1
183	Use pri/alt as week/weekend for MWI (message waiting type) 2
212	Send page upon answer, greeting-only mailbox

Pager Re-Queue

The pager re-queue feature is activated by feature bit 168 for schedule one and bit 169 for schedule two. If you have paging scheduled from 9 a.m. to 5 p.m. and receive a call at midnight, the server does not automatically page you at 9 a.m., and does not page until another message arrives during the scheduled time period. By including these feature bits in the FCOS you assigned to the paging mailbox, you are called as soon as the scheduled start time begins, instead of having to wait for another message.

For further information on FCOSs and feature bits, see the Features Class of Service chapter.

Changing an LCOS Definition

The limits listed in Table 4-3 affect paging mailboxes. You might need to change the LCOS assigned to the paging mailbox accordingly. The limits listed in the table and discussed in the following paragraphs are:

- Pagers per billing period
- Paging—phone length
- Receipt retention, regular

Pages Per Billing Period

This limit can control the number of pages allowed for a billing period. This allows server administrators to control the number of paging functions allowed a user per billing period, and can

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be used where a paging service is sold for a flat fee per month. A limit of 0 means no limit is set.

Table 4-3 Paging Limits

Limit	Unit	Default	Valid Values
Pages per billing period	pages	0	0-999
Paging—phone length	digits	7	3–11
Receipt retention, regular	hours	0	0-8760

Paging—Phone Length

This controls user modification of paging. The paging phone length determines the maximum number of digits users can enter for a paging number. The default is 7, the allowable range is 3 to 11 digits. It is useful for preventing long-distance calls.

Note: This does not apply to phone numbers entered at a server maintenance console.

Receipt Retention, Regular

This is used in the Pager application to limit the amount of time regular receipts are kept. (The Receipt Retention, CTP limit is used with the Cut-through Paging optional feature.) The limit can be up to 8760 hours (1 year). Alternatively, you can specify unlimited receipt retention by entering 0.

For more information about LCOSs and limits, see the Other Classes of Service chapter.

Action at the End of a Dial String

After the last character is outdialed, the server goes on-hook (hangs up) automatically when dialing a pager.

Voice Pager Code in the Dial String

A V (Voice Pager) anywhere in the dial string causes the server to play the first unplayed message only. If there is more than one message in the mailbox, the user is paged again almost immediately and the next unplayed message is played.

Greet Code in the Dial String

When the server is configured to outdial a telephone number, and the number is followed by a G (Greet) code, the “clicks” and “pops” of particularly noisy switching equipment could be misinterpreted as a greeting. You can usually avoid this by inserting a + before the Greet code; for example, T9T5551212+G. If this still does not prevent the misinterpretation, dial the telephone number, then count the number of seconds that it takes for the pager to answer. Insert the appropriate number of plus signs (+) between the number and the G. (For example, if the dial string is T9T5551212G, and it takes the pager five seconds to answer, change the string to T9T5551212+++++G.)

Answer Supervision Code in the Dial String

- You can use the Answer Supervision (L) code if you have analog phone lines. This is a good alternative to the Greet (G) code, because answer supervision can increase reliability and lower connect time.
- Answer supervision time out controls how many seconds the line card waits until issuing a

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time out. If the line card does not detect answer supervision (a ringing on the line) by the number of seconds set in this exception, the page is considered a failure. This time out can be set between 0 and 255 seconds, where 0 means no time out period is enforced (wait forever).

Message Delivery Considerations

This section covers specifics applicable only to message delivery. Remember that you must set the Message Delivery parameter to Yes in the mailbox owner's mailbox configuration to enable message delivery.

Changing an FCOS Definition

You must modify an existing FCOS or create a new one to give mailbox owners with message delivery control of their schedules and telephone numbers.

Feature bits listed in Table 4-4 control message delivery.

Change Weekday/Weekend Schedule

Message delivery users can set schedules for weekdays or weekends , showing when they can be reached.

To change a message delivery schedule, a user's mailbox must have an FCOS that includes feature bit 094 (Enable message delivery; change message delivery options). To change a message delivery number, a user's mailbox must have an FCOS that includes bit 143 (Change message delivery phone number). Both these feature bits require bit 070 (User Options Menu) to work.

Pager Re-Queue

The pager re-queue functionality is activated by feature bit 168 for schedule one and bit 169 for schedule two. If you have message delivery scheduled from 9 a.m. to 5 p.m. and receive a call at midnight, the server does not automatically call you at 9 a.m., and does not call you until another message arrives during the scheduled time period. With this feature, the server calls you at the beginning of the next scheduled message delivery start time.

For further information on FCOSs and feature bits, see the Features Class of Service chapter.

Table 4-4 Feature Bits That Control Message Delivery

Feature	Function
070	User Options Menu
079	Set message wait # 1 for urgent messages only
080	Set message wait # 2 for urgent messages only
094	Enable message delivery; change message delivery options
143	Change message delivery phone number
168	Message wait 1, pager requeue
169	Message wait 2, pager requeue
181	Paging over message delivery, message waiting 1 over message waiting 2

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182	Use pri/alt as week/weekend for message waiting type 1
183	Use pri/alt as week/weekend for message waiting type 2

Changing an LCOS Definition

Only one limit applies to message delivery, the Message Delivery-Phone Length limit. It controls user modification of message delivery. The message delivery phone lengths determine the maximum number of digits users can enter for a message delivery number. The default is 7, the allowable range is 3 to 11 digits. The limit is useful for preventing long-distance calls.

Note: This limit does not apply to phone numbers entered at a server maintenance console.

For more information on LCOSs and limits, see the Other Classes of Service chapter.

Action at the End of a Dial String

When a mailbox is configured for message delivery, the server automatically waits for a greeting. (If a G is erroneously included at the end of the dial string, the server ignores it.)

Noisy Switching Equipment

When the server is configured to outdial a telephone number, the “clicks” and “pops” of particularly noisy switching equipment could be misinterpreted as a greeting. To avoid this, dial the telephone number, then count the number of seconds that it takes for the telephone at the other end to ring or the pager to answer. Since message delivery always assumes a G at the end of the dial string, put the appropriate number of pluses (+) at the end of the pager number.

Answer Supervision Code in the Dial String

- You may want to use the Answer Supervision (L) code if you have the appropriate switches or use certain cellular exchanges (MTSO). This is a good alternative to the Greet (G) code where progress tones or noise can cause the server to erroneously assume success.
- Answer supervision time out controls how many seconds the line card waits until issuing a time out. If the line card does not detect answer supervision (a ringing on the line) by the number of seconds set in this exception, the page is considered a failure. This time out can be set between 0 and 255 seconds, where 0 means no time out period is enforced (wait forever).

Call Placement Considerations

This section covers specifics applicable only to call placement. Remember that you must set the outdial indexes and the call placement pager access type parameters in the user’s mailbox configuration to enable call placement.

Changing Mailbox Information

You may want to alter the following mailbox information to use call placement:

- FCOS
- LCOS
- RCOS
- Call placement pager access type

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Changing an FCOS Definition

To use call placement, you must add feature bit 110 (Give/make to telephone number) to an existing FCOS or create a new one with this feature in it.

Changing an LCOS Definition

The limits listed in Table 4-5 control call placement. You might need to change the LCOS assigned to the call placement mailbox configuration accordingly.

Table 4-5 Call Placement Limits

Limit	Unit	Default	Valid Values
Ring No Answer retry limit	no. of retries	10	1-255
Ring No Answer retry interval	minutes	60	1-255
Busy retry limit	no. of retries	10	1-255
Busy retry interval	minutes	10	1-255
Phone length	digits	7	3–11
Count	no. of messages	73	1–73
Length	minutes	5	0–60

RNA Retry Limit

This limit determines the maximum number of times the server redials a call placement phone number when no one answers the phone on the first delivery attempt.

RNA Retry Interval

This limit determines how often the server redials a call placement phone number when no one answers the phone on the first delivery attempt.

Busy Retry Limit

This limit determines the maximum number of times the server redials a call placement phone number when the server detects a busy signal on the first delivery attempt.

Busy Retry Interval

This limit determines how often the server redials a call placement phone number when the server detects a busy signal on the first delivery attempt

Phone Length

This limit determines the maximum number of digits users can enter for a call placement phone number. Setting this limit higher accommodates long-distance calls.

Note: This limit does not apply to phone numbers entered at a server maintenance console.

Count

The count determines the maximum number of undelivered messages for a call placement phone number per mailbox.

Length

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The length determines the maximum size of a single message made for a call placement phone number.

If you send a message to both mailboxes and telephone numbers, this limit interacts with the limit on the size of messages sent to mailboxes; the shorter of the two limits overrides the longer. For instance, if you limit messages sent to mailboxes to a maximum of five minutes and limit call placement messages to two minutes, the server enforces the two-minute limit for both kinds of messages.

For more information on LCOSs and limits, see the Other Classes of Service chapter.

Call Placement Pager Access Type

This parameter identifies whether call placement calls are to be internal, billed, or unbilled. The call placement pager access type points to the corresponding internal outdial index (I), billed outdial index (B), or unbilled outdial index (U) specified earlier in the originating mailbox. Users cannot alter this index from the keypad.

The indexes refer to the same set of access codes used for standard paging. This means you might be able to use the same indexes as those already set up for paging.

The server prompts you to enter a call placement pager access type after it prompts you for message waiting types. For more information on creating access codes, see “Configuring a Dial String” earlier in this chapter.

Pager Application Examples

This section shows examples of how to program the pager application for paging, message delivery and call placement.

Paging Examples

Pager Dial Strings

Dial strings for pagers can be divided into several parts.

Outside Access Code

This code allows access to the public switched network. For PBXs, this is normally 9.

Pager Company Telephone Number

This is a 7- or 11-digit telephone number (including 1 then an area code) used to access the pager system. Calls to the pager company telephone number are answered with signals or recorded instructions, which indicate that the system is ready to accept the individual pager number. (Many pagers use DID, where each radio pager is assigned its own unique telephone number. In these cases, there is no pager company telephone number.)

Individual Pager Number

This is the address of the specific pager, and is usually 4 to 6 digits long. For DID pagers, the pager number is a regular 7- or 11-digit phone number. When the pager is activated, the system normally returns a “beep-beep-beep” signal or recorded instructions. For a display pager, this means that the system is ready to receive display information.

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Display Number

This is the string of digits that is displayed on the viewer of a display pager. Most display pagers accommodate a 16-digit number. Usually this string is specified as the post-pager number.

Other Activation Codes

Each pager manufacturer has modifications to the activation code that you must identify before configuring pagers. For example, most paging systems encourage a # tone to be sent after the display information to speed call processing.

Example 1: A DID Tone Pager

To page John Smith manually, you lift the telephone receiver; wait for a dial tone, dial 9 to get an outside line, listen for another dial tone, dial 1-408-555-9876, listen for a computer tone, then dial 555-1234 and press # to finish the page. This causes John's pager to "beep" only.

The dial strings for these actions is:

Caller Action	Dial Strings
Wait for dial tone.	T
Tell the PBX that you want an outside line.	9
Wait for dial tone to confirm that you have the outside line.	T
Call the pager company's number.	14085559876
Wait 2 seconds for the line to settle.	++
Wait for a computer tone.	G
Dial the call-back number.	555-1234
Enter # to indicate end and make paging terminal hang up.	#

When a number outside the PBX is outdialed, followed by a G (Greet), extra + characters (Wait One Second) should precede the G. This is done because line noise during call setup of particularly noisy switching equipment can be misinterpreted as a greeting by the server.

If pagers are in widespread use at John's company, it is very likely that more than one employee's pager is on the same pager company system number, so the dial string for this pager can be organized like this

Pager system dial string	T9T14085559876++G+
Pager number	1234# (or PIN)
Post-pager number	(None)

If you do not reach John on the first page, he wants you to try again every 10 minutes, for a maximum of four tries. The other information needed for the Mailbox Worksheet for the pager as follows

Pager frequency	4
Pager interval	10
Message delivery	N

Example 2: Non-DID Display Pager

In this example, John's pager allows display of numeric data, so you can leave your phone number when you page him. The phone number is displayed on the pager when John is paged. The dial string for these actions is:

Caller Action	Dial String
Wait for dial tone.	T

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Dial 9 to get outside access.	9
Wait for second dial tone.	T
Dial pager company system number.	18005552368
Wait two seconds for line to settle.	++
Wait for pager tone.	G
Wait one second for pager tone to finish.	+
Dial individual pager number (or PIN)	458216
Wait for pager tone.	G
Wait for pager tone to finish.	+
Dial display data.	2374444
Enter # to indicate end and make paging terminal hang up.	#

The dial string to accomplish the actions listed above is organized like this:

Pager system dial string	T9T18005552368++G+
Pager number	458216G+
Post-pager number	2374444#

Other information needed for the Mailbox Worksheet is:

Pager frequency	4
Pager interval	10
Message delivery	No

Example 3: DID Display Pager

Jane Jones has a DID display pager. To access this pager manually, you lift the telephone receiver; wait for a dial tone; dial 9 to get an outside line; listen for a dial tone; dial 1-213-555-9116; wait for a computer tone; dial the display data, 1-415-555-6644; then dial # to tell the pager that all the display data has been entered. (This activates the pager). The dial string for these actions is:

Caller Action	Dial String
Wait for dial tone.	T
Dial 9 to get outside access.	9
Wait for second dial tone.	T
Dial individual pager number is.	12135559116
Wait four seconds for line to settle.	++++
Wait for computer (dial) tone.	G
Dial display data.	14155556644
Enter # to indicate that all the data has been entered and make paging terminal hang up.	#

When a number outside the PBX is outdialed, followed by a G (Greet), extra + characters (Wait One Second) should precede the G. This is done because line noise during call setup of particularly noisy switching equipment could be misinterpreted as a greeting by the server.

In this case, configuration is more involved, since there is insufficient room in the mailbox Pager Number parameter to specify the individual pager number *and* the display data, both of which are unique to this pager. In most installations, however, DID display pagers share a common area code and prefix (1-213-555, in this case), and configuring the area code and prefix into the outdial index allows more than one pager to use that pager system.The organization of the dial string is:

Pager system dial string	T9T1213555

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Pager Number	9116++++G+
Post-Pager Number	14155556644#

Jane wants you to make 3 attempts to reach her, and each attempt should be 30 minutes apart. These are the default values for pager frequency and pager interval.

The paging Mailbox Worksheet entries are:

Pager access type	I, B or U (internal, billed, or unbilled outdial index)
Pager frequency	3 (default)
Pager interval	30 (default)
Message delivery	No

Example 4: Voice Pager

Joe Stockman works in a huge warehouse that is located behind the factory. Since the only telephone is located in the warehouse office, Joe was given a voice pager, which allows employees to notify him when they want to pick up stock. To access this pager manually, you lift the telephone receiver; wait for a dial tone; dial extension 6457; wait for his mailbox to answer, leave your order (as a message), then hang up. The dial string for these actions is:

Caller Action	Dial String
Wait for dial tone and go off-hook.	T
Dial extension number.	6457
Wait for answer (“hello”) and speak your order.	G
Play newest message to Joe’s voice pager, and hang up.	V

Note: If you enter a V (for voice pager), do not turn message delivery on when configuring the mailbox.

For in-house paging, it is useful to set up a pager system that either has no dial string or has the T (Wait for Dial Tone) code. Since this call does not access an outside line, no pluses need to be added before the Greet command.

This is organized into the following dial string:

Pager system dial string	T
Pager number	6457GV
Post-pager number	(None)

Joe is so efficient that he only needs to be paged once per message. The appropriate pager Mailbox Worksheet entries are:

Pager Frequency	1
Pager Interval	0
Message Delivery	No

Message Delivery Example

Message delivery configuration is usually simpler than paging configuration. Here is an example.

Anita Pacheque is a contractor who works off-site. When she is not working at her office, she

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wants the server to try to reach her at home. Her office phone number is (415) 555-6836, and her home number is (408) 555-0921. She wants the server to try her office number three times, with calls that are 10 minutes apart, then to try her home twice, with 30 minutes between calls. When test calls are made, it takes five seconds for her office telephone to ring, after dialing is completed, and three seconds for her home telephone to ring. The dial string to call her office is:

Caller Action	Dial String
Wait for dial tone.	T
Tell the PBX that you want an outside line.	9
Wait for a dial tone, to confirm that you have the outside line.	T
Dial the office number.	14155556836
Wait 5 seconds for the connection to be completed.	+++++

Similarly, the dial string to call her home is T9T14085550921+++++. Remember that the server automatically appends a G (Greet) code at the end of the pager string for message delivery calls.

In addition, you need to set phone line exception 11 to 1 and line exception 170 to 1700.

To add message delivery to Anita's mailbox, specify the following on an Outdial Line Group Worksheet:

Pager system index	1
Access code	T9T

On the message delivery Mailbox Individual Worksheet, entries are:

Pager system Pager access code index	1 (defined as T9T)
Pager number	5556836
Post-Pager number	+++++
Pager frequency	3 or press Enter
Pager interval	10
Pager access type	U (unbilled)
Message delivery	Yes

To add additional pagers or message delivery numbers to Anita's mailbox, the server prompts for additional pagers. If you answer Yes, the server prompts you for the next pager's information.

Note: Selecting message delivery in the mailbox automatically tells the server to wait for a greeting. Do not include a V or G in the dial string.

Call Placement Example

Call placement only has to be configured once. The following example shows how you might use call placement.

Call placement is an efficient way to contact large numbers of people in an emergency. For example, a pharmacy chain can quickly notify its branches of a product recall.

Caller Action	NuPoint Voice Code
Wait for dial tone.	T
Tell the PBX that you want an outside line.	9

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Wait for a dial tone, to confirm that you have the outside line.	T
Dial the number of the pharmacy branch.	12135556598

To send the message, the pharmacy headquarters makes the message and sends it to a distribution list that contains all the pharmacies' numbers. This list is created either at the server maintenance console or by the user at a telephone (see the Distribution Lists chapter). If the dialing plan is set to make 8 the call placement digit (for example, 3,3,3,3,3,3,T,3), the distribution list looks like this:

Distribution List: 01
Members:
T12135556598
T12135551434
T12135557969
etc.

This sends the message to each phone number in the list.

To add call placement to a mailbox, specify the pager system in the appropriate outdial index prompt, then respond to the call placement pager access type prompt as follows:

Billed outdial index or unbilled outdial index	1 (A pager system set to T9T)
Call Placement access type	B or U

Testing the Configuration

After telephone lines have been installed, and after you create mailboxes for a Pager application, test each mailbox.

Note: It is very important to test a pager immediately after it is added to a mailbox, since a seemingly minor error in configuration can cause every page to fail. Furthermore, the server can tie up pager ports for a long time dialing invalid paging codes.

Testing Paging

Before performing individual test steps, configure the Event Recorder and enable it. After testing is completed, disable the Event Recorder. For detailed instructions about the Event Recorder, see the *NuPoint Messenger Installation and Service Manual.*

Briefly, you test paging by leaving a message in the mailbox, then contacting the user to be sure that the page was successful. You can use the Lights Test option from the server maintenance console to test each display or tone pager mailbox. See the task list for procedures, Volume 2 of this manual.

Testing Alternate Pager Activation

If you have configured an alternate pager, it is activated after the frequency and interval of the primary pager have expired, but before the message has been played. After testing the primary pager, repeat the test for the alternate pager dial strings. (See the task list for procedures, Volume 2 of this manual.)

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Testing Message Delivery

For message delivery, the server should call the appropriate telephone number and, when the call is answered, should prompt, “Hello, [user’s name]. You have unplayed message(s) in your mailbox. Please enter your passcode.” If the first part of the greeting has been cut off, add more plus signs to the end of the pager number or post-pager number. Conversely, if the user answers and there is a long silence before the server plays the greeting, decrease the number of plus signs at the end of the pager number or post-pager number.

Message delivery calls can be tested using the Lights Test option mentioned earlier; however, if an actual test call is made, you can check server prompts and the mailbox user interface at the same time. (See the task list for procedures, Volume 2 of this manual.)

The server can outdial very quickly—too quickly for some PBXs. One result can be that the server fails to get an outside line. To prevent this situation, try slowing down the server’s outdialing speed. You do this by inserting pluses (++) in dial strings. Each plus tells the server to pause for one second.

For example, suppose you have the following outdial string:

- T9T4155551212++

You can slow the pacing of the sequence by inserting two pluses after each major step in the string. The result would be as shown below.

- T9T++4155551212++++

If this result works, you can experiment by removing one pause at a time to achieve the fastest speed that your PBX can handle.

Testing Call Placement

To test call placement, log into the server and press M to make a message. If you configured the mailbox with the correct FCOS, you are prompted about which digit to press for making a message for a telephone number. Address the message to a telephone number, make the message, then send it. Verify that the message is delivered to the telephone number.

Make a message for a telephone number by specifying the call placement dialing plan digit, and the phone number itself. Do not include the numbers to get an outside line; this should be in the call placement pager system access code. If you have DID, you can make a message for your own number as if it were outside the server. For example, if your call placement dialing plan digit is 2, and your telephone number is 555-4567, then make a message for mailbox 25554567.

See the task list for procedures, Volume 2 of this manual, on the testing discussed in this section.

Successful vs. Unsuccessful Outdialing

The server applies specific criteria to call processing and treats an outdial as successful or unsuccessful accordingly.

Successful Outdialing

If the server encounters speech, other than a lengthy greeting, after outdialing, it considers the call successful.

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Successful pages are retried a specified number of minutes apart (the pager interval), for a maximum number of times (the pager frequency). Paging is discontinued when any of the following occurs:

- The frequency number is reached
- The user listens to all unplayed messages in the mailbox and logs out
- The user disables paging

Unsuccessful Outdialing

If the server encounters a Busy or Reorder tone, or a Ring No Answer condition after outdialing, the call is considered unsuccessful. Other examples of unsuccessful calls are if no dial tone is detected, or no tone or voice “greets” the server after the page is made. The server retries the page according to the busy frequency and busy interval.

When the server detects that an “illegal” dial string (that is, a string that does not conform to configuration rules) has been outdialed, it considers the page successful. This prevents the server from continually retrying the page. However, if a dial string is configured incorrectly (that is, it cannot activate the pager), but conforms to pager configuration rules, the server continually retries the page. This is why it is critical to test every pager immediately after configuring is completed.

Note: If you are using answer supervision (the L code) in any of your outdial strings, your outdial is considered a failure unless the server detects a ringing on the line.

Billing Considerations

The billing function is capable of billing both paging and message delivery on a per-call basis. Remember, however, that the server site is the calling party and thereby responsible for any charges that accrue when paging or message delivery calls are made to the outside telephone network. As stated earlier, pager calls are usually of very short duration, but message delivery calls can be quite long. Since the cost of each call depends on the time of day that it is made, the duration of the call, the distance between the server and the user, and the rates of the local telephone company, the server makes no provisions for this aspect of the billing.

Outdial Billing

Outdials such as paging calls can, however, be billed back to a mailbox owner’s account. This form of outdial billing can be implemented through individual mailboxes’ configuration and is explained more fully in the Mailboxes chapter.

Here is an example:

Henry Huggins has a pager and has his pager calls billed to his calling card number. To perform this manually, you lift the telephone receiver; wait for a dial tone; dial 9 to get an outside line; listen for a dial tone; dial 0-612-555-4534 (0 indicates you will charge the call); wait for a computer tone; dial the calling card number; wait for another tone; dial his mailbox number, 6446; then dial # to tell the pager that all the display data has been entered. (This activates the pager). The dial string for these actions is:

Caller Action	Dial String
Wait for dial tone.	T
Dial 9 to get outside access.	9
Wait for second dial tone.	T

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Dial individual pager number is.	06125554534
Wait four seconds for line to settle.	++++
Wait for computer tone.	G
Dial calling card number	503102533346666
Wait four seconds for line to settle.	++++
Wait for computer (dial) tone.	G
Dial display data (mailbox).	6446
Enter # to indicate that all the data has been entered and make paging terminal hang up.	#

In this case, such as in Example 3 (DID Display pager), configuration is complex, since there is insufficient room in the mailbox Pager Number parameter to specify the individual pager number, the calling card number, *and* the display data, all of which are unique to this pager. In most installations, however, DID display pagers share a common area code and prefix (0-612-555, in this case), and configuring the area code and prefix into the outdial index allows more than one pager to use that pager system.

The organization of the dial string is:

Pager system dial string	T9T0612555
Pager Number	4534++++G503102533346666
Post-Pager Number	++++G6446#

The paging Mailbox Worksheet entries are:

Pager access type	B (billed outdial index)
Billing order	nb
Message delivery	No

Finally, to use the calling card capability, you must set Phoneline Exception 32 to a value between 35 and 40. (The default is 24.) Refer to the *NuPoint Messenger Installation and Service Manual* for your platform to do this.

Individual Rates

The server's billing rates structure does allow you to specify an individual rate for each pager system. This rate is multiplied by the number of pages that are issued for the mailbox. If you put message delivery accounts and radio pager accounts on separate pager systems, you can increase the charges on the pager systems that serve message delivery subscribers to compensate for any toll charges that the telephone company levies.

User Telephone Interface

The following paragraphs discuss the user telephone interface for paging, message delivery, call placement, and passcode protection.

Paging and Message Delivery Telephone Interface

Users control their schedules and phone numbers by beginning at the Call Schedule Options Menu, an option on the User Options Menu. From there, they go to the Paging/Message Delivery Schedule Menu, where they can alter the start and stop times and phone numbers.

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Note: When NP TDD is enabled, call scheduling is not available.

When users make a choice from the Paging/Message Delivery Schedule, the server gives them a series of prompts to guide them through each change they make. Whether users hear the prompts for paging or message delivery depends on the FCOS, and whether the Message Delivery parameter was set to Y in the mailbox configuration.

Call Placement Telephone Interface

To use this feature, users begin with these steps:

1. Press M to start making a message.
2. Press the key (set in the dialing plan) that activates call placement.
3. Dial the destination phone number.

The server automatically prompts users to record the name of a recipient, and then to record a message. After recording, users can send their messages immediately (with “normal” delivery), or use message addressing options, including passcode protection (see below). When users send their messages, the server dials the specified phone number.

When someone answers the phone at the destination number, the server announces, “This is a message for [recipient’s name] from [sender’s name].” Recipients then have the following options from the keypad:

- Accept this message.
- Delay the message for 30 seconds.
- Reject this message.
- Tell the server to try to redeliver in an hour.

Note: All options require recipients to have a pushbutton phone.

If recipients accept the message, they can replay it and/or answer the sender. If recipients reject the message or the server cannot deliver it, the server notifies the sender with a non-delivery receipt—even if the sender did not request a receipt. Of course, users can still request the standard receipt.

Passcode Protection

As a message addressing option, users can attach a 4- to 10-digit passcode to their messages, which recipients must enter before they can play the messages. Of course, a sender and recipient must agree on this passcode beforehand.

To use this feature, a user presses M for message addressing options when making the message for a call placement number. The user then presses O for off-site passcode, and is prompted for a 4- to 10-digit passcode. The user then exits message addressing options and sends the message.

The called person is prompted for the passcode before the message can be played.

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5 Message Waiting Application

This chapter describes the two standard message waiting applications in a NuPoint Messenger server that can turn PBX message waiting indicators on and off, and explains how to use the appropriate worksheet for configuring the desired application. Topics covered include:

- DTMF to PBX MWI Worksheets and Configuration
- RS-232 MWI Worksheets and Configuration
- Pre-Programmed and Programmable Interfaces
- PBX Information
- Testing

Note: Many PBX integration optional features have their own method for turning message waiting indicators on and off, and do not use the functions discussed in this chapter.

Overview

Two message waiting applications can be used when an integration itself does not handle message waiting indicators. The two applications, DTMF-to-PBX Message Lights and RS-232 Message Waiting Indicators Interfaces, allow the server to turn PBX message waiting on and off.

- DTMF-to-PBX uses one or more line card ports to send DTMF signals over the telephone lines
- RS-232 uses one or more serial ports to send signals to the PBX over an RS-232 data link or modem between the server and the PBX.

You may wish to refresh or supress the message waiting indicators. Reach the Supress/Refresh MWI menu from the Main Menu by selecting (S) System Manitenance, (R) Reconfiguration, then (C) Supress/Refresh MWI.

At the Supress/Refresh MWI menu, you can set parameters to refresh some or all message waiting indicators, supress message waiting indicators for specific MWI types, and view the current MWI types and settings. When you set the first and last mailboxes, be sure that the range is a maximum of 2400 mailboxes.

Procedures

These procedures are located in Volume 2 of this manual.

Procedure	Number
DTMF-to-PBX Message Waiting Indicator Configuration	CP 3323
Programmable RS-232 Interface Configuration	CP 3324
Pre-Programmed RS-232 Interface Configuration	CP 3325
Assign Message Waiting Indicators to a Mailbox	CP 5031

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Compensate for Different Directory and Mailbox Numbers	CP 5032
Create an RS-232 Programmable Interface String	CP 5036
Define an RS-232 Serial Port	CP 5038
Enable/Disable Light-on Requests for Successive Messages	CP 5034
Send the Number of Unplayed Messages	CP 5039
Set Delay times for RS-232 Message Waiting Requests	CP 5040
Assign Additional Serial Ports for RS-232 Programmable Interface	CP 5055
Set DTMF-to-PBX Protocols	CP 8008

DTMF-to-PBX Message Waiting Indicators

This application allows the server to turn PBX message waiting indicators on and off by sending DTMF signals over the telephone lines. Some PBXs allow telephone users to turn message waiting indicators on and off by dialing in a code. If your PBX has this capability, and if the code is not sent using proprietary signaling, you may be able to configure the server to behave as if it were a station user.

When a message is left in a mailbox that uses this type of message waiting, the server takes a line-card port off-hook, dials a string of DTMF digits, then goes on-hook. The PBX translates these digits and turns the appropriate indicator on. When all unplayed messages have been played, the server follows the same procedure (dialing a different string of digits) to turn the indicator off.

You need to set up a line group of at least one line, which is dedicated to outdialing DTMF-to-PBX message waiting signals.

DTMF-to-PBX Message Lights Worksheet

Configuring these message indicators involves two steps: setting up a line group of at least one line to serve as an outdialer of message indicators requests, and configuring the dial strings that constitute these requests. Complete the worksheet (Figure 5-1), then see "Message Waiting Indicators" in the task list for configuration procedures.

Configuring the PBX

Assign, to each server line that is dedicated to this application, a PBX class of service that permits the server to turn message waiting indicators on and off.

Configuring the Application

There are three steps to configuring DTMF-to-PBX message indicators:

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1. Determine what DTMF strings the PBX uses to turn message waiting indicators on and off, and use this information to complete the DTMF-to-PBX Message Lights Worksheet. A blank worksheet is located in Volume 2 of this Manual.
2. Create a line group with one or more lines to be used as an outdialer port. If your PBX only allows a message waiting indicator to be turned off by the same extension that turned it on, you can still configure a multi-line group if needed for heavy traffic volumes. The NuPoint Messenger server uses the correct port to turn off message waiting indicators for specific extensions.
3. Enter the information at the server maintenance console.

All configuring of the DTMF-to-PBX message waiting indicators is PBX-dependent. If your PBX allows users to turn the message indicators of other users on and off, then the proper coding can usually be found in the PBX users' guide. Otherwise, consult the PBX operating manual or your PBX vendor for the necessary codes.

The DTMF-to-PBX Message Lights application menu prompts for specific sections of the dial strings. The dial strings are dialed out in the following order:

1. PBX special access code
2. Pre-DN on or off string (after dial tone confirmation)
3. Directory number
4. Post-DN on or off string (followed by a wait for dial tone)

Figure 5-1 Sample DTMF-to-PBX Message Lights Worksheet

Line Group Information

All server ports are assigned to line groups. Each line group is then assigned to a single application, and any configuring that is done for that application applies to every port in the line group. The number of ports in each line group depends on how heavy the phone traffic is expected to be for that particular application.

Line Group

Each line group is represented by a distinct number. Valid line group numbers are 1 through 24.

Group Name

The group name is optional. It serves to easily identify the line group's purpose; for example, the line group for this application can be called "DTMF-to-PBX Outdialer."

Line(s) in Group

You identify each line (or port) in a group using a triplet, which stand for a module, the slot number for a line card, and a port on the line card. Module refers to a CPU, the server's main processor. Slot numbers are 0 through 15. Ports are numbered 0 through *n* (the highest port number on the line card); you can connect one telephone line to each port.

For more information on triplets and line group numbering, see the NuPoint Voice Application chapter.

Initial Dial Tone Detection

When building outdial strings, the Initial Dialtone Detect parameter gives you precise control.

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This parameter allows you to include a T code (Go Off-Hook, Wait for Dial Tone) if you are integrating with most PBXs, or delete a T code in the dial string if you are integrating with cellular or other non-PBX equipment that cannot produce a dial tone.

The outdial string consists of the following parts:

- Initial T code produced by this parameter, if enabled
- PBX special access code parameter, if any
- Appropriate on or off dial string parameter (the pre-DN on dial string, pre-DN off dial string, post-DN on dial string, or post-DN off dial string).

Note: If you enable this parameter ("enabled" is the default), do not enter a T code as the first part of the special access code. If you do, the server waits for two separate dial tones. But two separate dial tones cannot occur in this context, so every message indicator request fails.

If you disable this parameter, you typically begin the special access code with the S (Go Off-Hook, Do Not Wait for Dial Tone) code.

PBX Special Access Code

Some PBXs require the server to dial a special access code before sending message indicators requests. The special access code indicates to the PBX that one of its special features is about to be invoked. Table 5-1 lists the characters allowed in this code.

Note: The NuPoint Messenger server automatically configures a T (Go Off-Hook, Wait for Dial Tone) as the first part of the outdial string. DO NOT enter a T as the first part of the special access code because then the server waits for two separate dial tones.

There is no default PBX special access code.

Dial Tone Confirmation

Answer Yes to this parameter only if (1) a PBX special access code is required and (2) if, after the special access code has been sent, the PBX expects the server to wait for a dial tone before the server outdials any other digits. The default is No (no wait).

Pre-DN On or Off String

This string is sent before the directory number (extension number) to instruct the PBX to turn the message waiting indicator on or off at that station. There is no default Pre-DN on or off string.

Note: Never enter a T as the first part of the Pre-DN on string because then the server waits for two separate dial tones.

Enter the coding, if any, that must be sent before the directory number to turn message waiting indicators on or off.

Suppress Updates to MWL

Each time a mailbox receives a new message, the server sends a request to the PBX to turn on the message indicator. However, if the user logs into the server, listens to all the new messages, and logs out, a single indicator-off request is sent to the PBX. Some PBXs stack the indicator-on requests. Then, when the single indicator-off request is sent, it cancels only one of the indicator-on requests, and the message indicator stays on. To prevent the server from sending an indicator-on request when the message indicator is already activated, leave this feature at the

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default setting of Yes. This feature also cuts down on overall message waiting indicators traffic.

Table 5-1 PBX Special Access Code Characters

Character	Explanation
0-9, *, #	Keys on a standard pushbutton telephone
(	The following digits should be dial pulsed (10 PPS)
)	Stop pulsing; resume sending DTMF tones
+	Pause for one second
A-D	Fourth column DTMF keys
E	Go off-hook, wait for dial tone or other steady tone (pager go-ahead or confirmation tone, for example), then do next item in string
F	Switch hook flash and wait for dial tone
G	Greet - Wait for a voice or computer tone answer
H	Hang up (go on-hook)
L	Answer Supervision - Wait for telephony signal from destination. Use only with trunk (four-wire) connections.
N	Start a new activity; do not go off-hook
O	Ring once
P	Go off-hook, do not wait for dial tone
S	Switch hook flash, no wait required
T	Go off-hook, wait for dial tone
V	A voice pager system is being used

Post-DN ON or OFF String

This string is sent after the directory number (extension number) to instruct the PBX to turn the message waiting indicator on or off at that station. There is no default post-DN on or off string.

Enter the coding, if any, that must be sent after the directory number to turn message waiting indicators on or off.

Wait for Dial Tone

The default value is N. If the PBX can return dial tone to the server to indicate that a message indicator has been turned on or off successfully, answer Yes. The server registers an error condition if dial tone is not returned, and redials the appropriate dial string.

Enable Alternate Code

The alternate code is the DTMF string that the server transmits after the pre-DN on string. Typically, the directory number (DN) and the mailbox number are the same. The server expects this to be the case, because it includes the mailbox number as the DN when it sends a message indicators request to the PBX. Sometimes, though, the DN and mailbox number are different. In those cases, do the following to make sure users get message waiting indication:

- Enable this parameter.
- Put the DN in the Department Code parameter of the mailbox's configuration. (The software supports up to 2000 department codes.)

After you complete these steps, the server uses the value of the Department Code parameter in the mailbox's configuration as the DN when it sends the request to the PBX.

Testing

See the task list for testing procedures.

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RS-232 Message Waiting Indicators Interfaces

This application allows servers to turn PBX message waiting indicators on and off by sending signals to the PBX over RS-232 data links. The data links can be either direct serial connections to the PBX, or they can connect to modems that are connected to analog ports on the PBX.

When a message is left in a mailbox, the server sends an ASCII message that tells the PBX to turn on the message waiting indicator at the appropriate station. Conversely, when all unplayed messages are played, the server sends an ASCII string that directs the PBX to turn off the message waiting indicator.

Serial Port or Modem Requirement

To use any RS-232 message waiting indicators interface, an RS-232 cable must be run from a server serial port to the PBX (or, in the case of CentrexRS-232 MWI interface, to a modem that communicates with the Central Office). The physical setup uses RS-232 pins 2, 3, and 4, with communications parameters of 1200 baud, 8 data bits, 1 stop bit, no parity, full duplex, and no flow control.

If you have an expansion serial port card installed in your server, you can use as many serial ports as necessary for the programmable RS232 message waiting application. You first assign and configure a single serial port using index 1, and then any additional ports assigned to the application will adopt the configuration of the first port.

RS-232 Message Waiting Indicators Interface Worksheet

Complete an RS-232 Message Waiting Indicators Interface Worksheet. A blank worksheet is located in Volume 2 of this Manual. Then see "Message Waiting Indicators" in the task list for configuration procedures.

Pre-Programmed Interfaces

A server can operate with a variety of pre-programmed interfaces. These are described briefly in the following paragraphs.

SL-1 Background Terminal Facility

Use this message waiting indicators interface when the SL-1 background terminal facility (X37 release 3) message waiting protocol is required.

Note: This option has been superseded in SL-1 software. Unresolved conflicts can occur with some newer features.

NuPoint Messenger Standard Interface

A wide variety of PBXs can use this interface. Default settings for this interface are listed in Table 5-2.

Table 5-2 Default Settings for Standard Interface

String	Setting
Initialization string	\r\r\r (three carriage returns)
Reply string	None
Pre-DN ON string	M1

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Pre-DN OFF string	M0
Post-DN ON string	\r
Post-DN OFF string	\r

See the table of ASCII codes under "Configuring the Programmable Interface" for definitions of these settings.

Specialized Message Waiting Indicator Systems

The following specialized message waiting indicator systems require the purchase of additional hardware and software. Instructions for installing and configuring these systems are shipped with the products.

AC Message Lamp

The server is equipped with the NuPoint Messenger AC Message Lamp system. When you create or modify a mailbox, the server prompts for the address of the user's AC message lamp unit, which is set with the thumbwheel switches on the message indicator box.

An AC message lamp address starts with a house code, which can be any letter from A through P. This is followed by a unit code, which can be any number from 1 through 16. Examples are A1, D5, P16. Address P1 is reserved for troubleshooting and diagnostics, and must not be assigned to a mailbox.

After the address is entered, the server prompts for the number of the AC controller. The controller number is either 1 or 2, depending on the controller unit that is shipped with the AC message lamp system. Both controllers are equivalent; the unit shipped depends on availability. The controller number is displayed in the server's configuration report.

Tip and Ring Message Waiting Lamps

The server sends signals over the telephone lines to either a Tip and Ring Message Waiting Notification Controller (TRNC), which controls message waiting indicators at users' stations; or to a dispatch indicator board, which is used for automated dispatch applications.

When this message waiting type is chosen (during mailbox create or modify), the server issues a prompt that lets you specify the chassis number and line number. More than one TRNC unit can be connected to a server. The chassis number is the number of the TRNC unit to which the user's telephone line is connected. The line number is the exact position where the line is attached to that chassis. The technician who installs the Tip & Ring message waiting indicators system makes a list of the users' stations and their corresponding addresses.

You can also use this message waiting type with the Alltel Dispatch System.

Video Dispatch

Video Dispatch is part of the Automated Dispatch Communications System. Video terminals display the status of dispatch mailboxes. These displays are updated as messages are received, played, and deleted. Special hardware and software must be purchased from your distributor to run a Video Dispatch system.

Optional Features

The other pre-programmed RS-232 message waiting indicators interfaces, listed below, are

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optional features. For more information about any of them, contact your distributor.

- BBL Pager
- Hyatt Encore PMS Integration
- PMS Integration
- HIS PMS Integration
- Hitachi PMS Integration
- Hitachi DX
- ITT

Programmable Interface

The Programmable option allows you to customize the RS-232 message indicator software interface between the server and the PBX. All codes are sent in ASCII. Numbers, letters, and certain special characters (Table 5-3) are understood by the software.

Configuring a Pre-Programmed RS-232 Interface

Configuring any of these interfaces consists of defining a serial port then making selections from the respective interface menu. See "Message Waiting Indicators" in the task list for configuration procedures.

Use the RS-232 Message Waiting Lights Worksheet (Figure 5-2) to organize the information you need for configuring one of these interfaces. If the interface is an optional feature, also contact your local distributor for additional directions. A blank worksheet is located in Volume 2 of this Manual.

Configuring the Programmable Interface

The RS-232 Message Waiting Lights Worksheet (Figure 5-2) organizes the information that is necessary for configuring the programmable interface. You can use ASCII codes in any of the strings described in the following paragraphs.

Table 5-3 lists the valid ASCII codes that can be used. The following descriptions can help you to complete this worksheet.

Initialization String

This string is sent to the PBX to notify it that the server is ready to send message waiting indicator requests.

Reply String

After the initialization string is sent, the server waits for the PBX to return this reply string, before sending message indicators requests.

Pre-DN On String

This string is sent before the directory number (extension number) to instruct the PBX to turn the message waiting indicator on at that station.

Pre-DN Off String

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This string is sent before the directory number (extension number) to instruct the PBX to turn the message waiting indicator off at that station.

Table 5-3 RS-232 Message Waiting Indicators Interface Codes

Code	Explanation
\r	carriage return
\n	new line
\t	tab
\b	backspace
\f	form feed
\\	backslash
\"	double quotes
\?	question mark
.	no string needed

Post-DN On String

Enter the coding, if any, that must be sent after the directory number to turn message waiting indicators on. There is no default post-DN on string.

Post-DN Off String

Enter the coding, if any, that must be sent after the directory number to turn message waiting indicators off. There is no default post-DN off string.

Department Code as DN?

Enter Yes if you want the server to send the department code as the DN when issuing a request to turn indicators on or off. When this feature is set at the default value, No, the server sends the mailbox number as the DN.

Figure 5-2 Sample RS-232 Message Waiting Lights Worksheet

Unplayed Number Sent?

Enter Yes if you want the server to send the number of unplayed messages after the DN, when issuing a request to turn indicators on. The default value is No.

Delay After Post-DN String

This parameter is the period of time, in seconds, between the post-DN off string and the ending trailer string. This delay gives the PBX time to process each request correctly. If requests come too quickly, the PBX could drop or corrupt them. From 0 to 255 seconds can be specified. There is no default delay.

Ending Trailer String

If the PBX requires this string, the server sends it after the delay just described. Use the characters in Table 5-3 to create this string, up to 30 characters long. There is no default ending trailer string.

Suppress Updates to MWL?

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A server administrator can configure whether message waiting indicator on or off requests are sent out for every new unplayed message, or only when the message waiting indicator state changes from off to on or from on to off. Using the latter functionality (only when the message waiting indicator state changes) makes better use of server resources.

The server does not suppress message waiting indicator updates by default. To suppress them, you must enter the message waiting type number of your RS-232 system, then enter Yes. (The default is No for all types.)

Message waiting types are listed in Table 5-4.

Modem Result Code

The modem result code parameter allows the server to determine if a message waiting request was accepted by the switch, and to retry a failed request if necessary. The modem result code tells the server to look for a certain message from the modem to indicate that the message waiting request was accepted by the switch. You must know the message that the modem returns, for example, "NO CARRIER." The server looks for the exact message set in the Modem Result Code field, and, if it does not see it, retries the message waiting request up to 18 times.

You can find out what result code the modem returns by setting this field to some value (it doesn't matter what), and then turning on the Pager/Programmable RS232 interface in Event Recorder. Use the Lights Test to send an MWI request to a mailbox that has its MWI type set to Programmable RS232. The Event Recorder message will show you the actual result string that is returned from the modem. You can then set the Modem Result Code field to that value, assuming that the request was completed successfully.

Leave this field blank to have the server ignore any result code returned by the modem and assume that all message waiting requests are successful. To remove a previously configured value, enter a period.

Testing

Create at least one mailbox with the RS-232 message waiting type that is appropriate for your server. To test RS-232 message waiting indicators, choose the Lights Test option from the server maintenance console, and select the proper message waiting type. See the task list for testing procedures.

Table 5-4 Message Waiting Types

Number	Message Waiting Type
0	None
1	Not available
2	AC message lamp
3	DTMF-to-PBX
4	Fixed RS-232 (and Hitachi DX)
5	Pager
6	SL-1
7	Program RS-232
8	Tip & Ring RS-232
9	Centrex RS-232
10	Intecom RS-232
11	NEC RS-232
12	Video Dispatch
13	ITT RS-232
14	Text

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15	AT&T System 75
16	HIS PMS
17	Unified Integrations
18	ROLM
19	Mitel
20	SL-1 Message Waiting
21	Hitachi PMS
22	SL-1 Enhanced Meridian
23	Fujitsu 960
24	SMS-MWI

6 Mailboxes

This chapter describes the most common component of the NuPoint Messenger server software applications, the mailbox. These topics are covered:

- Outside callers and Mailbox Owners
- Mailbox Creation and Modification
- Worksheets
- Classes of Service
- Greetings
- Distribution Lists
- Other Configuration Parameters
- Unplayed Messages and Receipts
- Types of Mailboxes
- Outdial Billing

Overview

Mailboxes are the user component of a server. Every server user has at least one mailbox, and the server administrator must make a number of configuration decisions that affect mailboxes. Some configuration is server-wide, and has been discussed in the previous application chapters. This chapter describes different mailbox configuration options and how to do them.

Procedures

You can perform the following procedures to configure mailboxes. These procedures are located in Volume 2 of this manual.

Procedure **Number**

Distribution Lists

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Distribution Lists Configuration

Allow Broadcasting to a Broadcast Mailbox

Configure a Mailbox for Distribution Lists

Configure for Name and Greeting Broadcast

Create a Master Distribution List

Create or Modify a List for Mailbox Owners

Delete a Distribution List

Delete a Member from All Distribution Lists

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Nest a Distribution List or Prevent Nesting

View All Lists Containing a Specified Member

View Members of a Single List

Greetings and Prompts

Allow a Transfer Automatically After a Greeting

Configure for Name and Greeting Broadcast

Configure for a Receipt Notice or Receipt Summary

Copy a Mailbox Greeting

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Enable an Alternate Company Greeting

Enable or Disable a Message of the Day

Enable or Disable Tutorials

Record an Alternate Company Greeting

Record Company Greetings

Schedule Company Greetings

Set Languages for Prompts

Test Conditional Greetings

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Mailboxes

Mailboxes Configuration

Configure a Broadcast Mailbox

Configure a Chain Mailbox

Configure a Rotational Mailbox

Configure a Standard Mailbox

Configure a Shared Extension Mailbox

Configure a Tree Mailbox

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Configure an Overflow Mailbox

Define an Administrator's Mailbox

Define an Attendant's Mailbox

Delete a Mailbox

Inquire About Mailboxes

Modify a Mailbox Configuration

Search for Mailboxes

Set the Passcode, Passcode Count and Tutorial Setting for a Mailbox

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Test Mailbox Capabilities

Test Message Waiting Indication

Outside Callers vs. Mailbox Owners

In many discussions of server mailboxes, you encounter the terms *caller*, *outside caller*, *user*, *owner*, or *mailbox owner*. There is a difference between (outside) callers and (mailbox) owners or users. A caller dials the server number, enters a mailbox number, listens to the mailbox greeting or prompt (such as “Please leave a message for Kim Smith”), then leaves a message. A person who is assigned a mailbox is a “mailbox owner.” Owners can log into their own mailboxes, play messages, choose selections from a User Options Menu, and select other voice messaging operations. The term “user” usually refers to mailbox owners, as opposed to outside callers, as they are users on the server.

Mailbox Creation and Modification

Mailbox creation, deletion, and modification are implemented in different ways depending on how your terminal has been configured.

Scrolling Interface

If you are using the scrolling menu interface, then mailbox creation and modification are similar to that used in the Release 5.04 application. Creation, deletion, and modification are three different menu choices. Mailbox creation and modification both generate a set of prompts for the administrator to answer, one at a time. If you mistakenly answer one prompt incorrectly, you cannot return to it; you must finish the prompts and recreate or remodify that mailbox again. The advantage of this method is that it works on any kind of terminal.

Full-Screen Interface

The server has a full-screen interface you use to create, modify or delete mailboxes. All three options are combined in one menu choice. You use function keys for different options when in this mailbox menu. The mailbox screen is shown in Figure 6-1. The function keys you can use in the mailbox maintenance screen are:

Function Key	Explanation
F1	Display next mailbox
F2	Display previous mailbox
F6	Delete mailbox
F8	Statistics

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F9 or Esc	Exit the Mailbox Screen
F10	Edit current mailbox's information

These are the appropriate function keys when you are editing a mailbox's parameters (after pressing **F10**):

Function Key	**Explanation**
F6	Billing
F7	Family/Guest Mailbox Setup (for VMUIF interface only)
F8	Display Statistics
F9	Cancel edit session and ignore changes
F10	Exit and Save new information
Home	Help (based on where cursor is located)
End	Edit Additional Fields (where cursor is located)

Figure 6-1 shows the Message Waiting Indicator screen, which you can edit for Message Waiting 1, 2, and 3. Use the mailbox worksheets when creating new mailboxes. The worksheets are described in the next section.

Figure 6-1 Mailbox Maintenance Screen

```
Mailbox: 00000000998                Code:
Name:
Classes of Service
Limits:   Default             1     Tenant:    Default TCOS 1         1
Features: UNLIMITED           1     Restriction:                      1
Group:    Default GCOS 1      1
Network:  Default             1
Bad Login Count:              0     Last Login Time:          NEVER
Access Code:                        Speech Quality Msgs:  0  Greets:  0
Password:            N              Tutorial:             N
Day Treatment:       M              Night Treatment:      M
Extension:     998                  Index:                0
Atten DN:                           Index:                0
                                    CallPlacement Index:  N TimeZone: 0
                                    Message Waiting 1:    0 None
                                    Message Waiting 2:    0 None
                                    Message Waiting 3:    0 None
                                    List Rights: Review:   Change
 F1  Next  F2  Prior  F6  Delete  F8  Stats  F9 or Esc  Exit  F10  Edit
Enter mailbox number to modify or create.
```

There are additional fields to edit for the three Message Waiting Indicator Fields, and for the two List Rights fields. In both cases, press the **End** key to edit the Use this screen to configure paging or message waiting. Figure 6-2 shows the List Rights screen, which you use when editing distribution list change or review right.

Figure 6-2 Message Waiting Indicator Screen

```
    M A I L B O X  M A I N T E N A N C E
          +-------------------------------------------------------------
----+
Mailbox:  |     Message Waiting Light Fields
|
Name:     | Pager #01                              Pager #02
|
```

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```
Classes of| Suppress:   N                          N
|
Limits:  D| Pager Num:
|
Features:U| Post Pager:
|
Group:   D| System:            0                   0
|
Network: D| Frequency:         0                   0
|
Bad Login | Interval:          0                   0
|
Access Cod| Busy Frequency:    0                   0
|
Password: | Busy Interval:     0                   0
|
Day Treatm| Msg dlvr:          N                   N
|
Extension:| Start Time: 12:00 am                12:00 am
|
Atten DN: | Stop Time:  12:00 am                12:00 am
|
          | Alt Page:  N
|
          +-------------------------------------------------------------
----+
                                    Message Waiting 2:    0 None
                                    Message Waiting 3:    0 None
                                    List Rights: Review:   Change:

F9  Cancel  F10  Exit and Save  Home  Help  End  Menu Selection
```

Figure 6-3 Distribution List Rights Screen

```
                  M A I L B O X   M A I N T E N A N C E

Mailbox:  00000003553                 Code:
Name:     ma+-------------------------------------------------+
Classes of S|         Distribution List Review Rights         |
Limits:  DDe|       02 03 04 05 06 07 08 09 10 11 12 13 14 15 |1         1
Features:UUN|    01  1  1  1  1  1  1  1  1  1  1  1  1  1  1 |
Group:   DDe| 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 |
Network: DDe|  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 |
Bad Login Co| 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 |  NEVER
Access Code:|  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 | Greets: 24
Password:   | 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 |
Day Treatmen|  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 |
Extension:  | 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 |
Atten DN:   |  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 |
            | 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 |TimeZone: 0
              |  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 |Pager
            | 96 97 98 99                                      |None
            |  1  1  1  1                                      |None
            +--------------------------------------------------
```

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Mailbox Maintenance

Mailbox maintenance allows you to:

- Search for mailboxes meeting specified configuration criteria (Search for Mailboxes option)
- Obtain configuration information about a specific mailbox (Inquire About Mailboxes option)
- Obtain configuration information about every mailbox in the system (Mailbox Data Report option)
- View comprehensive details about mailbox activity that is helpful for debugging mailbox configuration (Mailbox Dump option)

You can also obtain a summary report about disk speech usage for a given mailbox. This report shows the number of messages played, unplayed, and urgent; message receipts; and the recorded name and greetings for the mailbox. A report option allows you to obtain the total disk usage for a range of mailboxes.

Any of these options presents a report that you can have displayed at the server maintenance console or printed at a console printer. For sample reports and detailed explanations about their contents, see the Reports chapter.

Mailbox Worksheets

Before configuring a standard mailbox, complete the Mailbox Individual Worksheet. Each worksheet entry is explained in the following sections. If you want to use a default value, indicate that fact on the worksheet. Then you will not need to select or enter any information for that parameter during reconfiguration. Figure 6-4 shows a sample Mailbox Individual Worksheet. A blank Mailbox Individual Worksheet is located in Volume 2 of this manual.

To configure a mailbox for paging, message delivery, or call placement, see also “Mailbox Configuration” in the Pager Application chapter.

Department codes are required for some message waiting applications. In addition, the billing report includes the department code to allow billing by department. If the mailbox uses a department code, the software supports up to 2000 department codes.

When you need to organize information for large groups of mailboxes, you can use a Mailbox Group Worksheet (Figure 6-5). This worksheet allows you to enter configuration values for several mailboxes on a single sheet. Use it in conjunction with the Mailbox Individual Worksheet when appropriate. A blank Mailbox Group Worksheet is located in Volume 2 of this manual.

Classes of Service

Each mailbox is assigned classes of service. A Feature Class of Service (FCOS) is a collection of mailbox features, options, and abilities, called *feature bits*. A Limits Class of Service (LCOS) is a group of mailbox limits, such as how many messages a user can store. The LCOS also determines the mailbox prompts language. A Group Class of Service (GCOS) determines which mailboxes can communicate with each other. A Restriction Class of Service (RCOS) establishes a calling area for a mailbox that is subject to NPA/NXX call screening. For further information on FCOSs and feature bits, see the Features Class of Service chapter. For information on LCOSs and limits, GCOSs and groups, and RCOSs, refer to the Other Classes of Service chapter.

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A Network Class of Service (NCOS) and Tenant Class of Service (TCOS).parts of optional features.can also be assigned to mailboxes.

For more information about NCOSs and TCOSs, respectively, see *The NP Net Digital Network* and *Enhanced SMDI Integration Manual.*

Figure 6-4 Sample Mailbox Individual Worksheet

Figure 6-5 Mailbox Group Worksheet

Names and Greetings

A mailbox owner can record a name for the mailbox. If the owner does not record a name, the server uses the mailbox number instead. For example, if you have mailbox 5731 and record "Kevin Lee" as your name, other users hear "Kevin Lee" when they make messages for your mailbox. If you do not record a name, users hear "Mailbox fifty-seven thirty-one." Users also hear mailbox names when they play messages from other users. If you get a message from an outside caller, no name is used.

Greetings are played when callers or users reach your mailbox, either by entering your mailbox number or by dialing your extension (if you have an integration that supports this feature). Mailbox owners can choose various types of greetings, depending on their FCOS. In many of the integrations that a server supports, owners can choose greetings that respond to the condition under which a call has been received by the server: Ring No Answer, Busy, or Forward. Personal greetings for these three possible conditions are called *conditional greetings*. To have the same greeting played under all conditions, a user would enable the *primary greetings*.

The general greeting option allows a user to select whether to use personal or server greetings. If conditional greetings are also enabled, the user can select conditional server greetings that play in response to line conditions as shown in Table 6-1.

Table 6-1 Greetings Supplied by the Server

Condition	Greeting
Ring No Answer	"I'm sorry, [name] does not answer. Please leave your message at the tone."
Busy	"I'm sorry, [name] is on another call. Please leave your message at the tone."
Call Forward	"I'm sorry, [name] is not available. Please leave your message at the tone."

You can copy a mailbox greeting to a mailbox name and copy a mailbox name to a greeting.

Distribution Lists

This section covers:

- How distribution lists are used in the server software
- Interactions between distribution lists and various class of service settings
- Distribution list administration

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Overview

A distribution list allows a mailbox owner to send the same message to a number of recipients by entering the distribution list number instead of entering each mailbox number. Mailbox owners can create distribution lists by phone, or a server administrator can create them at the server maintenance console.

There are two types of distribution lists: mailbox owner distribution lists (sometimes called “user distribution lists”), which are only accessible by the mailbox owner, and master distribution lists (sometimes called “system distribution lists”), which are accessible by all users of a line group.

In addition to addressing messages, distribution lists control the actions of several special mailbox features. The distribution lists in tree mailboxes and rotational mailboxes identify child mailboxes, and the distribution lists in broadcast mailboxes identify the recipients of broadcast messages, greetings, and so forth.

Distribution list administration involves many parts of server administration:

- FCOS settings allow mailbox owners to send to and receive from distribution lists.
- LCOS settings control the maximum number of list per mailbox, up to 99, and the maximum number of recipients per list, up to 65,535.
- GCOS settings identify which mailboxes can exchange messages.
- Mailbox settings control the ability of mailbox owners to review and/or modify distribution lists.

Once you have configured mailboxes appropriately, you can create distribution lists – including master distribution lists – and maintain them from a telephone. In addition, you can create distribution lists from the server console using the List Maintenance Menu.

Mailbox Owner Distribution Lists

Mailbox owners can create up to 99 distribution lists for groups of people that they communicate with frequently. Mailbox owner distribution lists are only accessible by the mailbox owner. Although a server administrator can create distribution lists for any mailbox, it is usually easier to let the mailbox owners create and maintain their own lists.

When mailbox owners are given the capability to create and use their own distribution lists, the server plays the appropriate prompts and options in the User Options Menu. Besides adding and deleting members, mailbox owners can review the members of a list and record a spoken name for it to serve as a confirmation when addressing messages to the list.

A server administrator can control whether or not a mailbox owner can review or modify distribution lists. Turning off both capabilities can be useful for broadcast mailboxes, while turning off the modify capability can be useful in service bureau environments in which the service bureau maintains the lists for the customers.

Mailbox owners address messages to their distribution lists by pressing a 0 (zero) before the list number, for example “015” to address a message to distribution list 15. If feature bit 036 is enabled, the sender receives a receipt listing which recipients have and have not listened to the message.

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Master Lists

Master lists are useful when more than one person must send messages to the same group of people. A master list is a line group-specific distribution list that you can define in the administrator's mailbox for that line group. There can be up to 99 master lists. All mailbox owners who call in on that particular line group can use a master list by pressing "00" before the list number; for example, "009" to address a message to master distribution list 9, or "0025" for master list 25.

A master list defined for one line group is not necessarily a distribution list for another line group. They can share master lists if they share the same administrator's mailbox.

Although you can create master distribution lists over the phone, it is usually easier to use the server maintenance console due to the size of some lists. It is often necessary to add newly-created mailboxes to one or more master list. You must use the phone to log in to the administrator' mailbox and record spoken names for master distribution lists.

Distribution Lists and Special Mailboxes

Several types of special-function mailboxes use distribution lists to accomplish their purposes. These include:

- Tree and rotational mailboxes
- Broadcast message mailboxes
- Broadcast password mailboxes
- Broadcast greeting mailboxes
- Broadcast name mailboxes

Tree, rotational, and broadcast message mailboxes all use distribution list 1 to define child or recipient mailboxes. For tree and rotational mailboxes, the order of child mailboxes in the distribution list can affect what callers hear.

Broadcast greeting, name and passcode mailboxes use distribution list 9 to identify the recipients of the broadcasts. Using list 9 for these features allows these mailboxes to also perform other special functions, such as broadcast messages, which use distribution list 1. The mailbox owner can define the remaining distribution lists.

For more information on special mailboxes, see the Special Mailbox section, later in this chapter.

Nesting Distribution Lists

"Nesting" refers to the ability to make one distribution list a member of another list. This allows you to create a distribution list for each department, and then create a company-wide distribution list that only contains the department lists. Any changes to the department lists are automatically picked up by the company-wide list.

The server allows unlimited distribution list nesting by default, except in a broadcast mailbox. Nesting operates as shown in Figure 6-6.

Figure 6-6 Distribution List Nesting

Once the lists in Figure 6-6 are set up, mailbox 301 can make a message to list 2, and the

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following mailboxes receive the message: 224 through 227, 101 through 104, and 401 through 403. Mailbox 104 only receives one copy of the message, even though it appears in both lists 3 and 4.

Feature bit 222 prevents mailbox owners from nesting distribution lists.

If you are creating the distribution list from the server console, identify a nested distribution list by including “D” before the list number (for example, D03). This is not needed when creating a list from the telephone; just enter the list number (for example, 03). For complete information refer to the Mailbox task list in Volume 2 of this manual.

Note: If you send a message to a nested list that contains many mailboxes, a mailbox owner can receive a message twice. This can happen if a mailbox appears in two lists and the mailbox owner receives the message while the server is still processing the rest of the list. If the mailbox owner discards the message, the server can send another copy when it reaches to the second occurrence of the mailbox. This is only an issue with very large nested distribution lists.

Distribution List Interaction With FCOS

You can use the mailbox FCOS to control the ability to send messages to distribution lists, receive messages sent to other lists, or create or modify distribution lists. As described above, a feature bit prevents distribution list nesting. Additional feature bits control whether mailbox owners can use master distribution lists.

The feature bits listed in Table 6-2 affect distribution list use.

Table 6-2 Feature Bits that Control Distribution Lists

Feature Bits	Descriptions
032	Make (messages) to user distribution list
033	Give (messages) to user distribution list
034	Make to master distribution list
035	Give to master distribution list
036	Auto-receipt for user distribution list messages
044	Receive user distribution list messages
045	Receive master distribution list messages
074	Create or modify user distribution list
134	Broadcast message waiting status
222	Deny nesting of distribution lists

In addition, these limits affect distribution lists:

- Maximum number of distribution lists (maximum 99)
- Maximum recipients count (maximum 65,535)

For more information, see the Features Class of Service and Other Classes of Service chapters.

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Distribution List Interaction With LCOS

You can use LCOS settings to control the number of distribution lists per mailbox, the number of members per list, and the maximum number of recipients for any message. The specific limits that apply to distribution lists are:

- Maximum members per distribution list (maximum 65,535)
- Maximum number of distribution lists (maximum 99)
- Maximum recipients count (maximum 65,535)

You can use the "Maximum recipients count" limit to control the impact of nested distribution lists. The server does not deliver the message to more recipients than this limit allows, even if the total recipients in the nested distribution lists is greater.

Note: The maximum for a distribution list in a tree or rotational mailbox is 190 members.

For more information on any of these features, see the Other Classes of Service chapter.

Distribution List Interaction With GCOS

Distribution lists are affected by the GCOS settings that control the ability of any mailbox owner to send messages to other mailbox owners. You must ensure that all members of a master distribution list have GCOS settings that allow them to exchange messages. Mailbox owners cannot add recipients who do not share GCOS settings to their distribution lists.

For more information on Group Class of Service, see the Other COS Chapter.

Mailbox Settings for Distribution Lists

Each mailbox has two parameters that are specific to distribution lists:

- Lists with review rights
- Lists with change rights

These parameters control which lists a mailbox owner can review or change. Review rights allow the owner to play the names and numbers of all mailboxes in a list. Denying review rights can keep the contents of a list confidential. Change rights allow the owner to add or delete mailboxes in a list. Denying change rights prevents the user from altering a distribution list, which is helpful for certain applications, such as networking, that require distribution lists.

List Maintenance

The List Maintenance Menu allows you to create, modify, delete and view distribution lists in any mailbox. You can also locate all lists that contain a specific mailbox, and delete that mailbox from all lists.

By using Administration by Phone you can create, modify, delete and review master distribution lists in an administrator's mailbox, and you can record names for those lists. From an administrator's mailbox you can create and modify master lists from 1 to 99, just like a mailbox owner's personal lists. Administrators' mailboxes do not have user (mailbox owner) distribution lists, only master lists.

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Other Mailbox Configuration Parameters

Along with other parameters in a mailbox configuration, you can also specify a message waiting type that determines how mailbox owners are notified when unplayed messages arrive in their mailboxes. Mailboxes can also be configured for paging and message delivery. Refer to the Pager Application chapter for more information on these topics.

Mailboxes can be password-protected.

Variable Length Mailbox Numbers

The variable length mailbox number capability allows the server administrator greater flexibility when assigning mailbox numbers. You can configure a dialing plan to allow variable length mailbox numbers. Code a V in the desired digit position in the dialing plan, as described in the NuPoint Voice Application chapter under “Mailbox Dialing Plan.”

Without this capability, all mailboxes in the same line group that begin with the same digit must be the same length. If, for example, you specify “3” as the mailbox number length for mailboxes beginning with 1, then all 1-series mailboxes must be three digits long: 100, 101, 102-199, etc. This means you have only 100 mailboxes available beginning with 1.

When you specify that mailboxes beginning with a certain digit can be variable length, those mailboxes can be as short as one digit (9), or as long as 11 (99999999999). This allows you over 11 billion different mailboxes beginning with 9! (You cannot, of course, configure 11 billion mailboxes, since that would exceed the storage capacity of the disk.)

Hotel installations can make good use of variable length mailboxes. It is convenient for a guest’s mailbox number, telephone number, and room number to be the same, but this is impossible to achieve with fixed length mailbox numbers and a single line group. To understand why, realize that most hotel dialing plans assign three-digit numbers to rooms on floors one through nine, and four-digit numbers to rooms on floor 10 and above. If the mailbox for room 111 matched the phone number, the mailbox for room 1111 could not.

Variable length mailboxes allow you to keep all mailboxes in a single line group and still assign mailboxes that match room and telephone numbers.

Configuration Considerations

If you configure variable length mailboxes, mailbox owners must modify their interactions in these ways:

- When addressing a message to multiple recipients, they must enter a pound sign (#) after each mailbox number that is variable length, or wait for the server to prompt for the next recipient’s mailbox number.

Note: If mailbox owners enter a pound sign after a mailbox number that is not variable length, the server interprets it to mean that message addressing is complete. This can be confusing to mailbox owners, who find that pressing a pound sign at “the same time” elicits differing prompts. To avoid this confusion, it is recommended that you make either all mailboxes variable length, or none.

After entering the final mailbox number and pound sign, they must do one of the following:

- Enter an additional pound sign to get the “Begin recording . . .” prompt.
- Wait for the “Begin recording . . .” prompt.

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Integrations Supported

You can configure variable length mailboxes with all integrations which are supported except for the Omni S1 series and the MD-110.

Server Time-and-Date Stamp for Messages

The time-and-date stamp is optional information that the server can add to every message, to tell the recipient when the message was recorded. If a mailbox owner plays the message the same day it arrives, only the time is given (for example, 2 p.m.). If the mailbox owner plays the message on a later day within the same week, the day of the week and the time are announced (for example, Monday, 2 p.m.). If the mailbox owner plays a message more than a week after it was received, the day of the week, date, and time are given (for example, Monday, May 11, 2 p.m.).

Time Zone Offset

A mailbox time zone offset is a number the server adds to or subtracts from the hour portion of a message's time stamp. This allows mailbox owners to convert the time stamp on a message to the time zone of their choice.

The server converts the time in a mailbox, so only the mailbox owner hears the converted time stamp for a message. Users sending messages to or receiving messages from such a mailbox hear the server's normal time stamp.

This ability is useful for mailbox owners who live and work in a time zone different from the one where their server is located.

The time zone offset affects all types of messages except call placement.

Mailbox Configuration Parameters

When you create a mailbox from the console, the time zone offset is one of the mailbox configuration parameters.

The Mailbox Data Report displays the time zone offset, along with other parameter settings.

Example of Use

Suppose a mailbox owner works in Atlanta, but uses an server based in San Jose. By default, all the mailbox owner's messages would have a time stamp based on San Jose's time zone. If someone sends the mailbox owner a message at 2 p.m. Pacific Standard Time, that is the time stamp the mailbox owner hears for this message.

However, if the time zone offset in a mailbox owner's mailbox has a value of 3, the server tells the mailbox owner that same message was sent at 5 p.m. The sender of the message, though, hears that the server sent the message at 2 p.m.

Tutorials

The standard tutorial, which gives basic instructions to a mailbox owner on how to set up a new mailbox, is automatically enabled when a mailbox is created. The standard tutorial is *not* available, however, if NP TDD is enabled. When the tutorial is accessed the first time on a new

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mailbox, it directs the new owner to record a name and greeting, and to set a passcode. There are times when mailbox owners do not want to hear the tutorial (for example, if they are setting up a series of tree mailboxes for directory assistance). The Set Passcode/Tutorial option from the Mailbox Maintenance menu is used to disable (or enable) a standard tutorial, when desired.

Instead of the standard tutorial, customized information tailored to an individual installation can be recorded in the attendant's mailbox and played for new mailbox owners. This is a site tutorial, a greeting typically recorded by a server administrator.

Unplayed Messages and Message Receipts

The server offers customers message processing flexibility in two related areas:

- Defining unplayed messages
- Controlling when the server sends receipts

Unplayed Messages

Feature bit 145 (Message stays in original queue) determines how the server classifies a message if a mailbox owner does not explicitly keep a message (by pressing K) or discard it (by pressing D).

Message Receipts

Feature bit 147 (Send receipt after full play) controls whether the server waits for a mailbox owner to explicitly keep a message (by pressing K) or discard it (by pressing D) before sending a receipt to the sender of that message. The server makes this decision only after a mailbox owner plays the entire message.

The presence of this feature bit works on a partially played message exactly as it does on a completely played message. Otherwise, it would be possible for the server to put a partially played message into a mailbox owner's saved queue but not send a receipt.

147 has an effect only when it and feature bit 145 are in the same FCOS. Refer to the Features Class of Service chapter for more information on how these two feature bits interact.

Types of Mailboxes in a Typical Installation

Besides standard mailboxes, a server typically has an administrator's mailbox, up to five attendant's mailboxes, and other special mailboxes. Basically, special mailboxes have all the characteristics of standard mailboxes, plus special privileges and capabilities.

Standard Mailboxes

A standard mailbox is a collection point for voice messages. It also has greetings and prompts associated with it and can be configured to provide an array of capabilities related to voice messaging. The classes of service mentioned earlier are the means by which you can configure mailboxes to provide the desired capabilities.

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Special Mailboxes

The following sections describes the types of special mailboxes listed at the beginning of the chapter. There are 13 types of special mailboxes:

- Administrator's mailbox
- Attendant's mailbox
- Broadcast
- Chain
- Check-In and check-out mailboxes
- Greeting-Only mailboxes
- Guest mailboxes
- NP OnDemand templates
- Rotational mailboxes
- Shared extension mailboxes (a variation of a tree mailbox)
- Template mailboxes (NP Forms)
- Tree (bulletin board) mailboxes

Administrator's Mailbox

The initial software installation contains an administrator's mailbox that has these special privileges:

- Contains the company greetings
- Can create or edit master distribution lists that can be used by any mailbox owner in the server (with an appropriate FCOS)
- Can add mailboxes, delete mailboxes, and change mailbox configuration, by phone

For more information about the administrator's mailbox, see the NuPoint Voice Application chapter.

Attendant's Mailbox

The initial software installation also contains an attendant's mailbox. This mailbox supplies these functions:

- Its greeting is the message of the day, which is stored only in the attendant's mailbox.
- A customized site tutorial (a form of greeting) can be recorded from the attendant's mailbox.
- When outside callers access the message center, they are prompted to enter a mailbox number or wait. Callers who wait are then prompted to leave a name and a message. These unaddressed messages are stored in the attendant's mailbox.

For more information about the attendant's mailbox, see the NuPoint Voice Application chapter.

Broadcast Mailboxes

With a broadcast mailbox, any caller can send a single message to multiple mailboxes. In addition, mailbox owners can send names and greetings to other mailbox owners. This capability is particularly useful for disaster recovery or overflow mailboxes. Broadcast mailboxes other than

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broadcast message mailboxes can also send a message waiting status to multiple mailboxes.

To illustrate use of a broadcast message mailbox, suppose the manager of a company health club wants club members to know about an upcoming tournament. The manager logs in to his or her mailbox and makes a message for the broadcast message mailbox. The broadcast message mailbox, in turn, sends the message to all members' mailboxes (this is sometimes called the "bulletin board feature").

In this example, the server administrator assigns a Broadcast FCOS to one mailbox. The server administrator then creates distribution list 01 for that mailbox, including the mailbox numbers of all the club members, to a maximum of 65,535.

This is a useful feature if you have mailboxes accessed in different calling areas. You can update the greeting for all the mailboxes, and then callers can reach the local mailbox to get the information they need. Or, you could use it to broadcast to remote mailboxes through NP Net (an optional feature).

Broadcast Message Mailbox

A broadcast message mailbox must contain a distribution list 01. If you want the broadcast message mailbox to be able to keep messages that have been broadcasted, it must first be able to receive messages. Add any of the "receive" feature bits to the broadcast message mailbox. Feature bit 043 (Receive message of the day) is needed only if the broadcast message mailbox is also the user's *only* mailbox. In the LCOS assigned to this mailbox, you should set a shorter message length so the mailbox will not fill up too quickly.

Broadcast Greeting, Name, or Passcode Mailbox

Broadcast greeting is a method of propagating a newly recorded or modified greeting to a list of mailboxes, similar to the method used for propagating messages with broadcast messages mailboxes. Broadcast name is identical in concept to broadcast greeting, except that newly recorded and modified names will be propagated to the broadcast list. Broadcast passcode is similar, except that it propagates a new mailbox passcode to the list.

You can create the broadcast list for a broadcast greeting, name or passcode mailbox like any distribution list, either from the User Options menu or from the List Maintenance Menu at the server maintenance console. All three of these mailbox types use distribution list 09. By assigning the appropriate feature bits to a mailbox, one, two, or all three of these capabilities can be performed by one mailbox.

Greeting

A broadcast greeting mailbox requires feature bit 174 (Define broadcast greeting) in its FCOS. All types of greetings and all names created or modified on these broadcast mailboxes will be broadcasted, including:

- Day/night company greetings for the administrator's mailbox
- Message of the day
- Site tutorial for attendant mailboxes
- Multiple mailbox greetings

Name

You can record a name in the broadcast name mailbox and have it announced. The mailbox is defined by the presence of feature bit 178 (Define broadcast name mailbox) in the FCOS. Since

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the name in the mailbox should be the name of the recipient group, such as “Sales Bulletin Board,” users must remember to state their names at the beginning of their messages. This name override capability is enabled through feature bit 123 (Announce broadcast mailbox name) in the mailbox FCOS. With this feature, if you do not record a name in the broadcast mailbox, the mailbox number is announced. In addition, answers to the messages are also broadcasted. Without this feature, the server announces the name of the broadcast message originator, if that person is a server user. In this case, answers to a message go to the sender only. Outside callers must remember to announce their names if they want recipients to know who sent the message.

Passcode

You can change the passcode in the broadcast passcode mailbox and have it transmitted to all mailboxes in the distribution. This feature is enabled through feature bit 231 (Passcode Broadcast Mailbox) in the mailbox FCOS.

Multiple Mailbox Greetings

Mailboxes with multiple mailbox greetings defined broadcast each individual greeting as it is created or modified, and a recipient mailbox is checked to see if its FCOS has feature bit 175 (Receive broadcast greeting) or feature bit 179 (Receive broadcast name), or feature bit 232 (Allow receipt of passcode broadcasts). Mailboxes generating broadcast greetings that also have multiple mailbox greetings enabled can only send messages to recipient mailboxes that also have multiple mailbox greetings enabled.

Broadcast Message Waiting Status

The server also has the ability to automatically send the message waiting status of a mailbox to a distribution list of mailboxes without sending the actual message. This is useful in a business where any one of a number of people can respond to a message, but only one person needs to. A single response eliminates redundant answers to a message, thereby raising staff productivity and satisfying the sender of the message.

Example of Use

In a brokerage firm, any of six account executives can respond to potential clients’ requests for information. If the request results in a sale, the account executive who answered the request receives credit for that sale.

Broadcasting the message waiting status of a mailbox gives this firm an easy and efficient way to pass these potential sales on to its brokers. The brokerage first routes all prospects to a main mailbox in which they can leave requests. When callers leave requests, the server automatically turns on the message waiting lights on brokers’ phones. The first available broker then logs into the main mailbox and responds to the request.

Configuration Requirements

The broadcast message waiting status capability uses a server feature plus distribution list 01 of a mailbox:

- You must include feature bit 134 (Broadcast message waiting only) in the FCOS assigned to a mailbox before it can send its message waiting status to a distribution list.
- You must also set up distribution list 01 of a mailbox to include all the destination mailboxes to which to send the message waiting status of the main mailbox.

Multiple Mailboxes per User

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Each mailbox in distribution list 01 always reflects the message waiting status of the main mailbox, regardless of how many messages are in that destination mailbox. Therefore, you may want to assign a separate mailbox to users for their messages and reserve the destination mailbox simply to notify them a message is in the main mailbox.

Incompatibility With Broadcast Message Feature

A mailbox can either send its messages or its message waiting status to the mailbox in its distribution list 01, but not both. This means the FCOS assigned to a mailbox cannot have both of these feature bits:

- 122 (Define broadcast mailbox)
- 134 (Broadcast message waiting only)

Combining Broadcast Mailbox Types

In addition to being a standard mailbox, a broadcast greeting, name, or passcode mailbox can also be a tree mailbox. A broadcast greeting, name or passcode mailbox can itself be a broadcast message mailbox that contains different broadcast lists for messages and greetings. To have both messages and greetings broadcasted to the same list of recipients, it is necessary to make distribution lists 01 and 09 identical. List 01 controls the messages broadcasted to recipients, and list 09 controls the greeting, name, or passcode broadcasted to recipients.

Limits

Standard server limits on greeting and name length also restrict the broadcast greeting or name lengths for the sending mailbox; limits for recipient mailboxes are ignored.

Greetings will not be broadcasted when modified through the console Greeting Copy/Delete Menu at the server maintenance console.

Statistical or billing information is not available for broadcast greeting activity.

Non-Delivery Receipts

Non-delivery receipts are deposited in the broadcast mailbox under any of the following conditions:

- The recipient mailbox does not have the appropriate bit in its FCOS to receive a broadcasted greeting or name.
- A remote recipient mailbox could not be reached because of network blockage.
- A greeting could not be copied or recorded for a mailbox (local or remote) for miscellaneous reasons.

Chain Mailbox

Chain mailboxes play a greeting, then route calls to the mailbox selected by the caller. The chain mailbox itself cannot accept messages from users or callers. Chain mailboxes are useful for routing incoming callers. For example, a chain mailbox greeting could say, “Welcome to the Acme Company Credit Department. If you are calling about new home mortgages, enter 100 on your pushbutton phone. If you want to refinance your existing mortgage, enter 110. For car and truck loans, enter 120. If there is a problem with your credit report, enter 130. If you wish to speak to an operator, or have a rotary phone, please wait.” The caller can then dial the appropriate mailbox number and be transferred to it.

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A mailbox owner can log into a chain mailbox and change the mailbox name, greeting, and passcode, but cannot make messages, or create or use distonbution lists.

Check-In/Check-Out Mailboxes1958

These mailboxes are used by hotels.

A check-in mailbox is a special mailbox that manipulates other mailboxes. When a check-in mailbox is accessed, the server prompts for the mailbox number to be checked in, then prompts the caller (usually a hotel or motel attendant) to record a name and enter a passcode for the mailbox. More than one desk clerk can call into a single check-in mailbox at one time, so it is unnecessary to create more than one check-in mailbox for your server.

A check-out mailbox is the counterpart of the check-in mailbox. When the attendant calls a check-out mailbox, the server prompts for the mailbox number to be checked out. It then gives the attendant the choice of either keeping or discarding any messages left in the mailbox. Finally, the server purges the guest's name, greeting and passcode, and follows the attendant's command about messages. The mailbox is then ready to be checked in for the next guest.

A check-out mailbox must also be created to use the hotel check-in/check-out feature of the server.

Greeting-Only Mailboxes

When a caller reaches a Greeting-Only mailbox, the server plays the greeting and then hangs up. Greeting-Only mailboxes are established by assigning FCOS 6 (Greeting Only) or a similar FCOS to them.

To illustrate a use of a Greeting-Only mailbox, imagine that a theater manager wants callers to hear an announcement of show times. The manager would create a mailbox with this FCOS, call the mailbox, log in, then record a greeting.

The mailbox user can change the mailbox name, greeting, and passcode but cannot create or use distribution lists. No one can make messages for or give messages to a Greeting-Only mailbox.

A Greeting-Only mailbox must have a greeting; otherwise the server considers the mailbox invalid. To log into a Greeting-Only mailbox that does not have a greeting, press the star (*) key on the phone key pad; then enter the mailbox number. You may choose to remove feature bit 066 (Login during greeting in Greeting-Only mailbox) after you record a greeting for the mailbox.

Guest Mailboxes

A guest mailbox is one that is assigned to each guest, typically in a hotel or motel. You establish a guest mailbox by assigning an FCOS, such as the Lodging FCOS described in the Feature Classes of Service chapter, to it. These mailboxes are particularly appreciated by users who might be unfamiliar with voice messaging systems, and their uninitiated callers.

The guest does not need to do any kind of mailbox set-up, such as recording a name and passcode, before using the mailbox.

The server can usually be integrated with the hotel/motel telephone system to allow the user to

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log in simply by pressing a button on the telephone and entering a passcode, when prompted by the server. Immediately after the guest logs in, the server will play the first message automatically. The guest is given the options of keeping or discarding the message; when the choice is made, the next message, if any, is played without any input from the guest.

Prompts for a guest mailbox are in the form, “Press P, the 7 key, to play your message....” in order to be most helpful to the uninitiated user.

Callers also hear these expanded prompts, “Press R, the 7 key, to review your message...”

As a variation, a hotel or motel may wish to assign the full-feature guest mailbox. This is a mailbox with FCOS 2 (Full Guest) or its equivalent in the mailbox configuration. The desk clerk would still check in this mailbox; however, the guest would be able to change the name and passcode, and would also be able to record a personal greeting, make messages for other guest’s mailboxes, and so on.

NP OnDemand Template Mailboxes

NP OnDemand is an optional feature where the AIP™ system creates mailboxes only when they are needed. A NP OnDemand template mailbox is used as a model for the temporary mailboxes that this application creates. Typically, temporary mailboxes have their LCOS limits set to very small numbers (such as a day or two).

Rotational Mailbox

A rotational mailbox allows callers to hear greetings that change. Greetings change either by time and date (in a “period” rotational mailbox) or with every call (in an index type rotational mailbox).

A rotational mailbox of either the period type or the index type plays its greeting, then plays the greeting of a child mailbox. Distribution list 01 in the rotational mailbox controls the rotating (or cycling) of callers through the child mailboxes. Rotational mailboxes do not require greetings, which can be useful in some applications.

You make a standard mailbox rotational by assigning FCOS 17 (Rotational) to it. You make a standard mailbox a child mailbox by including it in the distribution list of the rotational mailbox.

Callers cannot leave messages in the rotational mailbox itself, but they can leave messages in one of the child mailboxes, if the child mailbox is assigned an FCOS that allows callers to leave messages. You may have up to 190 child mailboxes in the rotational mailbox’s distribution list 01.

Period-Type Rotational Mailboxes

To illustrate a use of a period-type rotational mailbox, suppose that a restaurant owner wants all callers to hear the special of the day. Tuesday callers, for example, would hear the restaurant greeting and the special for Tuesday; Wednesday callers would hear the restaurant greeting and the special for Wednesday, and so on. Figure 6-7 illustrates this example.

In this example, the restaurant owner would assign FCOS 17 (Rotational Mailboxes) to one mailbox (mailbox 100) and record a restaurant greeting for this mailbox. For this mailbox, the owner would also create distribution list 01 containing seven child mailboxes (mailboxes 101-107). To each of the seven child mailboxes the owner would assign FCOS 6 (Greeting Only); for each the owner would also record the daily special. The owner would then set the start date and

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start time for the rotation and the length of time before the server rotates to the next mailbox (24 hours in this example).

Index-Type Rotational Mailboxes

The server assigns a sequential index to each member of the rotational mailbox's distribution list. If a sorted list is created, mailboxes are indexed starting with the lowest-numbered mailbox. If an unsorted list is created, mailboxes are indexed starting with the first mailbox entered in the list. The first caller reaches the first indexed mailbox; the second caller reaches the second indexed mailbox, and so on. When the last-indexed mailbox is reached, the cycle starts over at the first indexed mailbox.

As an example of an index-type rotational mailbox, imagine that a veterinarian wants pet owners to hear three pet-care messages over an unspecified period of time. Each time pet owners call the veterinarian's number, they (are likely to) hear a different one of the three messages.

In this example (Figure 6-8) the veterinarian assigns FCOS 17 (Rotational Mailboxes) to one mailbox (mailbox 781) and records a standard veterinary-practice greeting for this mailbox. For this mailbox the veterinarian also creates distribution list 01 containing three mailboxes (mailboxes 711-713). To each of the three mailboxes, the veterinarian assigns FCOS 6 (Greeting Only); for each, the veterinarian also records a different pet-care message.

Messages

Callers cannot leave messages in the rotational mailbox itself, but they can leave messages in one of the child mailboxes, if the child mailbox is assigned an FCOS that allows callers to leave messages. You may have up to 190 child mailboxes in the rotational mailbox's distribution list 01.

Greetings

If you want the server to hang up after it plays the child mailbox greeting, assign a Greeting-Only FCOS to these child mailboxes, including feature bit 062 (Hang up immediately after greeting).

If you want each mailbox to provide an introductory announcement before connecting the caller with an employee, give the child mailboxes an FCOS that includes feature bit 063 (Call mailbox attendant after greeting) or feature bit 064 (Call mailbox's extension number after greeting). Do *not* include feature bit 062 (Hang up after greeting). Be sure to include the attendant's or extension number in the appropriate field when creating the mailbox.

Rotational mailboxes can also be used with NP Forms applications (see FCOS 16).

Mailbox Status

You can obtain information on existing rotational mailbox parameters, such as whether the mailbox is the period or index type, by using the MailboxDump option in the Mailbox Maintenance menu.

Figure 6-7 Sample Period-Type Rotational Mailbox

Figure 6-8 Sample Index-Type Rotational Mailbox

Nested Rotational Mailboxes

You can build nested rotational mailbox arrangements by making a child mailbox itself a rotational mailbox. Figure 6-9 shows an arrangement in which the rotational mailbox has three child

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mailboxes. One of the child mailboxes (mailbox 426) is itself a rotational mailbox, with three other child mailboxes (mailboxes 432, 433, and 444).

Figure 6-9 Sample Nested Rotational Mailboxes

Rotational Mailbox Diagram

Before configuring a rotational mailbox, complete a Mailbox Worksheet and a Rotational Mailbox Diagram. Each diagram entry is explained in the following paragraphs. Pre-programmed (default) values for entries are given, where applicable. If you want to use a default value, indicate that fact on the diagram. Then you will not need to select or enter any information for that parameter during reconfiguration. Figure 6-10 shows a sample Rotational Mailbox diagram. Blank worksheets and diagrams are located in Volume 2 of this manual.

Mailbox No.

Enter the number of the rotational mailbox in the topmost box on the worksheet. Enter the numbers of all mailboxes that are members of the rotational mailbox's distribution list 01 (child mailboxes) in the remaining boxes. For every mailbox number you identify in the Rotational Mailbox Diagram, you should complete a corresponding Mailbox Worksheet. Blank worksheets are located in Volume 2 of this manual.

FCOS

The FCOS assigned to a child mailbox determines its relationship to the rotational mailbox and also determines how it is used. For example, FCOS 17 or a customized equivalent enables a rotational mailbox; FCOS 6 or a customized equivalent enables the mailbox to give the caller information then hang up. Use either one of the defaults described in the Feature Class of Service chapter or a customized FCOS that includes all the applicable feature bits.

Index

If you want rotation to start at the first child mailbox in the rotational mailbox's distribution list 01, just enter a check mark; otherwise, enter the index number of the mailbox you want the rotation to start at. Rotation starts with the lowest-numbered index.

Period

If you want the rotation to cycle on a time-and-date basis, enter the number of hours in the period. This is the length of time before the server rotates to the next child mailbox. All callers reach the same mailbox in the distribution list during the stated period. (No index is necessary.)

Start date

For the period type of rotation, enter the date on which the rotation cycle is to start.

Start time

For the period type of rotation, enter the time at which the rotation cycle is to start.

Figure 6-10 Sample Rotational Mailbox Diagram

List

A rotational mailbox must have distribution list 01, whose members are the mailboxes that are rotated to. If the list is sorted when it is created, the rotation cycle begins with the lowest-

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numbered mailbox. If the list is unsorted when it is created, the rotation cycle begins with the first mailbox entered in the list. Distribution lists are allowed in child mailboxes (for example, to create a nested arrangement) but they are not needed for the rotational arrangement to work.

Members

Identify all child mailboxes as members of distribution list 01 in the rotational mailbox.

Template (NP Forms) Mailboxes

NP Forms is an optional feature, and provides an information template function (voice forms) for a server.

A NP Forms mailbox plays the greetings stored in its child mailboxes, sequentially, and records a message after each greeting. A typical application must have a rotational mailbox, with several child NP Forms mailboxes, all pointing to the same list of Greeting-Only mailboxes.

Tree Mailboxes

A tree mailbox provides a call routing capability. It plays a greeting then prompts the caller to enter a single digit to obtain more information. After entering the desired digit, the caller is routed to a child mailbox. A tree mailbox is sometimes called a “bulletin board” mailbox.

A mailbox owner can set up a tree mailbox by creating distribution list 01, then adding the numbers of the child mailboxes into this list. The lowest-numbered mailbox number can be reached by pressing 1 after the greeting, the next lowest-numbered mailbox number can be reached by pressing 2, etc. Up to 190 child mailboxes can be added. A greeting that directs a caller to enter an appropriate number must be recorded.

As an example of a tree mailbox, suppose that a major hotel chain wants to route callers to a particular reservations desk. The tree mailbox greeting could be: “Welcome to Globe Hotels’ world-wide reservation service. Press 1 for hotels in Canada and the US; press 2 for hotels in Mexico and South America; press 3 for hotels in Europe.” Figure 6-11 illustrates this arrangement.

To implement this arrangement, you would first plan for two series of numbers to be processed in the same order:

- The mailbox numbers for the three reservations desks
- The single-digit numbers callers press on the key pad to reach these mailboxes

The chart below gives an example.

Department	Mailbox #	Digit callers press to reach mailbox
Canada/US.	104	1
Mexico/S. America	106	2

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Europe	107	3

Second, you would assign the Tree FCOS to a standard mailbox that acts as the tree mailbox. You would then create standard mailboxes for each reservation desk to act as child mailboxes. Next, you would add the child mailbox numbers to distribution list 01 of the tree mailbox. Finally, you would record a greeting, similar to the one mentioned earlier, for the tree mailbox.

Types of Child Mailboxes

Child mailboxes in the distribution list of a tree mailbox can themselves be trees or any other types of mailboxes. For example, by assigning an FCOS such as Unlimited or Restricted to a child mailbox, callers can leave messages.

Figure 6-11 Sample Tree Mailbox Arrangement

Server Assigns Caller Input Digits

The server assigns the digits 1, 2, and 3 to the mailboxes in distribution list 01: digit 1 to the first mailbox in the list, digit 2 to the second mailbox in the list, and so on. If the list is sorted, digit 1 is assigned to the lowest numbered mailbox, digit 2 to the next lowest numbered mailbox , and so on. If you assign additional mailboxes to the list, then you should change the tree mailbox's greeting to reflect the new choices available. For sorted distribution lists, if you delete a mailbox from the list, or if new numbers are assigned to mailboxes, you must change the greeting to reflect the new order. These changes would not affect unsorted distribution lists.

More Than Nine Child Mailboxes

If you have more than nine child mailboxes, the server pauses briefly after single-digit entries to allow for more digits. To speed up processing, the greeting should tell users they can enter 2# instead of 2 for the second branch.

Routing of Calls

If callers do not enter a digit after listening to the greeting in a tree mailbox, they are routed to the attendant's mailbox. If feature bit 120 (Default to first child mailbox of tree mailbox) is included in the FCOS, callers are routed to the first mailbox in the list. The server then processes the call according to the FCOS assigned to the first child mailbox. Feature bit 186 (Default to last child mailbox of tree mailbox) works similarly, defaulting to the last mailbox in the list.

Shared Extension Mailbox

To configure a tree mailbox where several people share one telephone extension, you can use the suggested additional FCOS for Shared Extension Mailbox (see Chapter 7, Features Class of Service)

The shared extension mailbox must contain distribution list 01 with all child mailboxes as members. You can record a greeting for the mailbox; the server automatically prompts the user with the child mailboxes' names.

Each child mailbox must have an FCOS that contains feature bit 134 (Broadcast message waiting only), and distribution list 01 with the parent mailbox as the only member. Each child mailbox can have a name recorded so the shared extension mailbox plays its greeting with user names. If you don't record a name, the mailbox number is played instead.

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Here is an example of what a caller would hear: “You have reached Ivy Dormitory, room 18” (a custom greeting). Then follows a standard greeting: “To leave a message for Cindy Jones, press 1. To leave a message for Laura Smith, press 2.” If a user does not record a name, the prompt would be: “To leave a message for mailbox 203, press 3.”

A user of a shared extension mailbox would be prompted to enter the same digits when logging in, for example, “Hello Ivy Dormitory, room 18. To retrieve messages for Cindy Jones press 1, to retrieve messages for Laura Smith, press 2.” Then the user would be prompted with a name confirmation, and asked for the child mailbox’s passcode.

If a user moves to another room or telephone station, you can transfer the child mailbox to another shared mailbox extension without losing any messages. To do this, you would remove the child mailbox from distribution list 01, and add it to another shared mailbox extension’s distribution list. Then you would change the child mailbox’s distribution list to point to the new parent mailbox. All settings for the child mailbox, such as messages, greetings, name, etc. will remain intact.

NP Receptionist Considerations

Feature bit 121 (Define tree mailbox) lets a child mailbox also be a tree mailbox. Feature bit 141 (Define chain mailbox in NP Receptionist) allows a child mailbox to act as a chain mailbox. In addition, with these feature bits included in the mailbox’s FCOS, NP Receptionist can route a call from a chain mailbox to a tree mailbox and vice-versa.

Callers can bypass the single-digit tree options if they want to enter an extension number instead. In the greeting of the tree mailbox, tell callers they can press # to bypass the single-digit tree options. Be sure to tell callers that they can press # only while the greeting is playing; at any other time during the call, if callers press #, they will be disconnected. The greeting should also state that callers can reach an attendant by pressing 0.

Tree Mailbox Diagram

Before configuring a tree mailbox, complete a Mailbox Worksheet and a Tree Mailbox Diagram. Each diagram entry is explained in the following paragraphs. Pre-programmed (default) values for entries are given, where applicable. If you want to use a default value, indicate that fact on the diagram. Then you will not need to select or enter any information for that parameter during reconfiguration. Figure 6-12 shows a sample Tree Mailbox diagram. A blank Mailbox Group Worksheet is located in Volume 2 of this manual.

Mailbox No.

Enter the number of the tree mailbox in the topmost box on the worksheet. Enter the number of all mailboxes that are members of the tree mailbox’s distribution list 01 (child mailboxes) in the remaining boxes. For every mailbox number identified in the Tree Mailbox Diagram, there should be a corresponding Mailbox Worksheet completed (see “Mailbox Worksheets” later in this chapter).

Figure 6-12 Sample Tree Mailbox

FCOS

A The FCOS assigned to a child mailbox determines itsrelationship to the tree mailbox and also determines how it is used. For example, FCOS 15 (Tree) or a customized equivalent enables a tree mailbox; FCOS 17 (Rotational Mailboxes) or a customized equivalent enables branching to another mailbox; FCOS 6 (Greeting Only) or a customized equivalent enables the mailbox to give the caller information then hang up; FCOS 1 (Unlimited) allows the mailbox to play a greeting

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then allows a caller to leave a message. Use either one of the defaults described in the Feature Class of Service chapter or a customized FCOS that includes all the applicable feature bits.

List

A tree mailbox must have distribution list 01, whose members are the mailboxes that are branched to when a caller presses the associated digit.

Members

Identify all child mailboxes as members of distribution list 01 in the tree mailbox.

Greeting recorded

You must record a greeting in the tree mailbox, to tell callers which digit to press for the desired mailbox. You should also record appropriate greetings or messages in the child mailboxes.

Billing Outdials to an Account or Long Distance Carrier

You can configure a mailbox so that outdials from that mailbox are charged to the individual mailbox owner or to another billing account that you specify. This billing account can be a telephone credit card, a service bureau account, or any other billing account. You can also specify a carrier for long distance outdials made from a mailbox. For more information on billing features, see the Billing chapter.

Applicable Outdial Types

Outdial billing to an account or long distance carrier applies to:

- Pages
- Message Delivery
- Call placement
- NuPoint Fax
- NP WakeUp
- Any other type of outdial

Any combination of these outdials can be billed or unbilled, depending on how you set the following parameters in a mailbox configuration:

- Billed outdial index
- Internal outdial index
- Unbilled outdial index
- Access type

For example, you can have call placement outdials, but not internal NuPoint Fax deliveries or paging calls, billed to the originating mailboxes' accounts

Configuration Summary

Configuring this feature involves:

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1. Configuring the access code that the outdial index represents in the Pager application
2. Establishing a minimum billed number length in the LCOS assigned to the originating mailbox
3. Setting these outdial billing parameters in the configuration of the originating mailbox:
   - Internal outdial index
   - Billed outdial index
   - Unbilled outdial index
   - Billing number
   - Billing dialing order

Example

Building on the example mentioned earlier, suppose you want call placement outdials carried by common carriers and billed to the mailbox owner's common carrier calling card. You also want to allow unbilled NuPoint Fax deliveries and unbilled paging calls. The mailbox owner's billing number is 103-444-9801. To do this, you:

1. Configure indexes and access codes such as

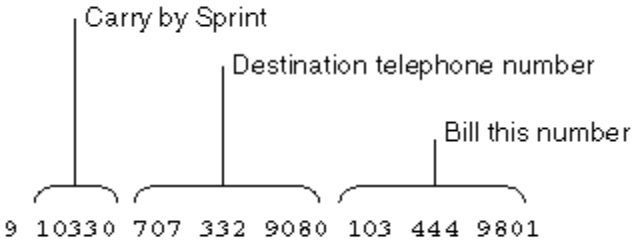
Index	Access code (Dial String)	Outdial type (Outdial System Name)
3	T+9+T+103330+G	Call place/Sprint
4	T	Internal
5	T9T	Paging

2. Set the appropriate mailbox configuration parameters as shown in Figure 6-13.

Figure 6-13 Outdial Billing Configuration

The mailbox owner would dial a number such as:

The system dial number thus:



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7 Features Class of Service

Updates for RSD 3 to this chapter are provided here in PDF format.
Note about Acrobat Reader

Chapter 7 - Features Class of Service (updated February 2002)

8 Other Classes of Service

A class of service differentiates privileges and functions for mailboxes. Chapter 7 discusses the Features Class of Service (FCOS), which controls the features in mailboxes. This chapter discusses three classes of service:

- Limits Class of Service (LCOS) controls time and storage parameters within mailboxes, such as the number of messages the mailbox can store, as well as the set of Prompts
- Group Class of Service (GCOS) manages communication between mailboxes
- Restriction Class of Service (RCOS) controls the outdial applications, such as Call Placement, message delivery, pages, and faxes, and limits these telephone calls by either area code or prefix.

wo classes of service are described in detail in other guides::

- A Network Class of Service (NCOS) controls network access for users; see the *NP Net Manual.*
- A Tenant Class of Service (TCOS) manages mailbox interaction between user communities; see the *Enhanced SMDI Integration Manual.*

Limits Class of Service

This section covers:

- How an LCOS works
- Default LCOS
- LCOS for the administrator's and attendant's mailboxes
- Interaction between LCOS and FCOS
- Configuration requirements
- Prompts language selection
- Summary of limits parameters

Overview

An LCOS consists of various parameters that control time and storage functions for a mailbox, such as how long messages can be, how many messages can be stored, as well as the Prompt set in that mailbox. An LCOS is the best resource for controlling disk storage use. You can configure up to 640 LCOSs in a system.

An LCOS Is part of every mailbox's configuration. For example, in LCOS 2, you can set the

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Caller Message Length limits parameter to two minutes and the Message Count limits parameter to 30 messages. If you assign LCOS 2 to mailboxes 5000 through 5899, all these mailboxes have the same limits: each caller's message is limited to two minutes with a maximum of 30 messages in each mailbox. You can create other LCOSs and assign them to other mailboxes.

Procedures

You can perform these procedures, located in Volume 2 of this manual, with an LCOS.

Procedure	Number
Assign an LCOS to a Mailbox	CP 4351
Create a New LCOS from a Copy	CP 5054
Create a New LCOS or Modify Existing LCOS Limits	CP 5017
View LCOS Information	CP 6048

Default LCOS

LCOS 1, is preconfigured; it contains the default values for all parameters. All mailboxes are assigned LCOS 1 by default, unless otherwise configured by the system administrator. Although you can modify LCOS 1, it is recommended that you leave it as is.

Tables 8-1 through 8-7 provide a quick reference to all the limits parameters, with default values.

Table 8-1 Limits Parameters Menu

```
(G) Greeting length  2.0 (minutes)
(N) User name length  2 (seconds)
(M) Message count  73
(B) Messages per billing  0 (no limit)
(L) User message length  5.0 (minutes)
(C) Caller message length  5.0 (minutes)
(T) Maximum login time  0 (no limit)
(O) Maximum NP View Inactivity Timeout  59 (minutes)
(W) Network queue message count  73
(S) Maximum attachments per message  72
(I) Maximum attachments per network message  72
(D) Message delivery login delay  5 (seconds)
```

Table 8-2 More Limits Parameters Menu

```
(A) NP WakeUp - phone length  7 (digits)
(B) Paging - phone length  7 (digits)
(C) Message delivery - phone length  7 (digits)
(D) Future delivery - message count  99
(E) Max days - future delivery  60 (days)
(F) Max family member or guest  0 (not used)
(G) Message waiting indicator - message length  0 (no minimum)
(H) Minimum message length  0 (no minimum)
(I) Maximum pages per billing  0 (no limit)
(J) Maximum wakeups per billing  0 (no limit)
(K) Maximum outstanding wakeup calls  0 (not used)
(L) Callback number length  7 (digits)
```

Table 8-3 Even More Limits Parameters Menu

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```
(A) Max days - NP WakeUp  0 (no limit)
(B) Max days - reminder call  0 (not used)
(C) Max reminder calls per billing  0 (not used)
(D) Max destinations per reminder call  0 (not used)
(E) Max members per distribution list  200
(F) Max recipients count  200 (per message)
(G) Max number of distribution lists  99 (lists)
(H) Min number of recipients for receipt summary
    0 (no recipients)
(I) Minimum billed number length  0 (digits)
(J) Max hours to wait for reply from NIB  0 (not used)
```

Table 8-4 Call Placement Menu

```
(A) RNA retry limit  10 (retries)
(B) RNA retry interval  60 (minutes)
(C) Busy retry limit  10 (retries)
(D) Busy retry interval  10 (minutes)
(E) Message phone length  7 (digits)
(F) Recipient count  190
(G) Maximum message length  5 (minutes)
```

Table 8-5 NuPoint Fax Limits Menu

```
(A) Maximum number of digits for telephone number  7 (digits)
(B) NuPoint Fax message count  72
(C) Pre-greet silence interval to improve walkaway CNG detection
length  0 (seconds)
(D) Fax delivery retry frequency  1 (retry)
(E) Fax deliver retry interval  1 (minute)
```

Table 8-6 Message Retention Limit Menu

```
(M) Message retention  0 (no limit)
(P) Played message retention  672 (hours)
(U) Unplayed message retention  336 (hours)
(R) Urgent message retention  336 (hours)
(S) Cut-through paging receipt retention  672 (hours)
(T) Receipt retention  672 (hours)
(A) Played fax message retention  672 (hours)
(B) Unplayed fax message retention  336 (hours)
(C) Urgent fax message retention  336 (hours)
(D) Fax receipt retention  672 (hours)
(E) Absolute message retention  0 (no limit)
```

Table 8-7 Prompt Language Selection

```
(D) Use default
```

Other Prompt set options are listed according to which optional features are installed.

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LCOS for the Administrator's and Attendant's Mailboxes

For best results, assign the default LCOS (LCOS 1) to both the administrator's and the attendant's mailboxes. LCOS 1, with the appropriate FCOS and GCOS, supports the special functions for these mailboxes.

Interaction Between an LCOS and FCOS

When you assign an LCOS and FCOS to a mailbox, be aware that certain options interact within and between these Classes of Service; some options require the other options, and some combinations of options conflict.

In particular, the LCOS can affect how the FCOS functions. For example, if you allow a mailbox owner to make messages and the LCOS that has a user message length of 0 seconds, the user cannot record a message.

Using the Worksheet

Use an LCOS Worksheet (Figure 8-1) to organize the information you need to create an LCOS and assign it to mailboxes. Fill in the fields according to the information listed in "LCOS Parameter Descriptions" in this chapter.

Numbering an LCOS

Assign a number, from 1 to 640, for the new LCOS in "Limits COS." To conserve database space, create LCOSs in blocks of 64. For example, create 1-64, then 65-128, and so forth.

Naming an LCOS

Assign a name to identify the LCOS, up to 15 alphanumeric characters.**Setting Limits**

Assign a value to each parameter that you want to set and include in the LCOS. For example, to set the Message Count limit, enter 30 in the "Maximum number of messages" box. If a current value is acceptable, write "OK" on the worksheet to indicate that you do not need to change that value.

Selecting the Prompts Language The default language for all line groups is American English Mnemonic Prompts; other languages and Prompt sets are optional features that must be installed before you can select one as a language for an LCOS.

For details about using Prompt sets within the application, see chapters 2 and 7. For details about specific Prompts sets and their availability, contact your support representative.

Figure 8-1 Sample LCOS Worksheet

LCOS Parameter Descriptions

This section describes all LCOS parameters by menu group.

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Limits Parameters

Includes parameters for basic mailbox functions and some optional features.

Greeting Length

Sets the maximum time for recording a personal greeting. When the user reaches this limit or the server detects silence, the server stops recording and announces that the recording is complete. If no limit is set, the limit is the available storage capacity.

Enter: Minutes, from 0.0 through 60.0; 0 prevents any greeting; a period (.) means no limit

Default: 2.0 minutes

User Name Length

Sets the maximum time for recording the mailbox name. When the user reaches this limit or the server detects silence, the server stops recording and announces that the recording is complete. If no limit is set, the limit is the available storage capacity.

This name is announced when the user makes or gives a message; also used by NP Receptionist.

Enter: Seconds, from 0 to 240 (4 minutes); 0 means no limit

Default: 2 seconds

Tips & Techniques: Set this to the maximum (240) to allow users time to record their name and status, such as “Lee Smith, out of the office.”

Message Count

Sets to maximum number of messages in a single mailbox. When the mailbox is 80% full, the user hears a Prompt to “delete any unnecessary messages.” When the mailbox is full, callers and other users cannot leave messages. When users answer or forward messages and attach the original message(s), each attachment counts as a single message. For example, if the limit is 10 and one message has 9 attachments, it fills the mailbox.

Enter: Number from 0 to 73; 0 prevents any messages

Default: 73

Messages per Billing

Sets the number of messages that the mailbox can receive between billing gathers.

Enter: Number from 1 to 9999, or leave the field blank; 0 or a period (.) means no limit

Default: 0 (no limit)

User Message Length

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Sets the maximum time, in minutes, that another user can make, give or answer a message for this mailbox. When the user reaches this limit or the server detects silence, the server stops recording and announces that the recording is complete.

Enter: Minutes, from 0 to 60; 0 prevents any messages; a period (.) means no limit

Default: 5.0 minutes

Caller Message Length

Sets the maximum time, in minutes, that a caller can leave a message for this mailbox. When the caller reaches this limit or the server detects silence, the server stops recording and announces that the recording is complete.

Enter: Minutes, from 0 to 60; 0 prevents any messages; a period (.) means no limit.

Default: 5.0 minutes

Maximum Login Time

Sets how long, in minutes, a user can remain logged in to the mailbox in a single session. At the end of this time, the server automatically logs the user out.

Enter: Minutes, from 0 to 50; 0 or a period (.) means no limit

Default: 0

Tips & Techniques: The average length of call sessions affects the number of ports required per line group.

Maximum NP View Inactivity Timeout

Sets how long a clent user can set the inactivity timeout within NP View. For more information, see the guides for NP View administrators and users.

Enter: Minutes, from 1 to 59; to reset to the default, enter a period(.)

Default: 59 minutes

Network Queue Message Count,

Limits how many messages a user can make or give for remote delivery. For more information, see the *NP Net Digital Networking Manual.*

Enter: Number between 1 and 99; to reset to the default, enter a period (.)

Default: 73

Maximum Attachments per Message

Limits the number of messages that the user can attach when making or giving a message.

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Enter: Number between 1 and 72; to reset to the default, enter a period (.)

Default: 72

Maximum Attachments per Network Message

Limits the number of messages that the user can attach when making or giving a message in a network environment. For more information, see the guides for the AMIS Analog, NP Net, and VPIM optional features.

Enter: Number between 1 and 72; to reset to the default, enter a period (.)

Default: 72

Message Delivery – Login Delay

Sets how many times the server will try to deliver message a while waiting for the passcode. Each try takes 5 seconds.

Enter: Seconds, from 0 to 255

Default: 5 seconds

More Limits Parameters

Includes parameters related to some outdial functions.

NP WakeUp - Phone Length

Sets the maximum number of digits a user can enter for a wakeup call phone number.

Enter: Number of digits from 1 to 24

Default: 7 digits

Paging – Phone Length

Sets the maximum number of digits a user can enter for a pager phone number.

Enter: Number of digits from 1 to 24

Default: 7 digits

Message Delivery – Phone Length

Sets the maximum number of digits a user can enter to for a message delivery phone number.

Enter: Number of digits from 1 through 24

Default: 7 digits

Future Delivery – Message Count

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Sets the maximum number of messages that can be stored in a mailbox's future delivery queue.

Enter: Number from 1 through 99; 0 prevents storage; a period (.) resets to default

Default: 99

Max Days – Future Delivery

Sets the maximum delay, in days, to deliver a message in the future.

Enter: Number of days from 0 through 365; 0 means no future delivery

Default: 60 days

Max Family Member or Guest

Not used.

Message Waiting Indicator – Message Length

Sets the shortest time for a message that will activate message waiting or paging for the mailbox.

Enter: Number of seconds, from 1 to 5; 0 for no limit

Default: 0 (no minimum time)

Minimum Message Length

Sets the shortest time for a message to be considered valid. Shorter messages are not delivered.

Enter: Number of seconds, from 1 through 5, or 0 for no minimum

Default: 0 (No minimum time)

Tips & Techniques: When testing the configuration, set this to 1 or 2 to accommodate quick test messages.

Maximum Pages per Billing

Sets the maximum number of times a user can be paged during one billing cycle.

Enter: Number from 0 through 999; 0 means no limit

Default: 0

Maximum Wakeups per Billing

Sets the maximum number of wakeup calls a user can schedule during one billing cycle. See also the *NP WakeUp Guide*.

Enter: Number from 0 through 999; 0 means no limit

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Default: 0

Maximum Outstanding Wakeup Calls

Not used.

Callback Number Length

Sets the maximum number of digits a user can enter to for a callback phone number.

Enter: Number of digits from 1 through 50

Default: 7 digits

Even More Limits Parameters

Includes options for message recipients and distribution lists

The system checks the value for Max Members per Distribution List when it sends a message. Set the value for Max Recipients Count to be equal to or greater than the Max Members per Distribution List. Otherwise, users may not be able to send a message to all members of a distribution list, even if the list has a valid number of members.

You can create a distribution list with more members than the LCOS permits, but the system sends messages only to the first *n* members, where *n* is the value for Max Members per Distribution List.

Max Days – NP WakeUp

Limits the time in the future that a user can schedule a wakeup call. See also the *NP WakeUp Guide*.

Enter: Days, from 0 through 365; 0 means no limit

Default: 0

Max Days - Reminder Call

No usefd

Max Reminder Calls per Billing

Not used.

Max Destinations per Reminder Call

Not used.

Max Members per Distribution List

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Sets the maximum number of members in a distribution list.

Enter: Number of members from 0 through 65,535; 0 is the same as 65535

Default: 200

Max Recipients Count

Sets the total number of possible recipients of a message in any combination of mailboxes, distribution lists, and nested distribution lists. If the number of recipients exceeds this limit (*n*), the system sends the message to only the first (*n*) recipients.

Enter: Number of recipients from 0 to 65535; 0 is the same as 65535

Default: 200

Max Number of Distribution Lists

Sets the maximum number of distribution lists allowed in a mailbox.

Enter: Number of lists from 0 to 99; 0 is the same as 99

Default: 99

Min Number of Recipients for Receipt Summary

Sets the minimum number of recipients needed to activate a receipt summary. The system then plays receipts in this order: for undelivered messages, unplayed messages, then played messages.

Enter: Number of recipients from 0 to 65535

Default: 0 (no recipients)

Minimum Billed Number Length

Sets the minimum number of digits in a dial string to activate billing for outdials.

Enter: Number of digits from 0 through 25

Default: 0 digits

Interactions & Limitations: You must also specify a billed outdial index and a billing number. If the outdial dial string is shorter than this parameter, the server uses the unbilled outdial index and does not charge for the outdial or use a specified long distance carrier.

Max Hours to Wait for Reply From NIB

Not used.

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Call Placement Menu

Includes parameters related to call placement.

RNA Retry Limit

Sets how many times the server tries to deliver a call placement message after a Ring No Answer call.

Enter: Number of retries, from 1 through 255

Default: 10 retries

RNA Retry Interval

Sets how long the server waits between tries to deliver a call placement message after a Ring No Answer call.

Enter: Minutes, from 1 through 255

Default: 60 minutes

Busy Retry Limit

Sets how many times the server tries to deliver a call placement message after a Busy call.

Enter: Number of retries, from 1 through 255

Default: 10 retries

Busy Retry Interval

Sets how long the server waits between tries to deliver a call placement message after a Busy call.

Enter: Minutes, from 1 through 255

Default: 10 minutes

Message Phone Length

Sets the maximum number of digits a user can enter for a call placement phone number.

Enter: Number of digits from 1 through 25

Default: 7 digits

Recipient Count

Sets the total number of telephone numbers that the user can enter for a single message. This applies to both the Call Placement and AMIS optional features.

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Enter: Number of phone numbers from 0 through 190

Default: 190

Maximum Message Length

Sets how long a message can be for a call placement phone number.

Enter: Minutes, from 0 through 60; 0 means no limit

Default: 5 minutes

Interactions & Limitations: The average length of call placement messages affects the number of ports in a pager line group.

NuPoInt Fax Limits Menu

You must have the NuPoint Fax optional feature to use these parameters. For more information, see the *NuPoint Fax Manual*.

Maximum Number of Digits for Telephone Number

Sets the maximum number of digits a user can enter to retrieve or redirect a fax to a fax phone.

Enter: Number of digits from 1 through 25

Default: 7 digits

NuPoint Fax Message Count

Sets the maximum number of faxes a user can store in a mailbox.

Enter: Number of faxes from 1 through 72; 0 means no limit

Default: 72

Pre-Greet Silence Interval to Improve Walkaway CNG Detection Length

Sets the time that the server waits (before playing the greeting) for a fax call to send the CNG tone. Typically, set this to zero unless the site has noisy phone lines.

Enter: Parameter should be set to 0.

Default: 0

Fax Delivery Retry Frequency

Sets how many times the server tries to deliver a fax after a Busy, Ring No Answer, or fax-unavailable call.

Enter: Number of retries, from 1 through 255

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Default: 1 retry

Fax Delivery Retry Interval

Sets how long the server waits between tries to deliver a fax after a Busy, Ring No Answer, or fax-unavailable call.

Enter: Minutes, from 1 through 255

Default: 1 minute

Mailbox & Message Retention Limit Menu

Includes parameters that determine how long various types of messages remain in a mailbox.

If the value for Absolute Message Retention is less than the values for both or either the Played and Unplayed message retention settings, it overrides those parameters.

LCOSs and Automatic Purging

The server runs an automatic purge every 24 hours at midnight. The server checks the message retention limits in the LCOS in each mailbox, then purges any messages that are at, or over, those limits. For example, if the played message retention is eight hours and a message was played at noon, it stays in the system for 12 hours after it was played, until it is automatically purged at midnight. If the message was played at 10 p.m., it stays in the system for 26 hours because it does not reach the message retention limit by the first purge.

The age of an unplayed message is calculated from the time it is left in a mailbox. If you set very short retention limits for unplayed messages, advise users to check messages at least once a day.

Mailbox Retention

Sets how long a mailbox can remain on the server before it is automatically deleted.

Enter: Number of days, from 0 through 255; 0 for no limit

Default: 0 (no limit)

Played Message Retention

Sets how long a played message can remain in a mailbox before it is deleted by automatic purging.

Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 672 hours (28 days)

Unplayed Message Retention

Sets how long an unplayed message can remain in a mailbox before it is deleted by automatic purging.

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Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 336 hours (14 days)

Urgent Message Retention

Sets how long a played or unplayed urgent message can remain in a mailbox before it is deleted by automatic purging.

Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 336 hours (14 days)

Cut-Through Paging Receipt Retention

Sets how long a receipt for a cut-through paging message can remain in a mailbox before it is deleted by automatic purging. For more information, see the Cut-Through Paging guide.

Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 672 hours (28 days)

Receipt Retention

Sets how long a receipt for a message can remain in a mailbox before it is deleted by automatic purging.

Enter: Number of hours, from 1 through 8760; 0 for no limit; a period (.) to prevent automatic purging

Default: 672 hours (28 days)

Played Fax Message Retention

Sets how long a played fax can remain in a mailbox before it is deleted by automatic purging. Requires the NuPoint Fax optional feature.

Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 672 hours (28 days)

Unplayed Fax Message Retention

Sets how long an unplayed fax can remain in a mailbox before it is deleted by automatic purging. Requires the NuPoint Fax optional feature.

Enter: Number of hours, from 1 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

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Default: 336 hours (14 days)

Urgent Fax Message Retention

Sets how long an urgent fax can remain in a mailbox before it is deleted by automatic purging. Requires the NuPoint Fax optional feature.

Enter: Number of hours, from 0 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 336 hours (14 days)

Fax Receipt Retention

Sets how long a receipt for a fax can remain in a mailbox before it is deleted by automatic purging. Requires the NuPoint Fax optional feature.

Enter: Number of hours, from 0 through 8760 (1 year); 0 for no limit; a period (.) to prevent automatic purging

Default: 672 hours (28 days)

Absolute Message Retention

Sets how long a message stays in the mailbox if the user does not delete it. If you set this to less than the values for the Played and Unplayed message retention parameters, it overrides them. If this is set to 0 (the default), it is ignored.

Enter: Number of hours, from 1 through 8760 (8760 hours = 1 year) or enter a period (**.**) or 0 to ignore this

Default: 0 (no limit)

Prompt Language Selection Menu

Provides a language or Prompt Set for the mailbox that differs from the language or Prompt Set for the line group.

Enter: The letter or digit that represents the alternate language or Prompt Set. The selections vary according to which optional features are installed.

Default: English

Tips & Techniques: The system administrator sets the default language at the system level (line group).

Group Class of Service

This section describes:

- How a GCOS works

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- Bitmapped GCOSs
- Affinity group GCOSs
- Recommendation for degrees of flexibility
- One-way communication using an empty GCOS
- Interaction between GCOS and FCOS
- Configuration requirements

Overview

Mailbox owners cannot send and receive any messages unless the configuration of every mailbox includes a Group Class of Service (GCOS). The GCOS, which is essential to the operation of the system, manages communication among mailboxes for a particular set of users. The GCOS allows for the following:

- It gives a system administrator the means to manage a large system with many mailbox owners, a useful option when some users need to exchange messages with each other but not with the majority of other mailbox owners.
- It is useful at sites where some employees do classified work that should not be discussed with other employees.

You can assign up to 32,000 GCOSs.

Procedures

You can perform the following procedures with GCOS. These procedures are located in Volume 2 of this manual.

Procedure	Number
GCOS Usage	CP 3345
Add or Delete a Bitmapped GCOS Group	CP 5030
Assign a GCOS to a Mailbox	CP 4346
Define a Bitmapped GCOS	CP 4347
Use an Empty GCOS For One-way Communication	CP 3348
View GCOS Information	CP 6049

How a GCOS Works

There are two types of GCOSs, bitmapped and affinity group. Bitmapped GCOSs are GCOSs 1 through 64. Affinity group GCOSs are GCOSs 65 through 32,000. The two types work very differently, though you can mix both types in one system.

Bitmapped GCOSs

A bitmapped GCOS is a collection of groups. A group is nothing more than a number from 1 through 128. Two users can exchange messages if their bitmapped GCOSs have any of the same groups. To allow all users to communicate with each other, use the default GCOS 1. It contains all 128 groups.

Figure 8-2 shows three possible ways to set up the same bitmapped GCOS. As the illustration shows, a bitmapped GCOS can have many, a few, or no groups defined.

Figure 8-2 Versatility of a Bitmapped GCOS Configuration

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You can enable message exchange ranging from simple to complex, depending on which groups you include or exclude in bitmapped GCOSs and which bitmapped GCOSs you assign to mailboxes.

As an example, suppose that a scientist directs an experiment using target subjects and control subjects. The target subjects and control subjects do not communicate with each other, but do communicate with the scientist. The scientist communicates with every subject. Using bitmapped GCOSs, you can put the target subjects in a GCOS with one group, the control subjects in a another GCOS with a different group, and the scientist in a third GCOS, with both groups.

The results are shown below.

Tenant	GCOS	Groups in GCOS
Directing scientist	3	1, 2
Target subjects	4	1
Control subjects	5	2

Figure 8-3 diagrams this message exchange scheme.

Figure 8-3 Grouping Scheme Using Bitmapped GCOSes

Bitmapped GCOSs work well when the mailboxes in your system have different communication needs. Some mailboxes require universal communication, while others should be tightly restricted. This is the more flexible, more complex of the two methods. If you want to use a bitmapped GCOS other than default GCOS 1, you must define it before assigning it to mailboxes.

Affinity Group GCOSs

Affinity group GCOSs work well when mailboxes require communication within particular groups, but not across groups. This is the simpler of the two methods; all mailboxes that have the same affinity group GCOS can communicate with each other but cannot communicate with anyone else. Affinity group GCOSs are never defined in the system; you simply assign one, numbered from 65 through 32,000, to mailboxes.

The example in Figure 8-4 shows how affinity groups can create several communication groups within a single system.

Figure 8-4 Grouping Scheme Using Affinity Group GCOSs

Guidelines for Deciding Which Type of GCOS to use

When deciding which type of GCOS to use, consider the following factors:

- If you want all mailboxes to be able to exchange messages, just assign to them GCOS 1, a bitmapped GCOS which contains all 128 groups.
- You can mix the two GCOS types, but mailboxes with bitmapped GCOSs (numbered 1-64) cannot interact with mailboxes that have affinity group GCOSs (numbered 65-32000), and no single mailbox can communicate with all the mailboxes. If you assign the bitmapped GCOS 1 to one mailbox and the affinity GCOS 65 to another, those mailboxes cannot exchange messages.
- With bitmapped GCOSs, every mailbox that shares the same group can exchange messages, even if the shared group is in different bitmapped GCOSs.

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- Bitmapped GCOSs are useful when you need to develop complex relationships. The communication links required for the arrangement shown in Figure 8-3, for example, are possible only with a bitmapped GCOS.

Dial-by-Name Considerations

Even though mailbox owners may all be in the same Dial-by-Name database, they can only reach others in the database if they share either the same affinity group or if their bitmapped GCOSs have any of the same groups. For example, Jane Doe, Lee Bau, and John Smith are all in the Dial-by-Name database, but Jane's mailbox and Lee's mailbox are configured with GCOS 1, a bitmapped GCOS, and John's mailbox is configured with GCOS 65, an affinity group GCOS. Jane and Lee can reach each other but not John. This grouping, sometimes called "Partitioned Dial-by-Name," is illustrated in Figure 8-5.

Figure 8-5 Grouping Within the Dial-by Name Database

Jane and Lee can be in different bitmapped GCOSs but can still communicate if both GCOSs include each of their group numbers.

Recommendations for Degrees of Flexibility

By default, GCOS 1 has all 128 groups defined, giving a mailbox with this GCOS the maximum flexibility in exchanging messages. It is recommended that you do not alter this GCOS.

It is also recommended that you create GCOS 2, but define no groups for it. This "empty" GCOS is useful in restricting the capabilities of a mailbox. It is also used to enable one-way communication, as described below.

One-Way Communication Using an Empty GCOS

Though you can prevent contact between users, you can allow them to receive certain kinds of messages, using an empty GCOS. For example, you probably want to notify users before a system shutdown.

To enable this one-way communication, an originating mailbox must have an FCOS that allows the originating mailbox to make messages and allows the mailbox owner to make or give (messages) to a mailbox with an empty GCOS, a GCOS you defined without including any groups in it. The FCOS feature bits to accomplish this are:

- 020 (Make messages)
- 126 (Make/give to mailbox with empty GCOS)

The receiving mailbox must have an FCOS that allows it to receive messages from other users (FCOS bit 040). These features enable a user to make a message, as well as give messages from other users, to the mailbox with the empty GCOS.

For example, suppose the local phone company notifies an answering service that maintenance on buried phone cables will disrupt service for two hours next week. If all customers have mailboxes with the FCOS and empty GCOS just described, and if the system administrator's mailbox has the same FCOS, the system administrator can notify users in advance of the system shut down.

Interaction Between a GCOS and FCOS

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Interaction between mailboxes is limited by the GCOS and FCOS that are assigned to them. If, for example, an FCOS allows a user to make confidential messages (feature bit 023), other users within the same GCOS must be able to receive messages from other users (feature bit 040), and to play messages (050). Otherwise, the make confidential message feature is useless.

Configuration Requirements

You must assign a GCOS to every mailbox in the system. A GCOS Worksheet (Figure 8-6) helps you organize the information you need for assigning GCOSs to mailboxes. Fill in the fields on this worksheet as described in the following paragraphs.

Numbering a GCOS

Put the number of the default GCOS, the number of an existing GCOS that you are modifying, or the number of a new GCOS that you are defining in the “GCOS to modify” field. If the GCOS is bitmapped, enter 1 through 64; if the GCOS is an affinity group, enter 65 through 32,000.

Naming a GCOS

Assign a name of your choice to identify the GCOS, up to 15 alphanumeric characters, in the “GCOS name” field. You only name bitmapped GCOSs (1 through 64).

Assigning Groups

Put the numbers of all groups that comprise a bitmapped GCOS in the “Group numbers” field. An affinity group GCOS does not contain groups.

Figure 8-6 Sample GCOS Worksheet

Restriction Class of Service

This section covers:

- NPA/NXX screening process
- Default RCOS
- System and specific parameters
- Sequence of NPA/NXX Screening
- Configuration requirements for system-wide parameters
- Configuration requirements for RCOS-specific parameters
- RCOSs and Distribution Lists
- Screening Examples

Overview

Restriction Class of Service (RCOS) is a system software feature that restricts mailbox outdials to certain area codes, or to certain prefixes within an area code. It can, for example, restrict outdials to area code 415 only or restrict area code 900 but allow outdials to anywhere else. During creation or modification of a mailbox, you must specify the RCOS for outdial restricting capabilities to be operational. If no RCOS is specified in a mailbox’s configuration, outdials are not screened or restricted.

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RCOSs use NPA/NXX screening to determine which area codes or exchanges to restrict. The abbreviations NPA and NXX are industry terms for the three-digit area code and the three-digit prefix (exchange) within an area code, respectively. NPA/NXX screening is easy for the system administrator to configure and is transparent to mailbox owners.

When a mailbox owner enters a telephone number for any type of outdial, the system checks the number against the call screening set in the mailbox's RCOS. If the telephone number is not restricted, normal processing resumes. If the telephone number is restricted, the system responds "I'm sorry that telephone number is not within your calling area," then cycles back to entering a telephone number.

RCOS and NPA/NXX screening have these features:

- Outdial limits for message delivery, automatic wakeup, paging notification, call placement, and fax delivery
- Multiple screening levels, including
  - System screening of specific numbers
  - NPA screening
  - NXX (exchange) screening of up to 64 NPAs (area codes)

Procedures

You can perform the following procedures with RCOS. These procedures are located in Volume 2 of this manual.

Procedure	Number
RCOS and NPA/NXX Usage	CP 3293
Assign an RCOS to a Mailbox	CP 4335
Configure an RCOS	CP 3295
Delete an RCOS	CP 5406
Modify NPA/NXX Tables	CP 4334
Modify the Absorption Table	CP 4332
Modify the Exact Match Table	CP 4333
Set RCOS System-Wide Parameters	CP 5401
View RCOS Information	CP 5404

The system capacity is 640 RCOSs.

Default RCOS

You implement screening by creating a Restriction Class of Service (RCOS) and assigning it to the mailboxes. The default RCOS is RCOS 1; it is unnamed and allows unrestricted outdial capabilities. The RCOS 1 contents are summarized in Table 8-8. To implement NPA/NXX call screening, you must modify RCOS 1 or configure another RCOS. RCOS configuration involves setting both system-wide parameters and RCOS-specific parameters.

Table 8-8 Contents of Default RCOS 1

Parameter	Value

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Starting digit position of NPAEnding digit position of NPA	00
Starting digit position of NXX	0
Ending digit position of NXX	0
Home NPA	None
Check/do not check numbers without absorb digits	Do not check
Absorption digit patterns	None
Exact match numbers	Disallow
Exact match number patterns	None
NPA screening	Disallow
NXX screening	Disallow

Sequence of NPA/NXX Screening

Without NPA/NXX call screening, the system restricts outdials only by the number of digits to be dialed. With NPA/NXX call screening, the system restricts the outdial capabilities for a mailbox by allowing calls to be made only to certain area codes or to certain prefixes within an area code.

The system prioritizes the screening process in the following manner:

1. Removes the absorption digits (numbers at the beginning of the dial string that allow access to outside lines) from the dialing string prior to the screening process. These numbers were entered in the Digit Absorption Table, one of the RCOS menus.
2. Compares the number called to the Exact Match Table, one of the RCOS menus, which specifies whether the number is allowed or disallowed. Table 8-9 shows the screening method.
3. Counts the remaining number of digits. If the dial string does not contain an NPA (area code), it adds the home NPA.
4. If the system does not receive an exact match for the dial string, it then continues with the NPA/NXX screening.
5. Passes the NPA to the NPA Table, one of the RCOS menus, and determines if the area code is allowed or disallowed. Table 8-10 shows the screening method.
6. If the NPA contains an NXX Table, another RCOS menu, the system disregards the selection of the allow or disallow status for the area code. The determination of whether to allow the call is based only on whether the prefix is allowed or disallowed in the NXX Table.
7. Screens the number with the NXX table. Table 8-11 shows the screening method.
8. Allows the number or notifies the mailbox owner that the number is not within the mailbox owner's calling area.

Table 8-9 Exact Match Number Table

Is the number in the table?	If the table is to allow the call, the system...	If the table is to disallow the call, the system...
Yes	Allows the call	Blocks the call
No	Blocks the call	Allows the call

Table 8-10 NPA Table

Is the NPA in the table?	If the table is to allow the call, the system...	If the table is to disallow the call, the system...
Yes	Checks for NXX table. If no NXX table exists, places the call.	Blocks the call

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No	Blocks the call	Checks NXX table. If no NXX table exists, places the call.

Table 8-11 NXX Table

Is the NXX in the table?	If the table is to allow the call, the system...	If the table is to disallow the call, the system...
Yes	Allows the Call	Blocks the Call
No	Blocks the Call	Allows the Call

Screening Examples

Several configuration examples are offered here to show how the RCOS works. If you were to configure an RCOS as in Table 8-12, the system would process dial strings as shown in the following examples.

Table 8-12 Example Configuration

Parameter	Value
Home NPA	408
Starting digit position of NPA	10
Ending digit position of NPA	8
Starting digit position of NXX	7
Ending NXX digit position of NXX	5
Digits to be absorbed	9,1,91
Exact match table is set to disallow	5551212,411
NPA table is set to allow	408,415,510
NXX table for the NPA 408 is set to disallow	662,684,728

If a dial string is 914084283558, the system:

1. Removes the 91 in accordance with the absorption table.
2. Compares to the exact match table and finds no match.
3. Compares the NPA 408. Because the NPA 408 has an associated NXX table, it is used.
4. Places the call because the NXX table is a disallow table and does not contain the prefix 428.

If a dial string is 2551234, the system:

1. Compares to the exact match table.
2. Adds the home NPA.
3. Compares the NPA 408. Because the NPA 408 has an associated NXX table, it is used.
4. Places the call because the NXX table is a disallow table and does not contain the prefix 255.

If a dial string is 14154244567, the system:

1. Removes the 1 in accordance with the absorption table.
2. Compares to the exact match table.
3. Compares the NPA 415. Because the NPA 415 has an associated NXX table, it is used.
4. Blocks the call because the NXX table is a disallow table and contains the prefix 424.

If a dial string is 95551212, the system:

1. Removes the 9 in accordance with the absorption table.

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2. Compares to the exact match table and blocks the call because the number matches and the table is a disallow table.

If a dial string is 15102265678, the system :

1. Removes the 1 in accordance with the absorption table.
2. Compares to the exact match table.
3. Compares the NPA 510. Places the call because the NPA 510 does not have an associated NXX table and the NPA table is set to allow.

As the preceding examples show, NPA/NXX call screening works well for domestic outdials. For restricting international outdials, the best method is to limit the number of digits that can be dialed to less than the length of an international telephone number. Do this with an LCOS that includes any of these limits parameters, as appropriate:

- NP WakeUp – Phone Length
- Maximum Number of Digits for Telephone Number
- Message Delivery – Phone Length
- Message Phone Length
- Paging – Phone Length

Then assign this LCOS to the desired mailboxes. Refer to the Limits Class of Service section for information on LCOS configuration.

Configuration Requirements

Organize the data you need to configure an RCOS on an RCOS Worksheet. Blank worksheets are located near the end of this manual. The worksheet will help you set parameters, which are located in the RCOS menu. The following paragraphs describe entries you can make on the worksheet.

Identify the RCOS by a number from 1 through 64 and enter this number in the “RCOS to modify” box of the worksheet. Also, you have the option of naming the RCOS to easily identify it; you can enter up to 15 characters in the “RCOS name” box on the worksheet.

Configuration Requirements for System-Wide Parameters

Enter the system wide parameters in the “System Wide Parameters” portion of the RCOS worksheet.

The starting and ending digit positions of the NPA and NXX are RCOS parameters that apply to all RCOSs in the system. You can change starting and ending digit positions, of course, but any changes apply to all RCOSs that might be configured.

You must define the starting and ending digit positions for the NPA and NXX. The counting of the digit position starts from the right. When specifying digit positions, be aware that the system counts the positions from right to left. This right-to-left counting operates in the screening as shown in Figure 8-7.

Figure 8-7 Counting Digit Positions

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Configuration Requirements for RCOS-Specific Parameters

In addition to the RCOS number and name, you can set and modify RCOS-specific parameters for each of the 64 RCOSs, making calling capabilities variable for different mailboxes. These parameters are discussed in the following paragraphs. An RCOS Worksheet (Figure 8-8) helps you organize the information you need for assigning RCOS parameters. Enter these parameters in the "RCOS-Specific Parameters" portion of the worksheet.

Home NPA

Because a system can connect to foreign exchange trunks, you must specify the "local" NPA for each RCOS. If a dial string does not contain an NPA, this number is added for the screening process. The system can accept a number of up to three digits for the NPA.

Digits to Be Absorbed

Many calls contain numbers at the beginning of the dial string that allow access to outside lines, international calling, or pager systems. You must remove these numbers before the actual screening process can begin. Numbers entered in the Absorption Table are removed from the dial string before the screening process. If the dial string does not contain any digits to be absorbed, there is an option to skip the balance of the call screening process. This facilitates outdial placement to other mailboxes on the system. The system absorbs the longest matching string in the absorption table from the dial string starting from the first digit. The table capacity is 16 patterns, with a maximum of 10 digits per pattern.

Exact Match Database

You can enter numbers in the exact match database and specify if they are to be allowed or disallowed. The table capacity is 100 patterns, with a maximum of 25 digits per pattern.

Entries to this database should include common numbers that you do not want used for message addressing. Such numbers include 911, 411, 5551212, and 0.

NPA Database

The NPA database contains area codes that are screened. You can configure the database to either allow or disallow access to specific area codes. For example, you can restrict the mailbox to only the local NPA or restrict access to NPAs such as 900 numbers.

It is possible to restrict outdial access to only one NPA by setting the NPA allow/disallow status to allow and creating an NPA table with only one NPA entry. Remember that if you want to set any outdial restrictions for the home NPA, you must enter that NPA in the table.

NXX Database

After you specify an NPA, the system asks if you want NXX screening for the specific NPA. You must also set the allow/disallow status for the NXX field. The NXX allow or disallow setting takes priority over the NPA setting. This is useful for restricting the use of an NPA to only specific NXXs. The setting for the NPA in this situation is not used in determining if the call is placed. Call placement is determined only by the NXX allow/disallow setting. The system treats the combined NPA/NXX (408/415 for example) in light of the NXX allow/disallow setting, regardless of the NPA setting.

Figure 8-8 Sample RCOS Worksheet

Distribution Lists

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If an RCOS is changed, it is possible for a distribution list created before the RCOS change to contain some restricted telephone numbers. A restriction check is performed before each outdialing sequence to avoid calls being placed to restricted telephone numbers. If a telephone number fails the check, a receipt is generated stating "The following telephone numbers are restricted: [number 1], [number 2], etc." This receipt is always generated, regardless of a mailbox owner request for cancellation of a receipt.

9 Administration by Phone

This chapter covers:

- Timing considerations for Administration by Phone
- Security for the administrator's mailbox
- Adding, deleting, and modifying mailboxes by phone
- Changing mailbox passcodes and enabling or disabling a tutorial by phone
- Changing the server clock by phone
- Performing a server backup by phone
- Server and mailbox usage statistics

Overview

The NuPoint Messenger server allows the server administrator to perform some administrative functions from a telephone. This feature is very convenient if the console is located at some distance from the server administrator's work station.

Administration by Phone cannot completely replace console administration; telephone administration software supports only a limited number of the features that are available from the console. However, it is very convenient for certain functions. For example, you cannot add a mailbox with NP Receptionist treatment types over the telephone, but if the user changes offices and you must change the mailbox number, you can do it from the nearest pushbutton telephone.

Note: If your server has more than one line group and more than one administrator's mailbox, you must be sure to call the line group associated with the administrator's mailbox you are using to perform Administration by Phone.

The Administration by Phone feature is not available to any mailboxes associated with the line group in which NP TDD is configured.

Procedures

Use the following procedures to perform administration by phone. These procedures are located in Volume 2 of this manual.

Procedure	Number
Administration by Phone	CP 3401
Add a Mailbox by Phone	CP 4403
Delete a Mailbox by Phone	CP 4404
Modify a Mailbox by Phone	CP 4405
Report System Usage Statistics by Phone	CP 4409

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Set a Mailbox Passcode and Tutorial by Phone	CP 4406
Set or Change Administrator's Mailbox Passcode by Phone	CP 4402
Set System Date and Time by Phone	CP 4407
Start a Mailbox Backup to Diskette by Phone	CP 4408

Telephone Administration Timing

Certain timing parameters are programmed into Administration by Phone to detect inactivity and to safeguard the server against unauthorized use. These time out factors make it essential for the server administrator to be well prepared before beginning a telephone administration session:

- The server allows three to five seconds of response time for each prompt before it announces "no change" and returns to the Administration Menu.
- During administration, any activity causes a one-minute timer to start. If one minute elapses without input, the server automatically disconnects you, and you must repeat the entire access procedure.
- If you feel that you are running out of time, press 1 in response to any prompt to restart the timer. The server issues an error message, and repeats the prompt.

Passcode Protecting the Administrator's Mailbox

You can set or change the administrator's mailbox passcode by phone (see "Administration by Phone" on the Task List for the procedure, Volume 2 of this manual) or from the console. For more information on passcode protecting the Administrator's mailbox, see the Server Security chapter.

Note: When your server was configured, the technician entered a passcode length, which controls the number of digits that can be entered from the telephone. From the server console, you can ensure greater server security by giving the administrator's mailbox a telephone passcode that has more digits than the other mailboxes on the server. To do this, use the Set Passcode/Tutorial option from the Mailbox Maintenance Menu. See the "Mailboxes" chapter for more information.

Note: You cannot log into the Administrator's mailbox unless a non-trivial passcode is set.

Recording a Name for the Administrator's Mailbox

You can record your name with the Name command, which is also available from the User Options Menu, if you want the server to greet you by name when you log in. For security reasons, **do not** name the mailbox, "Administrator's Mailbox." Unauthorized users should not know that they have accessed a special purpose mailbox.

Adding a New Mailbox

There are important differences between creating a mailbox on the console and adding a new mailbox by phone.

- No programming for NP Receptionist can be added over the phone. The server does not prompt for treatment types, mailbox extension numbers, or attendant extension numbers.
- When Administration by Phone prompts for a three-digit class of service, enter the Feature

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class of Service (FCOS). The server accepts any FCOS number from 1 through 640, even if no feature bits are programmed for that FCOS. No error message is issued. Be sure to enter the correct Feature Class of Service!

- When Administration by Phone prompts for a three-digit limits class of service, enter the Limits Class of Service (LCOS). The server accepts any LCOS number from 1 through 640. Be sure that you enter the correct LCOS.
- You can assign any valid message waiting indication to the mailbox, but you cannot add other information by phone, such as paging. This message waiting indication does not work without extra programming. You can create mailboxes that require extra programming at the server maintenance console.

The single exception to this rule is the AC message lamp. The following section gives instructions for programming an AC message lamp address by telephone.

AC Message Lamp Address Codes

An AC message lamp address consists of a **House Code**, which can be any letter from A through P, followed by a **Unit Code**, which can be any number from 1 through 16. Examples are A1, D5, P16. Address P1 is reserved for troubleshooting and diagnostics and cannot be assigned to a mailbox. Due to the limitations of the telephone key pad, you must enter the address differently.

1. **House Code:** Numbers 2 through 9 on your telephone key pad represent three different letters each. In order to specify which letter is desired, the server requires that you enter two numbers to represent a house code letter: the key number, then the letter position (from the left). For example, you enter K as 52, because K is on the number 5 key and at the second position from the left (JKL). Table 9-1 lists the AC message lamps house codes.

Table 9-1 AC Message Waiting Lamp House Codes

Letter	Enter	Letter	Enter
A	21	I	43
B	22	J	51
C	23	K	52
D	31	L	53
E	32	M	61
F	33	N	62
G	41	O	63
H	42	P	71

2. **Unit Code:** Since the server prompts for a four-digit AC message lamp address, you must enter Unit Codes as a two-digit number. For example, numbers from 1 through 9 are entered as 01 through 09.

Note: If you want to verify that the AC message lamp address was entered correctly, press M to modify the mailbox you have just added, and press the star (*) key in response to each prompt to leave all values unchanged. The server gives the current AC message waiting lamp address as “K1” (not 5201).

Deleting a Mailbox

You can delete a single mailbox, but not a range of mailboxes by phone.

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Modifying a Mailbox

When you select Modify from the Administration Menu, the server gives the current mailbox number, class of service, mailbox type, and AC message lamp address, if applicable; then prompts you for any changes. To leave any value unchanged, press the star (*) key in response to the prompt. See “Adding a New Mailbox” for coding information.

Setting Mailbox Passcode and Tutorial

You can set or clear the passcode and enable the tutorial for a mailbox by phone. This feature can be useful for getting new mailbox owners started on the server or for clearing the passcode for a mailbox owner who is unable to access his mailbox because he has forgotten his passcode.

Setting the Server Clock

You can review or alter the server date and time by phone. This feature can be useful for making a one-hour correction for daylight savings time.

Performing Backup to Diskette

You can keep backup files on diskettes for record purposes and as a precaution against inadvertent loss or destruction of the configuration and history files of the server. It is recommended that you regularly back up your hard disk to diskettes. The server continues to process calls during the backup process.

The server makes backup files on specially formatted diskettes. One formatted diskette has been included with the server. If necessary, the server can format additional diskettes as part of the backup procedure. When purchasing diskettes, use 3.5 inch double sided, high density (1.44 MB). Be sure to label and date all backup diskettes.

To perform a floppy backup by phone, the administrator’s telephone must be close enough to the server to permit insertion of the diskettes in the floppy disk drive while the server administrator is on the phone.

Reporting Usage Statistics

The server administrator can get server and mailbox summary usage statistics for 30 mailboxes at a time over the phone. This procedure can be used in place of running a statistics report during your weekly maintenance, to determine if you need to do a purge. There are three ways to control the report:

- Respond to the prompt asking for the first mailbox number. The server reports the server statistics and starts the mailbox report at the selected mailbox. To cancel the report at this point, simply do not respond to the prompt.
- Abort the report by pressing any key while the server is reading the statistics.
- Extend the report by pressing C when prompted by the server, after the statistics for the first 30 mailboxes are listed. The server responds by reporting statistics for the next 30 mailboxes.

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Inquiring About Mailboxes

Neither the Inquire nor the Search function is available by phone, however you can get some information by using the following techniques:

- Usage statistics are available by pressing U from the Administration Menu, entering the desired mailbox number in response to the prompt, “Enter mailbox to begin summary at,” and then pressing any key to stop the report after the desired statistics have been given.
- Class of service, limits class of service, message waiting type, and AC message lamp address (if applicable) are given when you select Modify from the Administration Menu. Press the star (*) key in response to each prompt to leave the current values unchanged.

10 Server Security

This chapter covers:

- Protecting your server from outside abuse
- Protecting your server from abuse by mailbox owners and users
- Protecting the server maintenance and administration functions
- Security reports and audit trails
- FPSA

Overview

Server security refers to protecting your NuPoint Messenger server from abuse, both from outside callers and from mailbox owners. Outside callers can attempt to “take over” mailboxes that can be reached through the public switched telephone network and use them for their own applications. Mailbox owners can make inappropriate use of server resources by placing long distance calls through the server, overusing available storage, or sending messages to mailboxes that should be “off limits.”

The server has many features that are designed to provide security at the server level and the mailbox level. These features address server administration, mailbox usage, and access to facilities, applications, and information.

Procedures

Use the following procedures to perform administration by phone. These procedures are located in Volume 2 of this manual.

Procedure	Number
Server Security Configuration	CP 3410
Activate or Deactivate FPSA	CP 4345
Add, Delete, or Unlock a User ID	CP 4342
Change or Reset a Password	CP 4344
Configure FPSA Password Parameters	CP 4339
Configure Mailbox Passcode Parameters by FCOS	CP 3411
Configure Mailbox Passcode Parameters by Line Group	CP 5021
Format an Audit Trail Report	CP 4338
Log In or Log Out of the Server Console	CP 3299

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Modify Permission Categories for Current User IDs	CP 4343
Respond to “Login Incorrect” or “Permission Denied”	CP 3290
Restrict Line Group Access	CP 3412
Run an Audit Trail Report	CP 3346
Set the Site Name, Site Banner, and Site Code	CP 5415
Start or Stop an Audit Trail	CP 4340
View a List of Current Users	CP 4341

Protection From Outside Abuse

Mailboxes that can be reached through the telephone network are seen as the primary entry point for “hostile invasion” of a communications server such as the NuPoint Messenger server. Service providers and corporate telecommunications managers alike are concerned about hackers taking over mailboxes for their own applications, or using mailboxes for toll fraud by calling through long-distance facilities accessible from the server.

You can configure your server to require access codes or passcodes before callers can reach various functions, and you can configure mailboxes to automatically perform certain functions, such as hanging up after playing a greeting.

Existing Mailboxes

The first level of security is protection of the mailboxes by passcodes. By default, the server requires passcodes on all mailboxes. You can turn this feature off using feature bit 218 for direct calls, but you should do so with caution. Mailbox owner passcodes can be up to 10 digits in length, and users can change their passcodes at any time (feature bit 073).

The server administrator typically sets a temporary passcode for new mailboxes, but the user is forced to enter a permanent passcode during the interactive tutorial. Using FCOS settings, you can prevent users from setting a passcode that is the same as the mailbox number (feature bit 130), or from using trivial passcodes, such as 1234 or 8888 (feature bit 201).

If a caller enters the wrong passcode when trying to get into a mailbox, the server requires the caller to enter the correct passcode twice, or the server hangs up. Callers are not told whether the mailbox number or the passcode was incorrect; hackers do not know if they have even half of a valid combination. (You can use feature bit 081 to set the server to only require a single correct passcode after an incorrect attempt, but this reduces the effectiveness of the security feature.)

The server tracks bad passcode attempts for each mailbox and compares the number to the parameters set for the line group. If the bad passcode attempts for a mailbox exceeds the number allowed in the passcode trip period, the server plays a bad passcode warning at the next login so that the mailbox owner knows that someone may have tried to gain unauthorized entry.

Feature bit 132 allows you to enable a bad passcode lockout, in which a mailbox is locked when the threshold of bad passcode attempts is reached. Only the server administrator can unlock the mailbox, set a new temporary passcode, reset the tutorial, and require reinitialization from the integrated telephone number (feature bit 142).

New Mailboxes

When you create a new mailbox, you can designate a temporary passcode for that mailbox, either by making up a passcode, or by using the server’s random passcode generation program.

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If you have created mailboxes but have not yet assigned them to users, you can use an FCOS to deny login (feature bit 001).

To ensure that a new mailbox, once assigned, is not used until the owner accesses it, you can require initialization from the integrated telephone number (feature bit 142). You can also set the FCOS to prevent messages from being received until the mailbox has been initialized (feature bit 127).

Note: Feature bit 142 (Must run tutorial from own phone) is not supported for all integrations.

Line Groups

By dividing the total number of ports in your server into line groups, you can increase the security for specific applications. You can configure each application to be on a different line group, and enable an appropriate level of security for each application.

Separating the applications by line group can help prevent certain types of abuse, such as connecting from one application to another. Incoming and outgoing calls occur on separate line groups in a server. This keeps hackers from reaching the server and then dialing out through the NP Receptionist or another application.

You can restrict access to certain line groups, like a toll-free dial-in line group, by setting the FCOS to require callers to enter an access code before hearing the regular line group greeting (feature bit 160). If a caller exits one mailbox, the server requires reentry of the access code before allowing further progress through the server. You can also use FCOSs to completely deny login on specific line groups (feature bits 101-109), or ensure that mailboxes cannot receive messages when the call is received on a specific line group (feature bits 111-119).

Telephone Answering

Outside callers can abuse access to a server during a telephone answering call by trying to break into the dialed mailbox or access other features. By correctly setting the line groups and FCOSs in your server, you can control the feature set available during an answering session.

You can force the termination of telephone answering sessions after callers leave a single message by setting the line group to not allow multiple messages for outside callers. For Greeting-Only mailboxes, you can have the server hang up immediately after playing the greeting (feature bit 062), call the mailbox attendant after the greeting (bit 063), or call the mailbox user after the greeting (bit 064).

By customizing an FCOS to contain feature bit 004 but not contain bit 005 (Outside caller functions and Play outside caller menu prompts, respectively), you can allow knowledgeable users to access server functions, while not letting other callers know that the functions are available.

Feature bit 137 (Caller must enter access code) can restrict outside callers from leaving messages in high security mailboxes. You set the access codes when configuring each individual mailbox.

You can further ensure the privacy of mailbox users by not putting them in the Dial-by-Name database (feature bit 092), or by not allowing the mailbox name or extension number to be played (bit 202). This latter feature can be especially important in hotel or dormitory situations.

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Audiotext (Tree Mailboxes)

You can protect audiotext applications by requiring callers to enter an access code (feature bit 137) before hearing the information. Because you can design audiotext applications as a series of mailboxes, each with individual information, you can set a unique access code for each piece of information to ensure corporate security.

You can configure audiotext applications to hang up after playing the greeting (feature bit 062), or transfer to the mailbox attendant (bit 063) or mailbox extension (bit 064). You can also deny login from within the tree (bit 152).

Protection From Mailbox Owner Abuse

The revenue of a service bureau is dependent on being able to bill mailbox owners for use of the server. Likewise, the corporate telecommunications manager must control use and potential abuse of corporate resources to provide the best service while controlling costs and maintaining security. The server allows you to place controls and limits in the server to ensure that mailbox owners use the server appropriately.

Line Groups

Service bureaus can provide mailbox owners with certain line groups for receiving messages, while having them pick up their messages on other line groups, either to control costs or to control call flow. To enforce this type of usage, you can use feature bits 101-109 to deny login on specific line groups; callers can leave messages, but are not able to log into a mailbox. In this way, you can also restrict access to certain information to internal ports only, or to “800” number ports where the server owner must pay for connect time.

Mailbox Usage

Depending on the number of phone lines or the storage hours available on your server, or on the levels of service that mailbox owners pay for, you can set LCOS parameters to control certain aspects of mailbox usage, such as connect time, number of messages stored, or storage duration.

If the number of phone lines to your server is limited, you can limit call duration by setting the Maximum login time parameter in each LCOS to a few minutes. On the other hand, if disk storage is a limiting factor, you can lower both the Caller message length and User message length, and set the Message count limit to a number that is equitable to all users assigned to each LCOS.

The amount of storage used on your server is the result of the number of messages stored and the length of storage time. You can control the storage times for played and unplayed messages by setting the two LCOS parameters: Played message retention and Unplayed message retention.

Besides setting limits on server usage, you must ensure that your mailbox listings are current—remove mailboxes that are no longer being used. Once you have removed a mailbox, the server automatically removes it from the Dial-by-Name database and from all distribution lists.

Messaging

Messaging between mailbox owners is the primary purpose of many voice mail systems, but you

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must use GCOS and FCOS settings to enforce restrictions on which mailboxes can exchange messages.

The primary tool for controlling messaging between mailboxes is the GCOS. Correct GCOS settings can effectively partition a server so that separate user groups are not aware of one another, or so that certain mailboxes can only receive or send messages to other specific mailboxes, such as in dispatcher situations.

GCOS structures also create partitioned Dial-by-Name. A mailbox owner cannot use Dial-by-Name to address a message to a mailbox that is not accessible due to GCOS restrictions; the server does not match or play inaccessible mailbox names.

You can also use FCOS settings to control the sources and destinations for messages. Feature bits 040 through 045 control a mailbox's ability to receive messages from various sources, such as other users, outside callers, or distribution lists. Feature bits 020 through 035 control the ability to make or give messages to users and distribution lists.

Outdials

Depending on the optional features purchased with your server, mailbox owners can send a variety of outdial calls, including call placement, message delivery, auto wakeup, fax, and paging. To prevent abuse and to provide better call traffic, you can restrict different outgoing call types to specific line groups and set appropriate restrictions and limits on each line group. This prevents users from accessing other services on dedicated line groups and allows you to monitor resource usage.

Mailbox owners can use the message delivery feature for message waiting, in which the server calls a specified number when the mailbox owner receives a new message. The person who answers the phone must enter the correct passcode to access the mailbox, thus ensuring that only the mailbox owner can listen to the message.

Mailbox owners can use call placement to record a message and send it to a telephone number (as opposed to a mailbox). The message sender can record the name of the intended recipient and can optionally require a passcode before the message is played.

The FCOS and LCOS settings provide a tool for the administrator to control access to outdial services. Various feature bits enable use of the different features, and LCOS limits control the number of digits that a mailbox owner can enter for a target telephone number. You can set the message delivery, paging, and message phone lengths to seven digits to limit calls to the local service area, or 10 (or 11) digits to allow for long distance calls.

FPSA and Server Administration

In the hands of a trained and responsible administrator or technician, server administration functions can be used to provide convenient and full-featured service to mailbox owners and callers, and to keep the server functioning smoothly. In the wrong hands, the same functions can be used to take over mailboxes, disrupt service, and even shut down the server. Security for the administration function is extremely important. However, when Functionally Partitioned System Administration (FPSA) is activated and configured, server security is assured because access can be restricted to authorized persons only. (See "Functionally Partitioned System Administration" later in this chapter for more details about FPSA.)

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Console

The server maintenance console is the primary point of entry for configuration and administration, and therefore one of the most critical factors in security console access is protected by a login sequence. The server requires a user ID and a password that verifies a user before allowing access to any menu.

User ID

A user ID is a unique representation of a person's identity within the server. Each user ID is associated with one real name, though one real name can be assigned multiple user IDs. During the login sequence, you are identified by your user ID, the terminal device, and the module where you logged in. Each subsequent activity you perform during a session at a server maintenance console can be recorded in the audit trail (see Security Reports and Audit Trails, later in this chapter, for more information on the audit trail).

The server superuser can display all current user IDs, along with the name, password, permission categories, and other statistics associated with them, at a server maintenance console (see "List of Authorized Users" in the Reports chapter). A user ID can be up to 17 characters.

The server superuser's ID, *root*, cannot be changed.

Password

A user ID can be verified by entering an optional password. The same password can be used with different user IDs. The server superuser and console users each have their own password. A password must meet the following requirements:

- Its length is six to 30 alphanumeric characters, but only the first 8 are used.
- It cannot contain a substring of the user ID that is four or more characters. For example, a user ID of mark61 cannot have the password mark**key4!** or n=**ark6**0 because each contains substrings that are part of the user ID (indicated in bold).
- When you change your password, the new one cannot be the same as the old.

When FPSA is implemented, password requirements are strengthened. See "Functionally Partitioned System Administration," later in this chapter.

To set a password (without FPSA), use the Change Password option. The server stores passwords in one-way encoded form. When you enter your password, the server encodes it then compares it to the stored password. If you forget your password, only the server superuser can reset it. There is no mechanism for decoding a password to tell it to a person who forgot it.

Each time you log in thereafter, the server displays the date and time of your last login. The server also displays the number of your unsuccessful attempts, if any, since the last login. You should review this information every time you log in.

Modem

A modem on a serial port of the server can be used by you, or by anyone else, to gain access to all of the server maintenance and configuration capabilities. You should take care to protect this access point from abuse. If you do not intend to perform any remote maintenance or administration, you do not need to connect a modem to a serial port. The same login sequence described above applies to any remote access using the modem.

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All servers are shipped with a default security banner. You can customize the banner, if you wish.

Administrator's Mailbox

The administrator's mailbox can be used to perform several administration functions, including creating and deleting mailboxes. You can protect this mailbox by changing the mailbox number to be any number up to 11 digits (you do not have to leave the administrator's mailbox number at the default setting), and by requiring a passcode for successful login. If you change the Administrator's mailbox to a long number, be sure the Dial Plan allows it, or change the Dialing Plan.

Note: The administrator's mailbox *must* have a passcode. The passcode cannot be the same as the mailbox number, and it cannot be a trivial passcode (for example, 1234, 8888).

You can also set the FCOS for the administrator's mailbox to require an access code before callers can leave a message. If the administrator's mailbox number is not an integrated extension number, you have to access the mailbox by calling the server, pressing the star key (*****) at the first greeting, entering the administrator's mailbox number, then another ***** and the passcode. If the FCOS requires an access code, you would have to enter it before you could press the second *****, thus adding a second level of passcodetype protection.

You can also use FCOS settings to further restrict access to the mailbox to only certain ports, or to deny login to the mailbox (feature bit 001). If you deny login to the mailbox, you must use the server console to allow login prior to doing any administration by phone.

Security Reports and Audit Trails

Several of the reports available at the server console can give a clear picture of breaches in server security or potential security or abuse concerns. For more details on any of these reports, see the Reports chapter.

Mailbox Reports

Mailboxes with no activity are listed in the Idle Mailboxes Report (found under Mailbox Statistics in the Reports Menu). The list in this report contains any unassigned or municipalized mailboxes in the server. If a mailbox that you think should appear is not listed, it can be a sign that someone is illegitimately using the mailbox. You should run a Mailbox Dump Report for the specific mailbox to obtain more information about activity in that mailbox.

The Mailbox Dump Report allows you to obtain a comprehensive report on a specific mailbox, including login status and usage statistics. Use this report to see detailed information on any mailbox that you suspect of questionable activity.

The Mailbox Totals Report gives the same type of information as the Idle Mailboxes Report, except that it is for all mailboxes in the server. The "Mailboxes With Activity" entry in this report shows the number of mailboxes that have either been logged into or have received a message.

The Mailbox Data Inquiry Report (Inquire About Mailboxes in the Mailbox Maintenance Menu) provides summary statistics for a single mailbox or a range of mailboxes. You can scan the columns in this report to look for either no message storage (appropriate for uninitialized mailboxes) or excessive message storage (possibly signaling abuse).

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The Mailbox Data Report (in the Reports Menu) contains information on the number of recent bad login attempts and the date of the last mailbox owner login, indicating “Never” for a new mailbox. Because this report covers all mailboxes and contains a lot of information, you should first use other reports to examine potential abuse problems.

With the mailbox search option, you can find mailboxes that meet certain criteria, such as those having a specific FCOS or GCOS, or those with no passcode or with the tutorial enabled. If you suspect server abuse, you can identify the mailboxes involved by performing a search with the right criteria.

You can track high levels of incoming and outgoing mailbox traffic with the Call Detail Recorder (CDR) optional feature.

Audit Trail

If you are the Server Superuser (root), you can obtain an audit trail report of all persons who have logged in during any given period.

The server records activities you perform at a maintenance console in a log that becomes an audit trail. The information recorded includes the user ID, time and date of activity, the menus reached, actions taken, and some other details that you can specify. This information can be used after the fact to investigate unauthorized use or “hackers.”

Only the server superuser can configure and manage an audit trail. The audit trail options are:

- Start and stop the audit trail.
- Review the audit trail and print it as a report.
- Format an audit trail report. Each activity recorded by the audit trail appears as a numbered entry on a line by itself.
- Set the maximum entries, from 1 to 999,999, in an audit trail.
  To calculate the actual number of Audit Trail Entries, which is a multiple of 63, check the value for the Maximum Number of Audit Trail Entries. Divide that number by 63, round up to the nearest whole number, and multiply the result by 63 to find the actual number of Audit Trail Entries.
- Specify the types of information that comprise an entry (entry details).
- Specify a range of entries to be reported.

The audit trail resembles the server logfile, but it does not need to be cleared. When a specified maximum number of entries is reached, the server continues to record new information, overwriting the oldest information and beginning again at entry 1. When the number of entries reaches 85%, 90%, and 95% of the maximum, the server writes a warning to that effect in the error log. This gives you an opportunity to stop the audit trail, print it, or allow it to continue if overwriting of entries is unimportant.

Note: You can use the audit trail whether or not FPSA is activated.

Functionally Partitioned System Administration

FPSA is a standard software feature that requires you to enter your user identifier (user ID) and password for verification before you can reach any of the server menus. Access to the menus is based on the authorization level of your user ID and password.

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FPSA allows access to menus only to persons who are authorized through permission categories. In addition, FPSA requires passwords of all users logging in.

Using FPSA

You must activate FPSA at your site from the Security menu, then configure it as desired, before it is operational. While there is no charge for FPSA, you must specifically order it.

Once FPSA is activated, you can reach menus at the server maintenance console only if you have the proper permission category (or categories). Every server menu is associated with one or more permission categories.

Password

There are additional restrictions on passwords when FPSA is installed.

- When FPSA is installed, passwords must contain at least one letter, one digit, and one punctuation mark. For example, 13nuts)c or o;ster1.
- Users must change their passwords periodically (default is 30 days). The new password must be different from the old one. The server issues a reminder notice at login warning that the password must be changed; the default reminder period is seven days. If the password is not changed before the expiration date, the server forces the user to change passwords after logging in. The server superuser can set the period between password changes and the period for displaying warnings.
- If you enter your password incorrectly, the server allows you another attempt to enter it correctly. The number of attempts allowed before the server locks the user ID is set by the server superuser. The default is five attempts. If a user ID should become locked, only the server superuser can unlock it. No indication is given to a user on lockout.

Note: The number of bad login attempts is counted from midnight to midnight of the following day, and is cleared and restarted each midnight.

- The first time you log in, the server requires you to change the temporary password assigned by the server superuser at the time you were added to the server.
- If you lose or forget the password for the server superuser account, there is a procedure to bypass the login sequence.Contact your technical support representative. Refer to Volume 2 of this manual for more information.

Permission Categories

You can use any of six permission categories to establish privileges for each user ID. These categories and users are defined in Table 10-1.

Table 10-1 FPSA Permission Category

Category	Description
1	Unlimited access to all console menus and all server resources (synonymous with server superuser access)
2	Unlimited access to all console menus and QNX shell, except cannot run hardware maintenance from hard drive (See System Administrator, below)
3	Access only to system configuration menus including network configuration (see Chapter 7, Features Class of Service)
4	Access only to mailbox maintenance menus

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5	Access only to inquiry menus (read-only menus such as Reports, Statistics, and Dump)
6	Access only to network and network-related menus

When FPSA is activated, you can perform menu-based procedures described in this manual *only* if you have the appropriate permission category or categories.

FPSA limits access to menus based on a permission category or categories assigned to each user ID. If you attempt to reach an unauthorized menu, the server responds “Permission denied.” Each server menu also has one or more permission categories associated with it.

When you assign permission categories to each user, make sure that the combination is sensible. For example, category 1 gives access to the entire server, so there is no need to assign any other permission categories in addition. Categories 3 and 6 together give permission for all system configuration menus.

Login Incorrect or Permission Denied

If your user ID is invalid or you enter it incorrectly, or if you enter your password incorrectly, the server displays “login incorrect” and the login sequence halts. If you have exceeded the allowed number of login attempts, or if you try to reach a menu outside your permission category or categories, the server does not let you continue.

When the number of login attempts is exceeded, the server locks the user ID of the person attempting to log in. The system superuser must unlock the user ID through the FPSA menu before a locked-out user can log in. (If access to a menu is allowed, the system superuser can modify permission categories of the person denied access, also through the FPSA Menu.)

If the system superuser encounters the “login incorrect” message, he or she should follow the password bypass procedure described in the Task List in Volume 2 of this manual.

Users can receive “permission denied” messages when choosing a menu option that they are not permitted to access. Permission categories must be changed for users to access menu items that generate this message.

System Superuser

The system superuser is the only person with unlimited access to all server resources and all menus. This individual is the only one who can perform all the activities described in this manual, including these FPSA activities:

- Add a user to the server
- Delete a user from the server
- Reset a user’s password
- Change permission categories
- Configure password parameters
- Configure and manage the Audit Trail (see below)

The user ID *root* is the only server superuser.

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CAUTION!
If the system superuser forgets his or her password, he or she cannot access the server, let alone perform any of the FPSA activities just mentioned. The only way a system superuser can be reinstated is to perform the password bypass in the Task List, Volume 2 of this manual.

System Administrator

NuPoint Voice system administrators can perform all activities described in this manual except FPSA activities. They do have access to the Change Password option in the FPSA menu, however, for changing their own passwords. This form of user is one with Category 2 permission.

Console User

Console users can configure the server or maintain mailboxes or obtain reports or administer the network (or perform any combination of these activities (depending on their permission categories. Console users can also change their own passwords.

Activating FPSA

You can activate and deactivate FPSA only with the FPSA diskette at the server maintenance console. This is a controlled diskette that is released to a designated individual at your site after a server is installed.

When activating FPSA, be prepared to take notes. All current user IDs must be given permission categories, and each user ID must be given a password. If a user ID has a password, it is marked for 24-hour expiration so the user should be notified to change it. User IDs without passwords are given temporary passwords by the server, also marked to expire in 24 hours. The system superuser should give the users these passwords. This effectively forces users to change their passwords when they log in.

Configuring FPSA

Once you have activated FPSA, you can configure it. This involves the following steps:

- Establishing a user ID*
- Identifying the users by their real names*
- Establishing a password
- Assigning permission categories
- Setting up an audit trail if desired*
- Configuring password parameters

Note: Items followed by an asterisk are available to the system superuser before FPSA is activated.

Configuring is performed through the FPSA menu option of the Additional Options menu.

Deactivating FPSA

You can deactivate FPSA only with the FPSA diskette at the server maintenance console. For directions see the Task List in Volume 2 of this manual.

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11 Billing

This chapter describes the billing function and gives the requirements for configuring the billing function. Billing reports are summarized in this chapter, but the Reports chapter has more complete information about them. Information covered in this chapter includes:

- Setting rates
- Gathering billing data
- Billing reports
- Configuration requirements

Overview

The billing function collects statistics about NuPoint Messenger server usage and calculates charges for that usage. You can set a low-usage rate, and a high-usage rate for each statistic. This rate-setting arrangement gives you the option to charge fixed rates, give volume discounts, or charge for heavy use. During day-to-day server operation, over 120 different statistics can be kept for each mailbox, grouped into these six categories:

- Mailbox access
- Base rates
- Connect time
- Disk usage
- Messages received
- Network rates
- Pager calls

You can instruct the server to perform a gather of these statistics, then obtain billing reports generated by the server from the resulting information.

Billing an outdial to a specified account and specifying a long distance carrier for outdials are covered in the Mailboxes chapter.

Procedures

Use the following procedures to configure the billing function. These procedures are located in Volume 2 of this manual.

Procedure	Number
Billing Function Usage	CP 3365
Adjust Billing Rates for Full-Screen Interface	CP 4355
Bill Outdials to an Account or Long Distance Carrier	CP 3289
Check Current Billing Rates	CP 4354
Configure an Automatic Gather	CP 4356
Request a Gather	CP 4357
Set Base Rates	CP 4363
Set Billing Rates for Connect Time	CP 4364
Set Billing Rates for Disk Usage	CP 4358
Set Billing Rates for Mailbox Accesses	CP 4359
Set Billing Rates for Message Delivery	CP 5016

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Set Billing Rates for Messages Received	CP 4360
Set Billing Rates for Network Usage	CP 4361
Set Billing Rates for Pager Calls	CP 4362

Setting Rates

Each statistic can be calculated according to a low usage rate, low/high boundary, and high usage rate. The valid range for either rate is $0.00 through $64.99. The valid range for the low/high boundary is 0 through 65535.

The **low usage rate** applies to statistics that match or fall below the low/high boundary. All statistics that match or fall below this boundary are charged the same low usage rate. The **low/high boundary** is the point at which the rate changes from the low usage rate to the high usage rate. The **high usage rate** applies to statistics that fall above the low/high boundary. All statistics that fall above this boundary are charged the same high usage rate.

A **base rate** can also be set. The base rate is a flat fee that is charged at every billing period, keyed to one or more FCOSs.

To give volume discounts, specify a lower amount for the high usage rate than for the low usage rate. To penalize heavy usage, specify a higher value for the high rate. To charge a standard rate, enter a zero as the boundary.

Full-Screen Interface

If you are using the full-screen interface, you enter all billing rates in the same application. There is an 11-page entry screen that lists every billing rate you can set. The Billing Worksheet, described later in this chapter, has its parameters arranged in the order of the Adjust Billing Rates entry screens.

You use function keys for different options when adjusting Billing Rates. Pages 1 and 7 of the Adjust Billing Rates entry screens are shown in Figure 11-1. The function keys you can use in the mailbox maintenance screen are:

Function Key	Explanation
F1	Display next page
F2	Display previous page
F3	Display first page
	Display last page
F9 or Esc	Exit the Mailbox Screen
F10	Edit current mailbox's information
Home	Provide context-sensitive help

```
                    A D J U S T   B I L L I N G   R A T E S

Page  1                                Low Usage
Rate                                                Boundary   High Usage
Messages Received From Users:          0.000        0          0.000
Messages Received From Callers:        0.000        0          0.000
Messages Future Deliveries:            0.000        0          0.000
Call Placement per minute Rate:        0.000        0          0.000
Call Placement per call Rate:          0.000        0          0.000
Urgent messages received from callers: 0.000        0          0.000
```

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```
Automatic Wakeups or TAS messages:      0.000        0          0.000
Receipt requests:                       0.000        0          0.000
Disk Usage:                             0.000        0          0.000
Network Messages Sent:                  0.000        0          0.000
Network Urgent Messages Sent:           0.000        0          0.000
Network Messages Received:              0.000        0          0.000
Network Urgent Messages Received:       0.000        0          0.000
Number of Network Nodes Sent to:        0.000        0          0.000
Number of Network Nodes Sent Urgent:    0.000        0          0.000
Number of Remote Network Recipients:    0.000        0          0.000
Number of Remote Network Recips Urg:    0.000        0          0.000
F1  Nxt Pg  F2  Prev Pg  F3  First F4  Last  F9  Cancel F10 Save Home Help
Enter low usage rate,(0-64.999), with a max of 3 places after decimal.

                A D J U S T   B I L L I N G   R A T E S

Page 7
Rate                                    Low Usage   Boundary  High Usage
Pager Number 4 Rate:                    0.000        0          0.000
Pager Number 5 Rate:                    0.000        0          0.000
Pager Number 6 Rate:                    0.000        0          0.000
Pager Number 7 Rate:                    0.000        0          0.000
Pager Number 8 Rate:                    0.000        0          0.000
Pager Number 9 Rate:                    0.000        0          0.000
Pager Number 10 Rate                    0.000        0          0.000
Pager Number 11 Rate                    0.000        0          0.000
Pager Number 12 Rate                    0.000        0          0.000
Pager Number 13 Rate                    0.000        0          0.000
Pager Number 14 Rate                    0.000        0          0.000
Pager Number 15 Rate                    0.000        0          0.000
Pager Number 16 Rate                    0.000        0          0.000
Base Rate  1: UNLIMITED                 0.000
Base Rate  2: FULL GUEST                0.00
Base Rate  3: RESTRICTED                0.00
Base Rate  4: CHECK IN                  0.00
F1  Nxt Pg F2  Prev Pg F3  First  F4  Last  F9  Cancel  F10  Save  Home  Help
Enter low usage rate,(0-64.999), with a max of 3 places after decimal.
```

Figure 11-1 Full Screen Interface for Billing Rates

Scrolling Menu Interface

If you are using Scrolling Menus, then Billing Rates are set through several different menus, depending on the type of rate. The Billing Worksheet, described later in this chapter, is divided into sections that correspond with the separate menu choices. Some of the rates belong in other menus, because the full-screen Adjust Billing Rate entry screens are arranged differently. These items are indicated by having the correct section name following the rate name in parentheses.

Gathering Data

Before the server can produce billing reports, it must gather data from all the statistics that have been specified. Gathering data is a three-step process:

1. The current billing data file, which was created during the last gather, becomes the new previous billing data file. The server issues a warning because this step overwrites (and thereby destroys) the previous billing data file, which was also created during the last gather.
2. The server scans the statistics in all the mailboxes. The data that is collected becomes the new current billing data file.

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3. The data gathered in step 1 is subtracted from the mailbox statistics. This update zeros the statistics in all the mailboxes (unless there was mailbox activity between steps 2 and 3 to prepare them for the next billing cycle.

When you run a billing report, the value that is obtained during the gather for each statistic in a mailbox is multiplied by the billing rate that you assigned to that statistic. The server then adds the charges for all statistics with billing rates greater than zero, plus any base rate that you may have specified, to give a total charge for each mailbox.

All billing data older than the previous billing data file is available using the regular backup procedures recommended in the *Installation and Service Manual.*

Automatic Gather

You can initiate a gather as needed (single gather), or you can configure the server to run a gather automatically (automatic gather). Automatic gathers can be run weekly, monthly, or twice-monthly.

In a busy server a gather can slow down call processing, so it is best to schedule an automatic gather or request a gather in the early morning hours, when server resources are not in use processing calls.

Unsuccessful Gathers

It is possible for a gather to be unsuccessful. The most likely cause would be a power loss during the process, since gather can take from several minutes to several hours to complete, depending on the size of the server and volume of calls. If a gather fails, you should:

1. Perform a server backup to diskette to save the previous billing data file that was created during the unsuccessful gather (see the *NuPoint Messenger Installation and Service Manual* for directions).
2. Perform another gather. The information needed for the current billing is now divided between the current and previous billing data files that are on the hard disk.
3. Run a Previous Billing Report from the hard disk. This shows what was billed during the last billing cycle, which gives you a starting point for determining current charges.
4. Run both a Billing Report and a Previous Billing Report from the hard disk, then combine them to determine the correct bill for each mailbox.

Billing Reports

After the server performs a gather, the statistics and charges that are calculated go into four types of billing reports that the server can generate. Each report gives a breakdown of charges for individual mailboxes by statistics, then calculates the total amount that is due. Each report has a different purpose. Table 11-1 summarizes the report types and their purposes.

Samples of these reports and explanations of their contents are contained in the Reports chapter.

Table 11-1 Types of Billing Reports

Type of Report	Purpose
Billing Report	Shows current charges for each mailbox individually by statistics; shows total current charges.

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Mailbox Blocked Report (Blocked Billing Report)	Same information as in the Billing Report but with no titles or summaries; input to other databases.
Previous Billing Report	Same information as in the Billing Report but uses data from previous billing period; determines proper billing if a gather fails.
Termination Report	Final billing when a mailbox is checked out and deleted, or when paging service is discontinued.

Configuration Requirements for Billing

Configuring for billing involves obtaining a report of current rates, using a Billing Worksheet, and adjusting rates, if necessary.

Current Billing Rates

You can see what the current rates are for various statistics, such as base rates and pager calls, through the Report Rates option in the Billing Menu. The reports chapter shows a sample report of current base rates. Use any of the reports available through this option to see what the low usage and high usage rates are and what the low/high boundary is for each statistic in the categories mentioned earlier. When configuring for billing, you should obtain these reports to help you determine which rates to set or adjust. If you are setting rates for many of the server usage activities, you should also use the report of current rates as an extension of the Billing Worksheet, marking it up to show the rates for all the various server usage activities desired.

Billing Worksheet

Complete one Billing Worksheet for each line group. For all rates except Base Rates, specify the Low rate, the High rate, and the Boundary (the point at which the High rate applies).

A sample Billing Worksheet is shown in Figure 11-2 and Figure 11-3. A blank worksheet is located in Volume 2 of this manual.

Note: The Billing Worksheet has two pages. Be sure you complete both pages when working on Billing Rates.

Mailbox Accesses

There are two types of mailbox access that you can bill for, logins and greets (number of times greeting was played), and you can set a low usage rate, high usage rate, and a low/high boundary for each type. The two types are shown on the worksheet and in Table 11-2 at the end of this section.

The rates you set for mailbox access apply to all calls through the specified port (line) group.

Base Rates

As mentioned earlier in this chapter, a base rate is a flat fee that is charged at every billing period. You must set a rate for each FCOS that you want to bill. You can only differentiate among the first 64 FCOSs; any FCOS higher than 64 is billed at the rates for FCOS 64.

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Figure 11-2 Sample Billing Worksheet

Figure 11-3 Sample Billing Worksheet

Connect Time

There are three connect time statistics that you can bill for: user connect time, caller connect time, and call placement connect time. All these statistics are accumulated in the same way, but you can have a different set of rates for each port (line) group in the server. These statistics measure off-hook to on-hook phone line usage.

- **User connect time** is the time used by the mailbox owner to pick up messages and/or to make messages for other mailbox owners. The rates you set for user connect time apply to all calls through the specified port (line) group.
- **Caller connect time** is the time charged when outside callers leave messages in a mailbox or listen to the greeting of a Greeting-Only mailbox. The rates you set for caller connect time apply to all calls through the specified port (line) group.
- **Call placement connect time** is the amount of time required to place an off-server call, including any greeting a caller hears. The low-usage rate and high-usage rate applies to all line groups. The rates you set for call placement connect time apply to the entire server.

Measurement Method

Connect time other than call placement connect time is measured in tenths of minutes (6 seconds), rounded up if not exact. Call placement connect time is measured in one-minute units. This statistic can increment to about 109 hours before the accumulator restarts at zero. This is equivalent to about 3.5 hours per day for a month.

Calculation of Charges

When charges are calculated, they are based on minutes of connect time, rather than tenths of a minute. This is to allow rates, which are precise to $0.001, to be adjusted by small amounts.

Disk Usage

This section explains billing for disk usage.

Measurement Method

The disk usage statistic is calculated as follows: the message size multiplied by the time on disk. Message size is measured in tenths of a minute (6 seconds), rounded up if not exact. Time on disk is measured in hours, rounded up to the next hour, and is calculated when the message is deleted from the server.

The disk usage statistic resets to zero after 16,777,215 units of usage (one unit equals one-tenth of a minute multiplied by 1 hour of storage). This is equivalent to keeping three hours of speech for 1 year.

Calculation of Charges

Users typically accumulate several thousand units of disk usage per month, unless they delete messages immediately after they are received. If the rate were applied to the usage as accumulated, a rate of $.001 would be a significant charge, and the only way the rate could be changed would be to double it. Therefore, when charges are calculated, disk usage values are

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divided by one hundred, and the rate is specified to the nearest mil per minute of speech that has been kept for ten hours.

Other factors in the calculation of charges are:

- A user is not billed for messages that have not been deleted at the time that billing data are gathered. These messages are eventually deleted, however, and the charges are greater, since the time on disk has increased.
- No disk usage is accumulated for names or greetings. Charges for these can be included in the base rates.
- If a message is made with a distribution list, each mailbox that receives the message is charged for it.
- If a user gives a message, with comments, to another user, the sender is charged for the original message for as long as it remains on the server. The recipient is charged disk usage for both the original message, and for the comments, until each is deleted from the mailbox.

Messages Received

Every time a message is left in a mailbox, one of 14 statistics is incremented for that mailbox. Each message statistic can accumulate up to 4095 messages before it resets to zero. This is equivalent to 132 messages per day, for a month.

User messages are incremented in two ways:

- When a caller phones his/her own mailbox and “makes a message” for another mailbox, the recipient’s mailbox counter increases.
- When a user “gives” a message, with comments, to another mailbox, the counter of the recipient mailbox increases by one. (The message, plus the comments, are counted as one message.)

Caller messages are incremented in several ways:

- When a caller phones into the server directly and leaves a message.
- When a greeting is delivered for a Greeting-Only mailbox. This includes times when the mailbox owner logs into his mailbox by pressing the star (*) key while the greeting is playing.
- When a caller phones into the server directly and leaves an urgent message.
- When a caller phones into the server directly, leaves a message, and requests a receipt response.

Network Rates

Network rates that can be set are grouped as message counts and message lengths.

Network message counts include messages sent, messages sent urgent, messages received, and messages received urgent. Network message lengths include messages sent, messages sent urgent, messages received, and messages received urgent. See Table 11-2 for a complete list of network rate statistics.

Pager Calls

Pager call rates are set by pager system, not by individual pager. Pagers that have the same access code index are on the same pager system. In the Billing Report, charges for pager calls

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are listed by line group.

Each time a successful page is issued, a counter is incremented in the mailbox. This does not necessarily correspond to the number of messages received. If two messages are received at the same time, only one page is made. If a message is not picked up within a selected period (the pager interval, which was configured when the mailbox was created), the server repages, if the mailbox pager frequency (which also was configured when the mailbox was created) is greater than 1. Each repage is counted as a separate page.

Unsuccessful repages are not counted in the mailbox statistics.

Adjusting Pager Call Rates in Mid-Cycle

The rate at which a page is billed depends on the access code index (the Pager System number) that is in the mailbox setup at the time the gather is done, not the one that is present at the time the page is made. If the access code index or the billing rate is changed in the middle of the billing period, all pages that were accumulated during the billing period are billed at the new rate.

Termination of Paging

When paging service is discontinued in the middle of the billing period, there is no access code index in the mailbox at the time of billing and, therefore, no pages are billed, even if some have accumulated. To avoid this situation, generate a Termination Report (described earlier) before modifying the mailbox. This calculates the amount due without changing the statistics in the mailbox; the other charges are correct at the regular billing.

Low Usage Rates, Low/High Boundary, High Usage Rate

The rates and boundary specified apply to all pagers in the specified pager system.

Message Delivery Billing Considerations

The server is capable of billing both paging and message delivery on a per-page basis. However, keep in mind that the server installation site, as the calling party, is responsible for any charges that accrue when paging or message delivery calls are made to the outside telephone network. While pager calls are usually very short, message delivery calls can be quite long. Since the cost of each call depends on the time of day that it was made, the duration of the call, the distance to the user, and the rates of the local telephone company, the server makes no provisions for this aspect of the billing.

The billing rates structure does allow you to specify an individual rate for each pager system. This rate is multiplied by the number of pages that are issued for the mailbox. If you put message delivery accounts and radio pager accounts on separate pager systems, you can increase the charges on the pager systems that service message delivery subscribers to compensate for any toll charges that the telephone company levies.

Adjusting Rates

You can set, adjust, or leave as is a low usage rate, low/high boundary rate, and high usage rate for each of the statistics in the billing categories on the worksheet (Table 11-2).

Table 11-2 Billing Categories

Category	Statistics Calculated and Reported
Mailbox accesses	Logins Greets

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Base rates	FCOS usage by FCOS number (1-64 only)
Connect time (by line group)	User connect time Caller connect time Call placement connect time
Disk usage	Disk usage units other Fax disk usage (length of messages x time on disk) Fax disk usage units (applicable if the NuPoint Fax optional feature is installed)
Messages received	User messages Caller messages Call placement messages Future delivery messages Urgent messages Wakeup messages Receipt responses messages Fax received messages Fax sent messages Fax retrieval messages Fax undelivered messages Fax pages received messages Fax pages sent messages Fax pages retrieval messages } Applicable if the NuPoint Fax optional feature is installed.
Network rates (applicable if the NP Net optional feature is installed)	Network messages sent Network urgent messages sent Number of network nodes sent to Number of network nodes sent urgent to Number of remote network recipients sent to Number of remote network recipients sent urgent to Network messages received Network urgent messages received Message length for network messages sent Message length for network messages sent urgent Message length for network messages received Message length for urgent network received Message length for number of network nodes sent Message length for number of network nodes sent urgent Message length for number of remote recipients sent Message length for number of remote recipients sent urgent

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Network rates (applicable if the NP Net optional feature is installed)	Network messages sent Network urgent messages sent Number of network nodes sent to Number of network nodes sent urgent to Number of remote network recipients sent to Number of remote network recipients sent urgent to Network messages received Network urgent messages received Message length for network messages sent Message length for network messages sent urgent Message length for network messages received Message length for urgent network messages received Message length for number of network nodes sent Message length for number of network nodes sent urgent Message length for number of remote recipients sent Message length for number of remote recipients sent urgent
Pager Calls	Successful pages issued

12 Reports

This chapter describes NuPoint Messenger server reports available to you. These types of reports are covered:

- System Error Logfile
- Statistics reports
- Verify reports
- Billing reports
- Configuration and usage reports
- Phonebook Report

Five of the reports in this chapter are also included in the *Installation and Service Manual,* along with their related procedures. The duplicated reports and procedures are:

- Hard Disk Operational Parameters Report
- History File
- System Error Logfile
- System Information Report
- Virtual Drive Statistics Report

Overview

The server records information for many uses, such as determining the status of the server, troubleshooting a problem, maintaining a history of software installed on the server, checking mailbox activity, or administering mailboxes. Reports can be directed to the console, to a serial port, or a file. You can generate a hard copy of a report by connecting a printer to a serial port. The server supports a 9600-baud, 400 cps, 75K buffer serial printer.

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Output Options

If the report is long, use the **P** option when displaying the report to the console. This displays the report 24 lines at a time, pausing until you hit the space bar. You must enter **Q** to Quit out of the pausing option. You can enter **Q** at any time if you do not want to see the entire report.

If the **P** option is not available for a particular report, use the following commands to control scrolling:

- To stop scrolling: **Ctrl-S**
- To resume scrolling: **Ctrl-Q**
- To discontinue the report: **Ctrl-C**

Procedures

Use the following procedures to generate or view reports. These procedures are located in Volume 2 of this manual.

Procedure	Number
Report Generation	CP 3375
Run a Billing Report	CP 3366
Run a Complete Summary Report	CP 5305
Run a Fax Group Usage Report	CP 5316
Run a Group Usage - All Trunks Busy Report	CP 5306
Run a Line Group Usage Report	CP 5307
Run a Line Usage Report	CP 5309
Run a Logfile Report	CP 5302
Run a Mailbox Blocked Report	CP 4367
Run a Mailbox Data Report	CP 4372
Run a Message Usage Report	CP 5308
Run a Phonebook Report	CP 4374
Run a Previous Billing Report	CP 4368
Run a Speech Usage Report	CP 5310
Run a System Information Report	CP 1340
Run a System Phoneline Exceptions Report	CP 4369
Run a Termination Report	CP 3370
Run a Total Statistics Report	CP 5311
Run a Virtual Drive Statistics Report	CP 5312
Run Mailbox Statistics Reports	CP 4373
Run NP Receptionist Reports	CP 4371
Show or Edit the History File	CP 5304
View the Hard Disk Operational Parameters	CP 5313

Logfiles

The logfile is a record of any detected module or server errors, and the date and time of any server resets. Each module maintains its own copy of the logfile, resulting in a delay in a request to display the logfile while the server produces the report. The larger the report becomes, the longer the delay in the viewing process becomes.

The default is that the logfile is stored on the hard disk in a file named “/usr/vm/log/logfile,” and that it is sent to the console when the “Show logfile” option is selected. You can save the record into a file with another name or send the information to either the console or a serial device such

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as a printer.

Using the Logfile Menu, there are two ways to change where the logfile is viewed and what port it is sent to. The menu choice “Toggle Display, Choose Logfile Serial Redirection,” changes where the information is sent as it occurs. This is a temporary setting and is removed when the server is reset. You can use this menu option when the hard disk has run out of room to save the log data, or if you want to see the log activity momentarily. The menu choice “Choose logfile serial redirection,” changes the default settings and is used after a server reset. By changing the serial redirection to a serial port that has a printer attached, you can produce a hard copy of the information. You can still view the report on the console using the “Show logfile” menu option.

For server maintenance, review and clear all logfiles on a weekly basis. If entries have been made to the report since the last time it was displayed, the System Status screen above the Main Menu shows a Y in the ERRORS: field.

Note: If you are unsure of the meaning or importance of any logfile message, do not clear the logfile until you have consulted with the server technician or your distributor.

The logfile is in the format:

```
<sitecode><m> <tid>(<task_name>) <date> <time>: <error message> <code>
```

where:

<sitecode>	Site code assigned to the module (seen serial output only)
<m>	Module on which the failure occurred
<tid>	Task id of the program reporting the problem
<task_name>	Name of the server resource
<date>	Date of the occurrence
<time>	Time at which this happened
<error message>	Type of error that has occurred
<code>	Failure code

If your server is single module, the module number is listed as 0 instead of 1.

Failure codes are explained in the *Installation and Service Manual.* A Sample Logfile Report from a single module server is shown in Figure 12-1.

Figure 12-1 Sample Logfile Report

```
SYSTEM ERROR LOGFILE
Thu Apr 20 17:34:39 1995

1 00151(vmnet   ) 04/20 16:37:05: VMNET: NB1 skip 0 [90100000002640]
1 00151(vmnet   ) 04/20 16:37:05: VMNET: set_nq_rply(4) skip 0
[90100000002640]

1 00142(vmnet   ) 04/20 16:39:35: VMNET: NB1 skip 0 [90100000002640]
1 00142(vmnet   ) 04/20 16:39:35: VMNET: set_nq_rply(4) skip 0
[90100000002640]

1 00115(netq_age) 04/20 16:39:35: NETQLIB: can't send to NETQ
1 00296(allocato) 04/20 16:39:35: allocator: Allocated
'/usr/vm/bin/netq' to node 1 type 5

1 00105(sendvm  ) 04/20 16:39:36: aopen fail reslt=-
```

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7,rcrd=000000000000000

Statistics Reports

The server can produce many types of statistics reports, as shown in Table 12-1. You can request reports for any or all parts of the most recent seven days' activity. Standard reports for each statistic show the resource usage in 15-minute increments. The server administrator has the option of generating a summary report, where one set of data is generated for the entire time period.

Table 12-1 Types of Statistics Reports Available

Report	Description
All Trunks Busy Statistics (Group Usage)	Shows the number of times in a specified period that *every* port within a line group was busy, and the total number of seconds that this condition occurred within that time period. You can display data for a single line group or for a range of line groups.
Line Group Usage Statistics	Gives the number of seconds that an individual port was busy and the number of calls received by that port, within a chosen time period. You can display data for a single port or for a range of ports. This report is similar to Line Usage Statistics except it is at the line group level.
Line Usage Statistics	This report shows the number of seconds during which individual ports were busy, and how many calls each line received, over a specified reporting period.
Mailbox Statistics	See the Mailbox Usage section of this chapter, under Configuration and Usage Reports.
Message Count Statistics	Shows the total number of messages that were used, how many were free, and the percentage of server storage that was used, for a specific time period.
Speech Block Usage	Shows the amount of speech storage that was in use, and the amount available, over a specified period of time.
Fax Group Usage Statistics	Shows transactions, use, resources, and busy line information for NuPoint Fax groups.
Complete Summary Report	Also called Total Statistics Summary Report, a summary of all report statistics, containing the most meaningful report information for each day of the entire week.
Total System Statistics Report	Shows how much storage capacity on the hard disk has been consumed, and how much is still available.
Virtual Drive Statistics	Shows how much of the storage capacity on the each of the drive partitions has been consumed, and how much is still available.

Group Usage Report

This report, also called Line Groups--All Trunks Busy Report, shows how many times, and for how many seconds, every port in a line group is busy simultaneously. This condition is called "All

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Trunks Busy," or ATB. The server administrator must specify the line group(s), the start and stop times, and the start and stop days for the report. The report can be presented in one of two methods. The Standard Group Usage displays the All Trunks Busy data for each line group in 15-minute increments, for each hour of the chosen interval. The Group Usage Summary Report shows a single value for each line group. Figure 12-2 shows a Sample Standard Group Usage Report.

Figure 12-2 Sample Standard Group Usage Report

```
LINE GROUP ATB 15min REPORT

                        Thu Apr 20, 1995  5:58 pm



04/17/95  8hr-17hr       --- minutes interval ---
Port Group 1 [ESMDI]

DAY=01 HOUR=08          00-14     15-29     30-44    45-59  TOTAL  BUSY

ATB_SEC                   218        77        81      249  625    17 %
ATB_CNT                    10         1         8     13 32



DAY=01 HOUR=09          00-14     15-29     30-44    45-59  TOTAL  BUSY

ATB_SEC                    35       163         0      0    198     6 %
ATB_CNT                     6        10         0     0 16



DAY=01 HOUR=10          00-14     15-29     30-44   45-59   TOTAL  BUSY

ATB_SEC                    44        13         0      0     57     2 %
ATB_CNT                     4         2         0     0 6



DAY=01 HOUR=11          00-14     15-29     30-44   45-59   TOTAL  BUSY
ATB_SEC                     5         0        14      0     19     1 %
ATB_CNT                     1         0         3     0 4

   HIGHEST ATB_SEC: 625 sec at 8 hr
   LOWEST  ATB_SEC: 0 sec at 12,13,14,15,16 hr
```

Reading the Standard Group Usage Report

The report heading shows the date and time that the report was run.

The first line of the report shows the date of the first statistic in the report and time interval during which the data was gathered.

Port Group

The data displayed immediately below this entry refers to line group 1.

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DAY = 01 HOUR = 15

The data displayed immediately below refers to the hour between 3 and 4 p.m. on Monday. 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; 15-29 refers to the second 15-minutes of the hour, etc.

TOTAL

The data for the four 15-minute intervals. If a hyphen appears, in place of a numerical value, it means that the data have not yet been gathered. For example, if the report is run at 3:30 p.m., and the report interval is 12-15 (noon to 3 p.m.), the entries for hour 15 (3 to 4 p.m.) should be hyphens.

BUSY

The percentage of the hour when all trunks were busy. For example, for Group 1, between 3 and 4 p.m., an ATB condition occurred for 150 seconds out of 3600, or 4% of the time.

ATB_SEC

The total number of seconds in the time period that an ATB condition occurred.

ATB_CNT

The number of times that an ATB condition occurred. The counter is incremented when an ATB condition first occurs. The ATB condition must clear, then reoccur, before the counter is incremented again. For example, if you had an ATB condition that lasted for 3 seconds, the ATB-SEC counter increases by 3, but the ATB_CNT counter is increased by 1.

HIGHEST ATB_SEC

The greatest total amount of time during which ATB conditions occurred in a fifteen minute interval, for the period reported. (It does not mean the longest single interval during which an ATB occurred.) In other words, this interval is your server's busiest period during the interval reported.

LOWEST ATB_SEC

The least total amount of time during which ATB conditions occurred in a fifteen minute interval, for the period reported. (It does not mean the shortest single interval during which an ATB occurred.) This is the period of slowest traffic for your server during the interval reported.

Figure 12-3 Sample Group Usage Summary Report

```
>>> Acme Products System <<<

TOTAL LINE GROUP ATB SUMMARY REPORT
Mon Apr 8, 1995  2:29 pm

              11/08/95  8hr-17hr  day1-day5

        GROUP NAME        ATB_SEC   ATB_CNT   PERCENT

        1     VMemo         200       100        5 %

        2     Pager         100        50        3 %
```

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```
3       Sales          300        150         8 %

4       Eng            400        200        11 %

5       Exec           100         50         3 %

6       Mktg           200        100         5 %
```

Reading the Group Usage Summary Report

The Group Usage Summary Report (see sample in Figure 12-3) displays the line groups by number, then gives the total seconds, the total number of times and the total percentage of time, that an ATB condition occurred in that line group for the entire period reported. This report is much less specific than the standard report, but it allows the server administrator to see at a glance which line group received the most traffic for the specified time interval. In addition, by comparing the ATB count with the ATB seconds count, the server administrator can determine the average duration of the ATB condition during this period, for each line group.

Line Group Usage Report

This report shows the number of seconds during which individual ports in a line group were busy, and how many calls each port received, over a specified reporting period. The server administrator can choose to display the data for a single group, or for a range of group numbers. The reporting period can be any hour, or range of hours, from the current day or portions of the most recent seven days. The server administrator can choose to run either a full report, which gives the statistics in 15-minute increments for each hour of the reporting period, or a summary report, which shows the average line group usage for each hour. Figure 12-4 shows Sample Standard Line Group Usage Report.

Figure 12-4 Sample Standard Line Group Usage Report

```
LINE GROUP USAGE 15 min REPORT
Fri, Apr 6, 1995  4:42 pm

06/06/95  15hr-16hr        --- minutes interval ---     Group = 1

LINE 1:0:0           HOUR=14  00-14  15-29  30-44  45-59  TOTAL USAGE
SECONDS                       10     40     200    50     300    8 %
CALLS                          1      1      10     2      14

LINE 1:0:1           HOUR=14  00-14  15-29  30-44  45-59  TOTAL USAGE
SECONDS                          5    100     40     70    215   6 %
CALLS                            1      2      3      4    10

LINE 1:0:2           HOUR=14  00-14  15-29  30-44  45-59  TOTAL USAGE
SECONDS                          0      0      0      0     0   0 %
CALLS                            0      0      0      0     0

LINE 1:0:3           HOUR=14  00-14  15-29  30-44  45-59  TOTAL USAGE
SECONDS                          0      0      0      0     0   0 %
CALLS                            0      0      0      0     0
```

Reading the Line Group Usage Report

The report heading shows the date and time that the report was run.

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The first line of the report shows the date and time interval during which the data were gathered.

GROUP

The lines belong to Line Group 1.

LINE 1:0:3 HOUR=14

The data displayed immediately below refer to the triplet 1:0:3, during the hour between 2 and 3 p.m. 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; 15-29 refers to the second 15-minutes of the hour, etc.

TOTAL

The data for the four 15-minute intervals. If a hyphen appears, in place of a numerical value, it means that the data have not yet been gathered. For example, if the report is run at 3:30 p.m., and the report interval is for hours 12-15 (noon to 3 p.m.), the entries for hour 15 (3 to 4 p.m.) show hyphens.

USAGE

The percentage of the hour the line was busy. Line 1:0:0, for example, was busy for 300 seconds out of 3600, or 8% of the time between 2 and 3 p.m.

SECONDS

The total number of seconds in the time period during which the line was busy.

CALLS

The number of calls that were received by that line for the time period.

Figure 12-5 Sample Line Group Usage Summary Report

```
>>> Acme Products System <<<

                TOTAL USAGE PER GROUP SUMMARY REPORT

                      Tue Aug 24, 1995  2:43 pm

                        Hours 8-17  Days 1-5

                   GROUP    SECONDS      CALLS

                      1        515        24
```

Reading the Line Group Usage Summary Report

The Line Group Usage Summary Report (see sample in Figure 12-5) displays the line groups by number, then gives the total seconds, the total number of times, that a line in that line group was used for the entire period reported. This report is much less specific than the standard report, but it allows the server administrator to see at a glance which line group received the most traffic for the specified time interval.

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Line Usage Report

This report shows the number of seconds during which individual lines were busy, and how many calls each line received, over a specified reporting period. You can display the data for a single line, or for a range of line numbers. The reporting period can be any hour, or range of hours, from the current day or portions of the most recent seven days. Figure 12-6 shows a Sample Standard Line Usage Report.

Figure 12-6 Standard Line Usage Report

```
LINE USAGE 15min REPORTFri Apr 21, 1995 10:28 am

04/21/95  8hr-12hr       --- minutes interval ---

DAY=01 LINE=1:3:0

HOUR=08              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0

HOUR=09              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0

HOUR=10              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0

HOUR=11              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0

HOUR=12              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0

HIGHEST USAGE: 0 sec at 8,9,10,11,12 hr
LOWEST  USAGE: 0 sec at 8,9,10,11,12 hr

DAY=01 LINE=1:3:

HOUR=08              00-14     15-29     30-44     45-59   TOTAL USAGE
SECONDS              0         0         0         0       0     0 %
CALLS                0         0         0         0       0
```

Reading the Standard Line Usage Report

The report heading shows the date and time that the report was run.

The first line of the report shows the date and time interval during which the data were gathered.

DAY=01 LINE = 1:3:0

The data displayed immediately below refer to module 1, slot 3, port 0 (the triplet 1:3:0), on Monday. 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; 15-29 refers to the second 15-minutes of the hour, etc.

TOTAL

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The data for the four 15-minute intervals. If a hyphen appears, in place of a numerical value, it means that the data have not yet been gathered. For example, if the report is run at 3:30 p.m., and the report interval is for hours 12-15 (noon to 3 p.m.), the entries for hour 15 (3 to 4 p.m.) show hyphens.

USAGE

The percentage of the hour the line was busy.

SECONDS

The total number of seconds in the time period during which the line was busy.

CALLS

The number of calls that were received by that line for the time period.

HIGHEST USAGE

The greatest total amount of time during which the line was busy, in a single fifteen minute interval of the reporting period.

LOWEST USAGE

The least total amount of time during which the line was busy, in a single fifteen minute interval of the reporting period. This was the period of slowest traffic for that line during the reporting interval.

Figure 12-7 Line Usage Summary Report

```
TOTAL USAGE PER LINE SUMMARY REPORT
Fri Apr 21, 1995 10:37 am

                          Hours 8-12  Days 1-5

                    TRIPLET  SEC_BUSY     CALLS

                     1:3:0     22703        168

                     1:3:1      4069         31

                     1:3:2       695          4

                     1:3:3       108          1

                     1:5:0        44          1

                     1:5:1        57          1
```

Reading the Line Usage Summary Report

The Line Usage Summary Report (see sample in Figure 12-7) displays the ports by triplet, then gives the total seconds during which each line was busy, and the total number of calls that each line received, during the entire report period. The summary report is much less specific than the standard report, but it allows the server administrator to see at a glance which line received the most traffic for the specified time interval. In addition, by comparing the number of seconds that a

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port was busy with the number of calls that the line received, the server administrator can determine the average duration of a call during this period, for each port.

Message Usage Report

The Message Usage Report (see sample in Figure 12-8) shows the number of messages that were received, the number of messages that were still available, and the percent of message storage available, during a specified reporting period.

The reporting period can be any hour, or range of hours, from the current day or portions of the most recent seven days. The server administrator can choose to run either a full report, which gives the statistics in 15-minute increments for each hour of the reporting period, or a summary report, which shows the average message usage for each hour. Figure 12-8 shows a Sample Standard Message Usage Report.

Figure 12-8 Sample Standard Message Usage Report

```
MESSAGE USAGE 15min REPORT
Fri Apr 21, 1995 10:42 am
04/17/95  8hr-11hr  --- minutes interval ---       Max Messages=90000

MESSAGE  HOUR=07      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86534     86533     86534     86533     86533
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=08      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86518     86501     86484     86508     86502
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=08      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86484     86508     86484     86508     86496
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=09      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86512     86515     86558     86568     86538
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=09      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86558     86568     86558     86568     86563
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=10      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86611     86636     86641     86621     86627
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=10      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86641     86621     86641     86621     86631
PERCENT  USED             4 %       4 %       4 %       4 %       4 %

MESSAGE  HOUR=11      00-14     15-29     30-44     45-59 AVERAGE
MESSAGE  FREE         86593     86598     86592     86583     86591

PERCENT  USED             4 %       4 %       4 %       4 %       4%
```

Reading the Standard Message Usage Report

The report heading shows the date and time that the report was run.

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The first line of the report shows the date and time interval during which the data were gathered, and the total number of messages that were received during that time period. This line is repeated for each day of the report.

MESSAGE HOUR = 07

The data displayed immediately below was gathered during the hour between 7 and 8 a.m. 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; 15-29 refers to the second 15-minutes of the hour, etc. Note how the report covers data from 7 to 8 a.m., 8 to 9 a.m., and so on.

AVERAGE

The average value of the four 15-minute samples. If a hyphen appears, in place of a numerical value, it means that the data have not yet been gathered.

MESSAGE FREE

The number of messages that were not in use at the time of sampling.

PERCENT USED

The number of messages that were in use as percentage of the maximum number of messages that are allowed on the server.

Figure 12-9 Message Usage Summary Report

```
AVERAGE MESSAGE USAGE SUMMARY REPORT
Fri Apr 21, 1995 10:50 am


04/14/95  13hr-16hr  Max Messages=90000
DAY       HOUR       FREE       USED    PERCENT
1         13      86512       3488          4%
1         14      86518       3482          4%
1         15      86489       3511          4%
1         16      86472       3528          4%

04/14/95  13hr-16hr  Max Messages=90000
DAY       HOUR       FREE       USED    PERCENT
2         13      86210       3790          4%
2         14      86189       3811          4%
2         15      86271       3729          4%
2         16      86227       3773          4%

04/14/95  13hr-16hr  Max Messages=90000
DAY       HOUR       FREE       USED    PERCENT
3         13      86138       3862          4%
3         14      86096       3904          4%
3         15      86062       3938          4%
3         16      86015       3985          4%
```

Reading the Message Usage Summary Report

The Message Usage Summary Report (see sample in Figure 12-9) displays the by day and hour, the total number of messages used, the total number of messages available, and the percent of message storage used. The summary report is much less specific than the standard report, but it allows you to determine the hours at which message storage was at its peak, and which hours

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had relatively little message storage.

You can report the hours immediately before and after midnight to judge the effectiveness of the automatic purge. If message storage is near or above 80% on a regular basis, for example, most mailbox LCOSs on the server should be adjusted, to give these mailboxes a shorter message retention time. This makes the purge more effective, and frees message storage more quickly. As an alternative, the maximum number of messages and maximum message length can be decreased on as many of the server's LCOSs as is feasible.

Speech Usage Report

Each server has a maximum number of storage units available on the hard disk. The number of these speech storage units, called "speech blocks," depends on the storage hour capacity of the hard disk. In addition to messages, mailbox names and greetings, prompts, and distribution list names all consume speech storage blocks. The Speech Usage Report (see sample in Figure 12-10) shows the maximum number of speech blocks for your server, the number of blocks in use, and the percent of message storage still available, during a specified reporting period.

The reporting period can be any hour, or range of hours, from the current day or portions of the most recent seven days. The server administrator can choose to run either a full report, which gives the statistics in 15-minute increments for each hour of the reporting period, or a summary report, which shows the average speech block usage for each hour.

Figure 12-10 Sample Standard Speech Block Usage Report

```
SPEECH USAGE 15min REPORT

Fri Apr 21, 1995 10:54 am

04/17/95  15hr-16hr  --- minutes interval ---    Max Speech Blks=0

SPEECH   HOUR=15      00-14     15-29     30-44     45-59   AVERAGE
BLOCKS   FREE             -    328304    327818    327603    327908
PERCENT  USED             -        15 %      15 %      15 %      15 %

SPEECH   HOUR=16      00-14     15-29     30-44     45-59   AVERAGE
BLOCKS   FREE        327708    327400    326773    326367    327062
PERCENT  USED            15 %      15 %      15 %      15 %      15
```

Reading the Standard Speech Block Usage Report

The report heading shows the date and time that the report was run.

The first line of the report shows the date and time interval during which the data were gathered, and the maximum number of available speech storage blocks on the server (Max Speech Blks). This line is repeated for each day in the report.

SPEECH HOUR = 15

The data displayed immediately below were gathered during the hour between 3 and 4 p.m. An entry of 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; an entry of 15-29 refers to the second 15-minutes of the hour, etc.

AVERAGE

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The average value of the four 15-minute samples. If a hyphen appears, in place of a numerical value, it means that the data have not yet been gathered.

BLOCKS FREE

The number of speech blocks that were not in use at the time of sampling.

PERCENT USED

The number of speech blocks that were in use, as percentage of the maximum number of speech blocks that are allowed on the server.

Figure 12-11 Speech Block Usage Summary Report

```
AVERAGE SPEECH_BLOCK USAGE SUMMARY REPORT
Fri Apr 21, 1995 10:58 am

                    04/17/95  8hr-17hr MAX  BLOCKS=384000
                     HOUR       FREE       USED    PERCENT

                       8      327175      56825       15 %
                       9      327723      56277       15 %
                      10      329312      54688       14 %
                      11      328879      55121       14 %
                      12      328290      55710       15 %
                      13      328231      55769       15 %
                      14      328473      55527       14 %
                      15      327908      56092       15 %
                      16      327062      56938       15 %
                      17      325930      58070       15 %
```

Reading the Speech Usage Summary Report

The Speech Usage Summary Report (see sample in Figure 12-11) displays the number of speech blocks used and free, and the percent of speech storage used, by hour. The summary report is much less specific than the standard report, but it allows you to determine the hours when speech storage is at its peak, and which hours have relatively little speech storage.

The results of this report can be compared with the results of the Message Usage Report, to obtain an accurate picture of message and non-message related speech storage. If names and greetings consume too large a percentage of speech storage, leaving too little storage for transient messages, the server administrator can either decrease the maximum greeting length allowed in the LCOSs for that server, or limit the recording of names for certain FCOSs, or both.

Fax Group Usage Report

This report covers NuPoint Fax statistics, showing transactions, use, resources, and busy line information for NuPoint Fax groups. A NuPoint Fax group is a set of fax ports on an MVIP bus. Each MVIP bus is specific to one module. Line groups can be assigned to a NuPoint Fax group so the fax resources are shared. Figure 12-12 shows a Sample Standard Fax Group Usage Report. Figure 12-13 shows a sample Fax Group Usage Summary Report.

Figure 12-12 Sample Fax Group Usage Report

```
FAX GROUP USAGE 15min REPORT
Fri Apr 21, 1995  9:12 am
```

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```
04/17/95  8hr-17hr       --- minutes interval ---
Fax Group 1 []


DAY=01 HOUR=08    00-14     15-29     30-44     45-59   TOTAL  BUSY
Transactions           0         0         0         0       0
Total Use              0         0         0         0       0
No Resource Count      0         0         0         0       0
ATB Seconds            0         0         0         0       0     0 %
ATB Count              0         0         0         0       0


DAY=01 HOUR=09    00-14     15-29     30-44     45-59   TOTAL  BUSY
Transactions           2         1         0         0       3
Total Use            102        51         0         0     153
No Resource Count      0         0         0         0       0
ATB Seconds            0         0         0         0       0     0 %
ATB Count              0         0         0         0       0


DAY=01 HOUR=10    00-14     15-29     30-44     45-59   TOTAL  BUSY
Transactions           0         0         0         2       2
Total Use              0         0         0        85      85
No Resource Count      0         0         0         0       0
ATB Seconds            0         0         0         0       0     0 %
ATB Count              0         0         0         0       0

HIGHEST ATB_SEC: 0 sec at 8,9,10,11,12,13,14,15,16,17 hr
LOWEST  ATB_SEC: 0 sec at 8,9,10,11,12,13,14,15,16,17 hr
```

Reading the Fax Group Usage Report

The report heading shows the date and time that the report was run.The first line of the report shows the date and time interval during which the data were gathered. This line is repeated for each day in the report.

DAY=01 HOUR=08

The data displayed immediately below refer to 8 a.m. Monday, for example. 00-14 indicates that data in that column were gathered during the first fifteen minutes of the hour; 15-29 refers to the second 15-minutes of the hour, and so on.

TRANSACTIONS

The number of fax connection requests during the time intervals that used a NuPoint Fax resource. A transaction starting during one interval and ending in another is counted in the starting interval only. However, the Total Use and ATB Seconds fields (following) accumulate for their respective intervals.

TOTAL USE

The number of seconds that fax resources were used during that interval.

NO RESOURCE COUNT

The number of times a transaction could not be completed because no fax resources were available.

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ATB SECONDS

The total number of seconds in the time period that an ATB (All Trunks Busy) condition occurred to the lines in the fax group.

ATB COUNT

The number of times that an ATB condition occurred to the lines on the fax group. The counter is incremented when an ATB condition first occurs. The ATB condition must clear, then reoccur, before the counter is incremented again.

Figure 12-13 Sample Fax Group ATB Summary Report

```
TOTAL FAX GROUP ATB SUMMARY REPORT

Fri Apr 21, 1995  9:10 am

04/17/95  8hr-17hr  day1-day5
GROUP        TRANSACTIONS TOT SEC NO RES    ATB CNT ATB SEC BUSY
------       ------------ ------- ------    ------- ------- ----

  1                  83    4278       0          0       0     0 %

  2                  17     513       1          0       0     0 %
```

Reading the Fax Group ATB Summary Report

The Fax Group Usage Summary Report (see sample in Figure 12-13) displays the number of transactions for the interval specified, the total seconds of use, and the number of time no fax resource was available and an ATB condition occurred on lines in the fax group. The summary report is much less specific than the standard report, but it allows you to easily determine the hours at which fax usage is at its peak. You can use this report to reassign the fax groups based on any imbalances you might detect.

Complete Summary Report

Also known as the Total Statistics Summary Report, this report prints total statistics for a number of items, such as message count, speech blocks, fax transactions, and network usage. The report is for the previous week, in Sunday to Saturday order. In the example given in Figure 12-14, the Friday data is for the day the report was run, and the Saturday data is for six days previous (April 15).

Figure 12-14 Sample Complete Summary Report

```
TOTAL STATISTICS SUMMARY REPORT
Fri Apr 21, 1995 12:26 pm
------------------------------< SUNDAY >--------------------------------
Date:    Sun Apr 16 23:15:07 1995
Last Reset: Sat Apr 15 08:52:55 1995

Total Messages:       90000                  Lowest Messages Free:    86377
Total Speech:        384000                  Lowest Speech Free:     325480
Total Calls:              0                  Total Seconds:         0:00:00
Line ATB Count:           0                  Line ATB Seconds:      0:00:00
Fax Trans:                2                  Fax Total Secs:        0:00:02
Fax ATB Count:            0                  Fax ATB Seconds:       0:00:00
Fax No Res Cnt:           0
```

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```
NETWORKING      <=========== PEAKS ==========><========== TOTALS =========>

MESSAGES:         IN QUEUE   MINUTES   LATENCY DELIVERED   UNDELIV  RECEIVED

BATCH:                   9         0   0:00:00         0         0        27
URGENT:                  0         0   0:00:00         0         -         1-
----------------------------< MONDAY >-------------------------------------

Date:    Mon Apr 17 23:15:06 1995
Last Reset: Mon Apr 17 15:14:50 1995

Total Messages:       90000                    Lowest Messages Free:    86234
Total Speech:        384000                    Lowest Speech Free:     324377
Total Calls:              0                    Total Seconds:         0:00:00
Line ATB Count:           0                    Line ATB Seconds:      0:00:00
Fax Trans:               20                    Fax Total Secs:        0:00:20
Fax ATB Count:            0                    Fax ATB Seconds:       0:00:00
Fax No Res Cnt:           0
NETWORKING      <=========== PEAKS ==========><========== TOTALS ========>
MESSAGES:         IN QUEUE   MINUTES   LATENCY DELIVERED   UNDELIV  RECEIVED
BATCH:                  55         0   0:00:00         0         0       354
URGENT:                  0         0   0:00:00         0         -        34
```

Reading the Complete Summary Report

The Total System Statistics Report entries have the following meanings:

Each day of the week has a banner with the day name, followed by the date, and the date the server was last reset. In the example above, the last reset for Sunday was on Saturday, the last reset for Monday was on Monday.

TOTAL MESSAGES

This is the number of messages available on the server.

LOWEST MESSAGES FREE

This is the smallest number of messages not in use that day (server checked every 15 minutes).

TOTAL SPEECH

This is the number of speech blocks available on the server.

LOWEST SPEECH FREE

This is the smallest number of speech blocks not in use that day (server checked every 15 minutes).

TOTAL CALLS

The number of calls processed by the server that day.

TOTAL SECONDS

The number of seconds that ports were busy.

LINE ATB COUNT

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The number of times an ATB (All Trunks Busy) condition occurred on a line group.

LINE ATB SECONDS

The total number of seconds the entire line group was busy that day.

FAX TRANS

The number of fax transactions processed by the server that day.

FAX TOTAL SECONDS

The number of seconds the fax transactions in the previous item took to process.

FAX ATB COUNT

The number of times an ATB (All Trunks Busy) condition occurred on fax ports organized into fax groups.

FAX ATB SECONDS

The total number of seconds the ATB conditions in the previous item was in effect.

FAX NO RES CNT

The number of fax transactions that could not be processed because no fax resource was available.

NETWORKING MESSAGES

These numbers give peak and total amounts for network delivery of messages (NP Net), both regular and urgent queues. It differentiates between peak times and total per day.

Total Statistics Report

This report shows how much of the storage capacity on the hard disk has been consumed, and how much is still available. Figure 12-15 shows a Sample Total System Statistics Report.

Figure 12-15 Sample Total System Statistics Report

```
SYSTEM STATISTICS
Fri Apr 21 11:05:40 1995

Total            Free      Used
Message Numbers        90000            85909       5 %
Speech Blocks          384000           314271      18 %
Account Sectors        57344            54218       5 %
-------- Sectors -------       ----- Speech Blocks ----
Prompt Vid        Total    Free    Used       Total    Free    Used
english   1       6000    4894    18 %        13365    11759    12 %
Calls answered since Thu Apr 20, 1995 12:12 pm: 1116
```

Reading the Total System Statistics Report

The Total System Statistics Report entries have the following meanings:

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MESSAGE NUMBERS

The links between the messages, greetings, and names associated with mailboxes, and the mailboxes themselves. Each message, name, or greeting uses one message number.

SPEECH BLOCKS

All speech recorded through the telephone in the form of messages, comments, greetings, list names, and names. Approximately 2.2 seconds of speech consume one speech block.

ACCOUNT SECTORS

All mailbox and server information, including users' mailbox numbers, distribution lists, and passcodes; and any phoneline exceptions. One account sector is used for each mailbox, distribution list, and line with phoneline exceptions.

PROMPTS

This new section lists each set of prompts loaded on your server, and how much space is used, in both hard drive sectors and in speech blocks. You can use this data to determine whether you have room for additional prompts.

Virtual Drive Statistics Report

This report shows how much of the storage capacity on each of the drive partitions has been consumed, and how much is still available. Hard disks in the server are partitioned into multiple logical, or virtual drives. The report fields are the same as in the Total Statistics Report. Figure 12-16 shows a Sample Virtual Total Statistics Report.

Figure 12-16 Sample Virtual Drive Statistics Report

```
SYSTEM STATISTICS
Fri Apr 21 12:18:03 1995

                                    Total            Free       Used

        Virtual Drive #5

           Message Numbers           3750            3560        0 %

             Speech Blocks          16000           13056       18 %

        Virtual Drive #6

          Message Numbers            3750            3570        0 %

            Speech Blocks           16000           13060       18 %

        Virtual Drive #7

          Message Numbers            3750            3552        0 %

            Speech Blocks           16000           13056       18 %

        Virtual Drive #8

          Message Numbers            3750            3573        0 %
```

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```
            Speech Blocks            16000            13065      18 %
Total for all Virtual Drives

          Message Numbers            90000            85821       5 %

            Speech Blocks           384000           313264      18 %

          Account Sectors            57344            54208       5 %
----- Sectors ------- ----- Speech Blocks ----
Prompt Vid         Total    Free    Used   Total    Free    Used
english   1         6000    4894    18 %   13365   11759    12 %
Calls answered since Fri Apr 21, 1995 12:07 pm: 16
```

System Information

The System Information Report (see sample in Figure 12-17) contains the serial numbers of all disks in the server, all optional features loaded, and the number of hours of speech storage (based on 18 kbps speech quality). The hour, port, and link locks indicate the maximum number of hours, ports, and links that the current server can support. The UI (Unified Integration) lock lists the number of ports allowed for a Smartcard or multiple serial port card, used with an integration. If you have the NP View optional feature installed, this report lists the number of session and client licenses.

Figure 12-17 Sample System Information Report

```
SYSTEM INFORMATION

Fri Dec  1 09:59:37 1995
Thu Oct 26 14:19:45 PDT 1995
NuPoint Voice NuPoint Fax Release 6.00 Rev A23 Sat Oct 21 15:21:58 1995

Wed Nov 22 14:10:43 PST 1995
NuPoint Voice NP Net Async Release 6.00 Rev A23.03 Wed Nov 22 10:09:45 1995

             * * *   D I S K   I N F O R M A T I O N   * * *


      DISK    SERIAL              CONFIG    SPEECH          ACCOUNTS

       ID     NUMBER    CAPACITY   TYPE   (Messages)      (Mailboxes etc.)

      ====   ========   ========  ======  ==========  ======================

       0:0   1234        2049 MB    1      240 Hours   57344 Account Records

       0:1   1234        2049 MB    1      240 Hours   57344 Account Records

            Redundant Drives Lock : 8
                     System hours : 40
                        Hour Lock : 0
                        Port Lock : 0
                        Link Lock : 0
                          UI Lock : 0
            NP View session licenses: 100
            NP View client licenses: 300
            NP View remote licenses: 300
```

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Verify Reports

There are two verify reports that record the results of the verify program differently. You can review the results from the Offline Verify from the Reports Menu. You can review the results from the Online Verify from the System Verify Menu. There are two types of Online System Verify reports, Speech and Records. If you compare the results of an Offline System Verify with an Online System Verify, the number of messages will differ. The Offline Verify (see sample in Figure 12-18) reports the actual number of messages contained in the server. The Online Verify (see sample in Figure 12-19) reports the maximum number of messages the server can contain. For complete information on both Online and Offline Verify, refer to the appropriate *Installation and Service Manual* for your platform.

Figure 12-18 Sample Offline System Verify Report

```
                    >>> Acme Products System <<
                       SYSTEM VERIFY LOGFILE
                      Tue Feb 9, 1995 12:33 pm
                    >>> Acme Products System <<<
                     Verify Speech File Utility
                      Tue Feb 7, 1995  2:42 pm

Verify virtual speech drive 2:
Verifying master control sector...
Verifying prompt speech...
Verifying transient speech...
--- Summary of Speech File System Status ---

                                          TOTAL     USED    FULL (%)

Number of Prompt Directory Sectors         0020              28 %
Number of Prompt Pointer Sectors           0fa0      0475    29 %
Number of Transient Pointer Sectors        55f0      0000     0 %
Number of Prompt Speech Blocks             0fa0      0679    41 %
Number of Transient Speech Blocks        00fa00    000000     0 %

 1141 prompt(s) verified.
    0 prompt(s) contained errors.

    0 transient message(s) verified.
    0 message(s) contained errors.
    0 message(s) fixed.

                        >>> Acme Products System <<<
                         Verify OAA Records Utility
                          Tue Feb 7, 1995  2:45 pm

New verify sequence number = -111

New verify create sequence number = -110

Verifying mailboxes...

Verifying distribution lists...

Verifying copy lists...

Verifying amis lists...

Verifying amis lists...
```

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```
Verifying sibling lists...

Verifying phoneline exceptions...

Verifying statistics data...

Compiling reference count statistics...
No errors found.

--- NuPoint Voice Record Summary ---

   35 mailboxes verified.
   No errors found.

    0 queue errors.
   No queue errors found.

    0 messages referenced.
   No errors found.

    0 distribution lists verified.
   No errors found.

    0 copy lists verified.
   No errors found.

    0 sibling lists verified.
   No errors found.

    1 phoneline exceptions verified.
   No errors found.
```

Figure12-19 shows a sample of an Online Record Verify Report.
Figure12-20 shows a sample of an Online Sppech Verify Report

Figure 12-19 Sample Online Records Verify Report

```
                    SYSTEM ACCOUNT VERIFY LOGFILE
                      Fri Jun 16 13:05:39 1995
                     Verify OAA Records Utility
                      Thu Apr 27 15:20:35 1995

New verify sequence number = 39
New verify create sequence number = 40

Verifying mailboxes...
Error in mailbox 3824: Total message count is inaccurate by -1
Error in mailbox 3846: Total message count is inaccurate by -4

Verifying distribution lists...
Member count Out of Range for list 09, Mailbox 3828.

Verifying copy lists...
Orphanded receipt 01 found for mailbox 3837

Verifying amis lists...

Verifying amis lists...
Verifying message records..

Verifying sibling lists...
```

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```
annot find copy list for sibling 560100000003602, rslt = -20.

Verifying phoneline exceptions...
Verifying statistics data...

Compiling reference count statistics...
[rc_stat] **** ERROR - Refcnt discrepancy for msg 359844: is 0, should be 1
[rc_stat] Warning    - Refcnt discrepancy for msg 556336: is 2, should be 1
[rc_stat] Warning    - Refcnt discrepancy for msg 556371: is 14, should be 13
[rc_stat] Warning    - Refcnt discrepancy for msg 622013: is 2, should be 1
[rc_stat] Warning    - Refcnt discrepancy for msg 687398: is 7, should be 6
[rc_stat] Warning    - Refcnt discrepancy for msg 687405: is 2, should be 1
[rc_stat] Warning    - Refcnt discrepancy for msg 1539530: is 1, should be 0
[rc_stat] **** ERROR - Refcnt discrepancy for msg 1670481: is 18, should be 19

--- NuPoint Voice Record Summary ---
502 mailboxes verified.
  2 mailboxes contained errors.
  2 mailboxes fixed.

2 queue errors.
2 errors found:
       0 out of range queue head pointers.
       0 out of range queue tail pointers.
       0 bad or inconsistent queue links.
       0 double allocated queue links.

3942 messages referenced.
   8 errors found:
          0 out of range message numbers.
          0 inactive message references.
          0 truncated message references.
          0 mid-message references.
          8 reference count discrepancies.

506 distribution lists verified.
  1 distribution lists links verified.
 No errors found.

 65 copy lists verified.
  1 incorrect or orphaned copy lists found.
  1 copy lists fixed,
  0 copy list links fixed.

 25 sibling lists verified.
  1 orphaned sibling lists found and deleted.
  0 incorrect sibling lists found.
  1 sibling lists fixed.

 38 message records verified.
 No errors found.

  0 phoneline exceptions verified.
 No errors found.

Reference counts saved.
```

Figure 12-20 Sample Online Speech Verify Report

```
Verify Speech/Prompt File System Utility
Fri Jun 16 13:17:54 1995

Verify virtual prompt drive 1:
```

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```
Verifying master control sector...
Verifying prompt speech...
.........................

 --- Summary of Prompt File System Status ---

                                          TOTAL     USED    FULL (%)

Number of Prompt Directory Sectors         002f             22 %
Number of Prompt Pointer Sectors           1770      0538   22 %
Number of Prompt Speech Blocks             3435      0a4b   20 %

1336 prompt(s) verified.
0 prompt(s) contained errors.

Verify virtual speech drive 5:
Verifying master control sector...
Verifying transient speech...
Out of range block pointer count (0x00cd)

- Summary of Speech File System Status ---

                                          TOTAL     USED    FULL (%)

Number of Transient Pointer Sectors        0ea6      0000     0 %
Number of Transient Speech Blocks        003e80    000000     0 %
    0 transient message(s) verified.
    0 message(s) contained errors.
    0 message(s) fixed.

Verify virtual speech drive 35:
Verifying master control sector...
Verifying transient speech...
[Note on     1: Previously truncated to length 0]

--- Summary of Speech File System Status ---
                                          TOTAL     USED     FULL (%)
Number of Transient Pointer Sectors        0ea6      00ae     5 %
Number of Transient Speech Blocks        003e80    ffffffff0a6d    104465 %

174 transient message(s) verified.
  1 message(s) contained errors.
  1 message(s) fixed.
  2 message(s) truncated to length 0.
  1 truncated message(s) found.
```

Billing Reports

You can run any of five billing reports:

- Current Billing Rates
- Billing Report
- Mailbox Blocked Report (Blocked Billing Report)
- Previous Billing Report
- Termination Report

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Current Billing Rates

This report (see sample in Figure 12-21) shows you the current rates for various statistics, such as base rates and pager calls, through the Report Rates option in the Billing Menu. Remember that you can set rates only for FCOSs 1 through 64; any FCOS higher than 64 is billed at the rates for FCOS 64.

Refer to the Billing Tasklist, Volume 2 of this manual, for a procedure to run the Base Rates Report.

Figure 12-21 Sample Base Rates Report

```
BASE RATES

 1: UNLIMITED          $000.00

 2: FULL GUEST         $000.00

 3: RESTRICTED         $000.00

 4: CHECK IN           $000.00

 5: CHECK OUT          $000.00

 6: GREETING ONLY      $000.00

 7: DEMO               $000.00

 8: CHAIN              $000.00

 9: TIME               $000.00

10: VIP                $000.00

11: Res Call Ans       $000.00

12: Res Call Ans +     $000.00

13: Bus Call Ans       $000.00

14: Bus Call Ans +     $000.00

15: TREE               $000.00

16: TEMPLATE           $000.00

17: ROTATIONAL         $000.00

62: <No name>          $000.00

63: <No name>          $000.00

64: <No name>          $000.00
```

Billing Report

The Billing Report (see sample in Figure 12-22) is usually run monthly or weekly, but can be run

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as many times as you wish during a single billing cycle, as long as you do not request another gather. You can even run the report, change billing rates, then rerun the report if you wish.

The Billing Report first shows charges for each mailbox individually by GCOS, then reports the charge for the FCOS assigned to the mailbox, then lists the charges for each statistic that applies to the mailbox. Next, the Billing Report lists charges for each statistic that applies to a port (line) group, such as user connect time and caller connect time. When charges have been reported for all mailboxes, the server gives a Billing Report summary, then returns to the Billing menu. See the sample in Figure 12-22. Statistics for which the dollar amount is zero are not reported.

Charges are based on the rates that are in effect at the time the report is generated. No mailbox data is changed by adjusting rates or generating the report, as long as a new gather is not performed. If you find any errors in rates after the report is run, adjust the rates; then run the report again (omitting the gather).

Note: If you are counting the fields in the Blocked Billing Report, please be aware that the department code field may be blank. If there is no department code for a mailbox there will be a blank space (not a zero). All other fields will be represented by a zero. There are 102 possible fields in the Blocked Billing Report.

When charges have been reported for all mailboxes, the server concludes this report with a Billing Report Summary. Statistics are not reported if the dollar amount is zero.

Figure 12-22 Sample Billing Report

Billing Report of a Greeting-Only Mailbox

Greeting-Only mailboxes (also called information-only mailboxes) have an FCOS that does not allow them to receive messages. Statistics that can be incremented for Greeting-Only mailboxes are the user connect time (that is, the amount of time that the user is logged in) and the caller connect time (the accumulated time that callers have used to listen to the greeting). A base rate can also be set. See Figure 12-23 for a Sample Billing Report, Greeting-Only Mailbox.

Figure 12-23 Sample Billing Report, Greeting-Only Mailbox

```
MAILBOX:     303   ID:  MOVIE TIMES          CODE: Region 3
GROUP:  SELF
    $  20.00      FCOS 6:  GREETING ONLY   base rate
    $   6.48    648 greetings played
    $   2.00      1 times logged
    $    .75       .2 user connect time
    $   1.30    129.6 caller connect time
    $   2.40       .50 disk usageTotal Charges = $ 32.93
```

Mailbox Blocked Report

The Mailbox Blocked Report (Blocked Billing Report) (see sample in Figure 12-24) is in a special format that can be sent to other databases. It presents the same information as the Billing Report, but in blocked form; that is, with no titles or summaries. Use this report if you want to organize the billing data into your own format, such as for an invoice or monthly statement.

Note: If you are counting the fields in the Blocked Billing Report, please be aware that the department code field is blank (not a zero) if there is no department code for a mailbox. All other fields are represented by a zero. There are 102 possible fields in the Blocked Billing Report.

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Figure 12-24 Sample Mailbox Blocked Report

Use the Table 12-2 to identify the field names and field lengths of statistics provided in the Mailbox Blocked Report. All fields are right justified; all fields other than the mailbox number are blank filled.

Table 12-2 Field Descriptions for a Mailbox Blocked Report

Field Name	Number of Characters
Mailbox number	16
Department code (supports up to 2000 codes)	10
User messages	5
Caller messages	5
Wakeup messages	5
Login	5
Greets	5
User connect time	5
Caller connect time	5
(these four fields can be repeated up to 16 times for line group billing)	
Disk usage	10
Calls to pagers	5
Calls for message delivery	5
FCOS number	3
LCOS number	3
GCOS number	5
Number of network messages	5
Number of urgent network messages	5
Number of network nodes sent to	5
Number of network nodes sent urgent to	5
Number of remote network recipients sent to	5
Number of remote network recipients sent urgent to	5
0.1-minute-increments of network messages sent	5
0.1-minute-increments of network messages sent urgent	5
0.1-minute-increments of network nodes sent to	5
0.1-minute-increments of network nodes sent urgent to	5
0.1-minute-increments of remote network recipients sent to	10
0.1 minutes of remote network recipients sent urgent to	10
Number of network receipt responses	5
Number of network messages received	5
Number of network urgent messages received	5
0.1-minute-increments of message length received over network	5
0.1-minute-increments of urgent message length received over network	5
Number of fax messages received	5
Number of fax messages made	5
Number of fax messages retrieved	5
Number of failed fax retrievals	5
Fax disk usage	10
Number of fax pages received	5
Number of fax pages made	5
Number of fax pages retrieved	5
Number of fax retrievals billed	5
Number of fax pages retrieved, billed	5

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Previous Billing Report

You can run a Previous Billing Report when a copy of the Billing Report from the previous billing period is desired, or to determine proper billing when a gather has failed. This report is identical to the Billing Report, except that it uses the data from the previous billing data file. The server gives you the option of running this report from either the hard disk or the backup diskette.

Termination Report

You can run a Termination Report (see sample in Figure 12-25) when a mailbox is checked out and deleted, or when paging service is discontinued in the middle of a billing cycle. The Termination Report shows charges for each mailbox individually by statistic, then gives a total, in the same format as the Billing Report.

A typical use of the Termination Report is in the hotel or motel environment. The report can be run either before or after the mailbox is checked out, but the results can be different:

- If you run the Termination Report before the mailbox is checked out, and there are unplayed messages, the server does not charge for disk usage for these messages, since this resource is calculated when messages are deleted.
- If you run the Termination Report after the mailbox is checked out, the server charges for all messages, since all messages must be deleted in order to check out the mailbox. To zero the billing counters, you must delete, then recreate, the mailbox.

Figure 12-25 Sample Termination Report

```
MAILBOX:        3550 ID: Miller,Andrea                    CODE: g&a

GROUP : GCOS 1
         $     229.44       FCOS 61: VIP no urgent base rate
         $     465.41  1041.20  disk usage
         $      44.34         6  # of network nodes sent urgent to
         $       0.17     17.90  # of network nodes .1 mins sent to
         $       0.03      0.43  # of network nodes .1 mins sent urgent
         $       0.21     21.21  # of remote network recipients .1 mins sent
         $     247.96      0.43  # of remote network recipients .1 mins sent urgent
         $     529.46        12  fax messages made
         $       0.01        15  fax message retrievals non-billed
         $       0.04         3  fax message retrieval failures
         $       0.00      0.67  fax disk usage
         $    1375.64        34  fax pages made
Total Charges = $    2892.71
```

The Termination Report can be done only for one mailbox at a time.

The Termination Report uses the same billing rates as the Billing Report, but the server allows you to enter a new base rate, in order to prorate charges over the length of time that the mailbox was in use. For example, if the base rate is $10.00 per month and the mailbox was in use for 15 days, you can change the base rate to $5.00.

The Termination Report gathers data from the mailbox, but it does not create a previous billing data file, nor does it update the billing counters. Thus, you can use this report to simply interrogate the status of a mailbox. To zero the billing counters, delete the mailbox, then create it again.

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If there are any unplayed messages in the mailbox at the time the Termination Report is run, the server displays a warning that reports the number of unplayed messages in the mailbox and reminds you that generating a Termination Report at this point will not include these unplayed messages.

To charge only for messages that the mailbox holder has played, run the Termination Report before the unplayed messages are deleted.

To charge for all messages received, whether they were played or not, check the mailbox out first, then run the termination report.

Configuration and Usage Reports

The reports discussed in this section are designed for maintaining and debugging the software configuration and operation of a server. They give you information about:

- Application and optional feature (including integration) configuration
- Mailbox configuration
- Mailbox usage
- Phoneline exceptions
- Pager system parameters
- The NP Receptionist optional feature (reports on the NP Receptionist optional feature are available only if it is installed)
- Authorized users
- Names and extensions of mailbox owners (Phonebook Report)

In most cases, you have a choice of report destinations: as a display at the server maintenance console, or as output to a printer or other output device on serial port 1 or serial port 2. An exception is the Mailbox Dump Report, which can only be displayed.

Application and Optional Feature Configuration

The System Configuration Report (see sample in Figure 12-26) allows you to see the parameters that have been set for each configured application and each configured optional feature, by line group.

Figure 12-26 Sample Configuration Report

```
                    SYSTEM CONFIGURATION
                Fri Apr 21 16:23:04 1995

VOICEMEMO SYSTEM CONFIGURATION

Group #2: "pager"
 Module 2: Lines 1:6 1:7
           Fax Conn: Fax Group 2 (4 channels shared w/ other line groups)
 Module 3: Lines 1:6 1:7
           Fax Conn: Fax Group 3 (4 channels shared w/ other line groups)
 Module 4: Lines 2:6 2:7
           Fax Conn: Fax Group 5 (2 channels serving 2 lines) --DEDICATED
Application = [PAGER DIALER]
 Dial plan = [4,4,4,4,4,4,4,4,N7]
 Administrator mbox # = [5852]
 General Greeting mbox # = []
```

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```
 Attendant mbox # = [5851]
 Wait Prompt = [Y]
 Caller multiple messages enabled = [Y]
 KEY_0 for attendant transfer during greeting = [N]
 Disconnect string = []
 Pre-company name string = []
 Pre-mailbox greeting string = []
 Passcode Length  Min = [4], Max = [10], Language = [E]
 Start of day = [08:00 AM], End of day = [05:00 PM], Days of Week =[DDDDDNN]
 Passcode trip count = [5],  Passcode trip period = [24]
 Dial-by-name: Last First = [Y], Match Threshold = [3], Exact = [Y]
               Suppress Number = [N], Single Digit Access = [N]
 Delay Before Answer = [30]
 E-mail Transfer String = []
 Allow Dial an Extension for callers = [N], users = [N]
 Analog Networking: Call Setup timeout = [6]
    International Access Code = [], Country code = []
 Area/City code = [], 1plus dialing = []
    Area/City code is dialed with Local Telephone Number = [N]
    Telephone number = [], Loop-back Test Mailbox = []
 Attendant's extension = [0]
 Pre DN or attendant xfer string = [S+]
 Supports pager systems:
   [3] = "TEST DEMO"
   [4] = "OUTSIDE LINE"
   [7] = "SKYPAGER"
   [8] = "800 PAGER"
   [11] = "FaxInternal"
   [15] = "NP View Pager"
Group #24:      End of Group Info

Pager Systems:
 Pager System [3], Pager Name = "TEST DEMO"
  Access code = [t9t1], Hold time = [5]
 Pager System [4], Pager Name = "OUTSIDE LINE"
  Access code = [t9t], Hold time = [5]
 Pager System [7], Pager Name = "SKYPAGER"
  Access code = [t9t18007597243++++++++++], Hold time = [5]
 Pager System [8], Pager Name = "800 PAGER"
  Access code = [t9t18009464646++++g++], Hold time = [5]
 Pager System [11], Pager Name = "FaxInternal"
  Access code = [t], Hold time = [5]
 Pager System [15], Pager Name = "NP View Pager"
  Access code = [], Hold time = [2]

Wakeup configured.

Port $cti1 RS-232 Serial Port application = [Centrex]

SMARTCARD TABLE

host  card   port_name cpu          owner                    intr addr
   1     1       $cti1 R3051        Centrex                   N/A 324
   1     1       $cti2 R3051        EMPTY                     N/A 324
   1     1       $cti3 R3051        MESA_NET                  N/A 324
   1     1       $cti4 R3051        MESA_NET                  N/A 324

 The following optional features are enabled:
  Receptionist
  NP WakeUp
  Networking
  Cut Through Pager
  NP Forms
  NuPoint Fax
  Call Detail Recorder
```

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```
  NP View
```

Mailbox Configuration

Two reports are available to show mailbox configuration, one through the Reports Menu and one through the Mailbox Maintenance Menu. The report available through the Reports Menu is keyed to mailboxes themselves, while the report available through the Mailbox Maintenance Menu is keyed to search criteria you specify.

Mailbox Data Report

This report shows the configuration of every mailbox in the server. Figure 12-27 shows an excerpt from a sample Mailbox Data Report. Table 12-3 describes the fields in the report.

Figure 12-27 Mailbox Data Report

```
                          MAILBOX DATA REPORT
                        Fri Apr 21 16:34:34 1995

 MAILBOX: 998        Created: 12/05/94  1:30 pm
   MSGS: 0         UNPLAYED: 0          URGENT: 0          RECEIPT: 0
       LCOS: Default : 1                   FCOS: FAX+MSGUNDELETE: 1
       GCOS: Default GCOS 1    : 1         NCOS: Default: 1
       TCOS: Default TCOS 1    : 1         RCOS:: 1
BAD LOGS: 0        LAST LOG: NEVER                              MINS: 0.0
  PASSWD: N            TUTOR: N             DAY: M           NIGHT: M
    NAME:                                  CODE:
   EXTEN: 998                             INDEX: 0
ATTEN DN:                                 INDEX: 0
  ACCESS: NONE                      NOTIFICATION: Y
INTERNAL INDEX: 0         BILLED INDEX: 0         NON-BILLED INDEX: 0
CALL PLACEMENT INDEX:   NONE                 TIME ZONE OFFSET: 0
DISTRIBUTION LISTS WITH CHANGE RIGHTS:
       all
DISTRIBUTION LISTS WITH REVIEW RIGHTS:
       all

 MAILBOX: 999        Created: 12/05/94  1:30 pm
    MSGS: 0         UNPLAYED: 0          URGENT: 0          RECEIPT: 0
       LCOS: Default : 1                   FCOS: FAX+MSGUNDELETE: 1
       GCOS: Default GCOS 1    : 1         NCOS: Default: 1
       TCOS: Default TCOS 1    : 1         RCOS:: 1
BAD LOGS: 0        LAST LOG: 12/19/94  1:42 pm                  MINS: 0.0
  PASSWD: N            TUTOR: N             DAY: M           NIGHT: M
    NAME:                                  CODE:
   EXTEN: 999                             INDEX: 0
ATTEN DN:                                 INDEX: 0
  ACCESS: NONE                                        NOTIFICATION: Y
INTERNAL INDEX: 0         BILLED INDEX: 0         NON-BILLED INDEX: 0
CALL PLACEMENT INDEX:   NONE                 TIME ZONE OFFSET: 0
DISTRIBUTION LISTS WITH CHANGE RIGHTS:
       all
DISTRIBUTION LISTS WITH REVIEW RIGHTS:
       all
TOTAL   Mailboxes: 35     Messages: 0    Unplayed: 0    Minutes: 0.0
```

Table 12-3 Mailbox Data Field Report

Field	Description

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MAILBOX	The number of the mailbox being reported
MSGS	The total number of played and unplayed messages in this mailbox
UNPLAYED	The number of unplayed messages
URGENT	The number of urgent messages
RECEIPT	The number of messages received
LCOS	The Limits Class of Service (LCOS) assigned to this mailbox; the LCOS name, if any, follows the colon and the LCOS number follows the name.
FCOS	The Feature Class of Service (FCOS) assigned to this mailbox; the FCOS name, if any, follows the colon and the FCOS number follows the name.
GCOS	The Group Class of Service (GCOS) assigned to this mailbox; the GCOS name, if any, follows the colon and the GCOS number follows the name.
NCOS	The Network Class of Service (NCOS) assigned to this mailbox; the NCOS name, if any, follows the colon and the NCOS number follows the name.
TCOS	The Tenant Class of Service (TCOS) assigned to this mailbox; the TCOS name, if any, follows the colon and the TCOS number follows the name.
RCOS	The Restriction Class of Service (RCOS) assigned to this mailbox; the RCOS name, if any, follows the colon and the RCOS number follows the name. If no RCOS is assigned to a mailbox, this field is blank.
BAD LOGS	The number of times in the present passcode trip period that an invalid passcode was entered.
LAST LOG	The data of the last Mailbox owner login. “Never” means the mailbox owner has not yet logged into the new mailbox.
MINS	Disk usage in minutes of speech, to the nearest tenth of a minute
PASSWD	Indicates whether the mailbox is passcode protected (Y) or not passcode protected (N)
TUTOR	Indicates whether the default tutorial for a new mailbox owner is activated (Y) or not activated (N)
DAY	The NP Receptionist day treatment type
NIGHT	The NP Receptionist night treatment type
NAME	The name assigned to this mailbox
CODE	The department code assigned to this mailbox
EXTEN	For NP Receptionist only, the extension number to call
INDEX	For NP Receptionist only, the extension pre-dial index
ATTEND DN	The extension of a human attendant, such as a lobby receptionist
INDEX	The pre-dial index for the human attendant’s extension
ACCESS	The code a caller must enter to hear a mailbox greeting
NOTIFICATION	Indicates whether the mailbox has pager/outdial notification (Y) or no notification (N)
INTERNAL INDEX	The index number representing the access code for internal calls.
BILLED INDEX	The index number representing the access code for outdials to be charged to a billing account.

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NON-BILLED INDEX	The index number representing the access code for outdials not charged to a billing account.
CALL PLACEMENT INDEX	Shows whether call placement outdials are billed (B) or unbilled (U), or treated as internal outdials (I).
TIME ZONE OFFSET	The offset, in hours, between the time zone in which the mailbox owner is located and the time zone in which the server is located
DISTRIBUTION LISTS WITH CHANGE RIGHTS	The number(s) of distribution lists in this mailbox that the mailbox owner is allowed to change; “all” indicates all lists have change rights.
DISTRIBUTION LISTS WITH REVIEW RIGHTS	The number(s) of distribution lists in this mailbox that the mailbox owner is allowed to review; “all” indicates all lists have review rights.

Mailbox Search Utility Report

The Mailbox Search Utility Report (see sample in Figure 12-28) shows the results of a search for mailboxes meeting configuration criteria that you can specify. You can select from the following configuration criteria:

- All mailboxes
- Attendant extension
- Attendant pre-dial index
- Billed outdial dialing order
- Billed outdial index
- Billing number
- Department code
- FCOS
- GCOS
- Internal outdial index
- LCOS
- Mailbox’s extension
- Mailbox’s extension pre-dial index
- Mailbox name
- Message waiting type
- NCOS
- No passcode
- Range of mailboxes
- TCOS
- Tutorial enabled
- Unbilled outdial index

Figure 12-28 Sample Mailbox Search Utility Report

```
Mailbox Search Utility
Fri Apr 21 16:53:51 1995
```

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```
 MAILBOX: 1000       Created: 12/20/94 12:49 pm
    MSGS: 0         UNPLAYED: 0           URGENT: 0          RECEIPT: 0
        LCOS: Default         : 1                     FCOS: FAX+MSGUNDELETE : 1
        GCOS: Default GCOS 1  : 1                     NCOS: Default         : 1
        TCOS: Default TCOS 1  : 1                     RCOS: : 1
BAD LOGS: 0         LAST LOG: 12/20/94 12:53 pm MINS: 0.0
  PASSWD: N            TUTOR: N              DAY: M            NIGHT: M
    NAME:                                    CODE:
   EXTEN: 1000                              INDEX: 0
ATTEN DN:                                   INDEX: 0
  ACCESS: NONE                                        NOTIFICATION: Y
INTERNAL INDEX: NONE      BILLED INDEX: NONE      NON-BILLED INDEX: NONE
CALL PLACEMENT INDEX:   NONE                  TIME ZONE OFFSET: 0
DISTRIBUTION LISTS WITH CHANGE RIGHTS:
       all
DISTRIBUTION LISTS WITH REVIEW RIGHTS:
       all

MAILBOX: 1111       Created: 01/18/95  3:23 pm
  MSGS: 0         UNPLAYED: 0           URGENT: 0          RECEIPT: 0
  LCOS: NYNEX-Basic       : 2                     FCOS: FAX+MSGUNDELETE  : 1
  GCOS: Default GCOS 1    : 1                     NCOS: Default          : 1
  TCOS: Default TCOS 1    : 1                     RCOS:                  : 1
BAD LOGS: 0         LAST LOG: NEVER MINS: 0.0
  PASSWD: N            TUTOR: N              DAY: M            NIGHT: M
    NAME:                                    CODE: ?
   EXTEN:                                   INDEX: 0
ATTEN DN:                                   INDEX: 0
  ACCESS: NONE                                        NOTIFICATION: Y
INTERNAL INDEX: 0         BILLED INDEX: 0         NON-BILLED INDEX: 0
  WAKEUP: Defined     SYSTEM: 0             FREQ: 0          INTERVAL: 0
  NUMBER:
CALL PLACEMENT INDEX:   NONE                  TIME ZONE OFFSET: 1
DISTRIBUTION LISTS WITH CHANGE RIGHTS:
       all
DISTRIBUTION LISTS WITH REVIEW RIGHTS:
       all

TOTAL Mailboxes:2    Messages:0  Unplayed:0  Urgent:0  Receipt:0
                      Minutes:0.0
```

Mailbox Usage

Several different reports are available to show mailbox usage statistics.

Mailbox Data Inquiry Report

This report shows message counts, class of service assignments, message waiting type, the passcode status, and login status. You can obtain this information for one mailbox or a range of mailboxes. The sample in Figure 12-29 shows a Sample Mailbox Data Inquiry Report for a range of mailboxes.

Figure 12-29 Sample Mailbox Data Inquiry Report

```
                    Mailbox Data Inquiry
                  Fri Apr 21 16:57:50 1995

Box            Msgs Unp Urg Rec   Mins FCOS LCOS GCOS NCOS MWI  Passwd
3550         22   2   0   0    42.3 61   1    1    1   None          Y
3551          0   0   0   0     0.0 31   1    1    1   None          Y
3552          0   0   0   0     0.0 31   1    1    1   None          Y
```

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```
3553          6    0    0    0     14.6 44    1     1     1    None            Y
3555         15    3    0    0     48.8 14    1     1     1    None            Y

TOTAL Mailboxes:5     Messages:43 Unplayed:5  Urgent:0  Receipt:0
                       Minutes:105.7
```

The columns of data in the Mailbox Data Inquiry Report are as follows:

Box	The number of the mailbox inquired about
Msgs	Total played, unplayed, and urgent messages in the mailbox
Unp	Unplayed messages
Urg	Urgent messages
Rec	Receipts, requested and forced
Mins	Length of all messages, in tenths of a minute
FCOS LCOS GCOS NCOS	Classes of Service assigned to the mailbox
MWI	Message waiting type assigned to this mailbox
Passwd	Digits means there is a temporary passcode for this mailbox and the mailbox owner has not yet logged into it. “T” means that the tutorial for a new mailbox owner has been activated. “Y” or “N” means there is or is not a passcode for this mailbox and that the mailbox owner has logged into the mailbox.

Mailbox Block Inquiry Report

The Mailbox Block-Inquiry Report (see sample in Figure 12-30) is the same report as the Mailbox Blocked Report described earlier under “Billing Reports.” It is available through the Mailbox Maintenance Menu, while the Mailbox Blocked Report is available through the Billing Menu.

Figure 12-30 Sample Mailbox Block Inquiry Report

```
MAILBOX: 3553

Login status:
        Version      = 600A03
        Bad logs     = 1          Last log     = 06/13/95 12:01 pm

Configuration:
        Name #       = 2129233    Greeting1 = 1867011    Greeting2 = 1604963
        Greeting3    = 622340     Greeting4    = 2260310    Alt greet1   = p
        Alt greet2   = p          Alt greet3   = p          Alt greet4   = p
        Fax Cov/Grt  = 0          Fax Index    = I
        Default Fax# = 3732
        Family Name1 = 0          Family Name2 = 0          Family Name3 = 0
        Passcode     = XXXXXXXXXX Tutorial = N          Extension    = 3553
        Ext index    = 0          Attendant    =            Attend index = 0
        Code         = eng        ID           = Harper, Maryjane
        Day_treat    = 2          Night_treat  = 2          Fcos         = 44
        Lcos         = 1          Gcos         = 1          Ncos         = 1
        Rcos         = 1
        Rot index    = 0          Rot period   = 0          OffSys index = -1
        Rot start    = --
        intern index = 11         Billed index = 0          NoBill index = 0
        Bill number  =
        Dial order   = bn
        Attend Xfers = 2          Email Xfers  = 0
        Msg speech q = 0          Grt speech q = 0
```

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```
        wkup defined = N          wkup freq    = 0          wkup_intvl   = 0
        wkup index   = 0          wkup number  =            wkup enabled = N
        T zone offset= 0          wkup message = 0          Vac Sequence=  75

Contents:
        Motd_seq     = 0          Motd_played  = N          User_msgs    = 15
        Caller_msgs  = 5          Sent_cpx_msgs= 0          Sent_fdx_msgs= 0
        Sent_urg_msgs= 0          Wakeups      = 0          Pages        = 0
        Receipt      = 0          Sent_to_node = 13         Urg_to_node  = 0
        Net_urg_mlen = 0          Net_msgs_rcv = 44         Net_urg_rcv  = 1
        Net_sent_node= 13         Net_send_nurg= 0          Net_send_rcp = 13
        Fax_msg_rcvd = 0          Fax_msg_sent = 0          Fax_page_sent= 0
        Fax_msg_dlvd = 0          Fax_page_dlvd= 0          Fax_undlvd   = 0
        Fax_page_rcvd = 0
        Greet_count  = 5          Successlogins= 26         Recpt_calls  = 0
        Mobile logins= 0          Msg Delivery=  0
        Recpt_complt = 0          Recpt_busy   = 0          Recpt_rna    = 0
        Recpt_msgs   = 0          Recpt_attend = 0          User_connect = 654
        Clr_connect  = 61         Callp_connect= 0          Disk_use     = 20441
        Fax_disk_use = 0
        Net_sent_mlen= 267        Net_rcvd_mlen= 0          Net_rcvd_urg = 0
        Net_node_mlen= 267        Net_recip_mlen=267        Net_node_urg = 0
        Text_msg_cnt = 0

Message Queues:
        TYPE           COUNT TOTAL HEAD TAIL  TYPE       COUNT TOTAL HEAD TAIL
        Free              63   ---   60   59  Unplayed       0   ---   -1   -1
        Played             2   8.9   52   61  Urgent         0   ---   -1   -1
        Receipts           0   ---   -1   -1  Undelivered    0   ---   -1   -1
        Future delivery    0   ---   -1   -1

Messages: 10
#  msg #   DATE     TIME    LENGTH    SENDER       PORT  FLAGS    MSG     SIBL
                             (MINS)                              NXT PRV NXT PRV

Played Queue
52 1867277 05/19/95  7:49 am  0.6     000000000003644----------  61  -1  56  -1
   kept    05/19/95 12:05 pm
56 1801655 05/18/95  2:03 pm  1.1     000000000003553----------  -1  -1  62  52
62 2063758 05/18/95 12:05 pm  0.2     000000000003644----------  -1  -1  48  56
48 425226  05/18/95 10:29 am  0.8     000000000003553----------  -1  -1  29  62
29 425324  05/18/95  6:26 am  1.5     000000000003644----------  -1  -1  38  48
38 1932613 05/17/95 12:15 pm  2.5     000000000000000----------  -1  -1  -1  29
61 2457056 06/07/95 12:16 pm  0.2     000000000002622----------  -1  52  35  -1
   2457055                    0.1     from node 1
    kept   06/07/95  4:08 pm
35 2129425 06/07/95 12:06 pm  0.1     000000000003685----------  -1  -1  30  61
   1474042                    0.1     from node 1
30 1474043 06/06/95  6:47 pm  1.7     000000000003685----------  -1  -1  21  35
   2129426                    0.1     from node 1
21 2063930 06/06/95  6:27 pm  0.6     000000000003603----------  -1  -1  -1  30
   2063929                    0.1     from node 1
```

Total Speech and Account Breakdown Report

This report (see sample in Figure 12-31) is one of three reports (statistics on idle mailboxes and mailbox statistic totals are the other two) that give you a “snapshot” of current mailbox usage and speech storage in summary form. (If you need detailed information about speech storage usage on your server, see System Statistics in the *Installation and Service Manual.*) All three of these reports are available through the Statistics option of the Reports Menu. The Total Speech and Account Breakdown Report (see sample in Figure 12-30) summarizes account (mailbox) statistics and speech statistics for all mailboxes in the server. Speech storage is used for messages,

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names, and greetings.

Figure 12-31 Sample Total Speech and Account Breakdown Report

```
ACCOUNT STATISTICS

Mailboxes:              35
Dist Lists:              4
Copy Lists:              1
Config Records:        347
Statistics Records:    168
-------------------  -----    -----
Total:                 555

                            Total             Free      Used
 Message Numbers            132000            119610     9 %
   Speech Blocks            384000            107693    53 %

SPEECH STATISTICS

               Amount    Frames    Blocks    Blocks
               ------    ------    ------    ------
greet1:           794    135499      4618       1 %
greet2:           113     22665       766       0 %
greet3:            84     15227       516       0 %
greet4:            67     12475       420       0 %
names:            606     20142       866       0 %
dlnames:          577     22789       978       0 %
fax greet:        616    604438     19186       4 %
fax msg:          880   1300502     41070      10 %
messages:       10149   8580576    268143      69 %

blocks used by greets and names:      7186
blocks used by fax messages/greets:   60256
average time in seconds for messages: 59
```

Idle Mailboxes Report

The Idle Mailboxes Reporty (see sample in Figure 12-32) shows the numbers of all mailboxes that have not been logged into by their owners; summarizes mailbox usage statistics; and lists FCOSs, LCOSs, and department codes assigned to idle mailboxes. The “Mailboxes With Activity” entry in this report shows the number of mailboxes that have either been logged into or received a message.

Figure 12-32 Sample Idle Mailbox Report

```
                    MAILBOX STATISTICS
                 Fri Jun 16 13:39:28 1995

The following mailboxes have NEVER logged in:
22          998         1111        2606        2630        2632        2636
2647        2648        2658        2663        2665        2675        2676
2677        2678        2680        3053        3087        3088        3089
6635        6644        6829        6859        7000        8464        8468
8472        80000       6875734

MAILBOX STATISTICS  since System was created

      518     Mailboxes included in this report
      195     Mailboxes with activity
      185     Mailboxes have never logged in
```

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```
      333     Mailboxes have logged in
       12     Mailboxes with pagers
      248     Total calls to pagers
       20.0   Average calls to pagers per subsriber
        0     Wakeup messages received
    10727     Total messages deposited
     3868     Total greets played
     4462     Total logins
        0           logins by mobile phones
     4462           logins by landline phones
    11633.0   User connect time (minutes)
     2539.9   Caller connect time (minutes)
   810533.5   Disk usage (minute_size*hours_kept)
        2.6   Average user connect time
        0.6   Average caller connect time

MAILBOXES BY FCOS
FCOS Mailboxes
____ _________
   1         8
   6         1
  61         2
  62        10
  63         5
 100         1

MAILBOXES BY LCOS
LCOS Mailboxes
____ _________
   1       517
   2         1

MAILBOXES BY DEPARTMENT CODE
Department Code    Mailboxes  New Since Last Gather
_____________ ____  _____________________________
No code              280     280
eng                  104     104
mfg                    8       8
marketing             16      16
sales                 18      18
test                   6       6
                    _____________________________
TOTAL NEW SINCE LAST GATHER     518
```

Mailbox Totals Report

This report gives the same type of information as the Idle Mailboxes Report but for all mailboxes in the server. The “Mailboxes With Activity” entry in this report shows the number of mailboxes that have either been logged into or received a message.

Phoneline Exceptions

The Reports Menu gives you an option to obtain a Sample System Phone Line Exceptions Report that shows any phoneline exceptions set for lines in each module (host). You can obtain a report for all 128 lines or any specific lines desired. Figure 12-33 shows a System Phoneline Exceptions Report on lines 1 through 4.

Figure 12-33 Sample System Phoneline Exceptions Report

```
Keep entering triplets, then enter <CR> on a line by itself.
```

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```
        line triplets to report: *
        line triplets to report:

        Line 1:3:0 configuration:
        ...all parameters set to defaults

        Line 1:3:1 configuration:
        ...all parameters set to defaults

        Line 1:3:1 configuration:
        ...all parameters set to defaults

        Line 1:4:0 configuration:
        4   Pause compression enable            no

        Line 1:4:1 configuration:
        4   Pause compression enable            no

        Line 2:1:0 configuration:
        13  Enable AGC                         yes
        4   Pause compression enable            no

        Line 2:1:1 configuration:
        13  Enable AGC                         yes
        4   Pause compression enable            no

         Keep entering triplets, then enter <CR> on a line by itself.
         line triplets to report:
```

Pager System Parameters

To see the index number, name, access code, and hold time of each supported pager system, you can obtain a Pager Systems Access Codes Report (see sample in Figure 12-34).

To see all parameters configured for supported pager systems, you should obtain a System Configuration Report (see sample in Figure 12-26).

Figure 12-34 Sample Pager Systems Access Codes Report

```
                    PAGER SYSTEMS ACCESS CODES
                     Fri Apr 21 17:20:58 1995

INDEX   PAGER NAME                ACCESS CODE                HOLD TIME

 3      TEST DEMO                  t9t1                       5
 4      OUTSIDE LINE               t9t                        5
 7      SKYPAGER                   t9t18005554244++++++++++   5
 8      800 PAGER                  t9t18005551616++++g++      5
 11     FaxInternal                t                          5
 15     NP View Pager                                         2
```

NP Receptionist Optional Feature

When NP Receptionist is installed on your server, two reports are available that show NP Receptionist configuration: the Receptionist Day/Night Treatment Types Report and Pre-Extension Dial Strings Report.

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Receptionist Day/Night Treatment Types Report

Each mailbox configuration contains day and night treatment types that tell the server exactly how mailbox owners wish to have their calls handled under different conditions. The Receptionist Day/Night Treatment Types Report (see sample in Figure 12-35) displays the treatment types from which the server administrator can choose when creating mailboxes.

Figure 12-35 Sample Receptionist Day/Night Treatment Types

```
                RECEPTIONIST DAY/NIGHT TREATMENT TYPES
                       Fri Apr 21 17:24:10 1995

   EXTENSION TYPES                Auth                 Redial
Index  Name                  Time  Auth Code     Dflt  RNA BUSY REJ SCREEN
 1     treatment 1             A                  D     R    R    R    Y
 2     treatment 2             A                  D     R    R    R    N
 3     treatment 3             A                  A     R    R    R    Y
 4     treatment 4             A                  M     R    R    R    Y
 5     treatment 5             A                  M     M    M    R    N
 6     treatment 6             A                  M     M    M    M    Y
 7     treatment 7             A                  R     M    R    M    Y
 8     treatment 8             A                  R     R    R    M    Y
 9     treatment 9             A                  R     R    R    R    N
10     treatment 10            A                  M     A    A    A    Y
    TRUNK TYPES                Auth                Redial
Index  Name                 Time  Auth Code     Dflt  Connect Fail
```

The sample report shows 11 treatment types: nine Extension and two Trunk treatment types. Read the report line by line, from left to right, and refer to Table 12-4 for field descriptions.

Table 12-4 Fields in Day/Night Treatment Report

Field	Description
EXTENSION TYPES	The treatment types that follow are extension treatment types.
Index	The Index number that represents each treatment type
Name	A descriptive name that identifies each treatment type
Auth Time	The authorized time period(s) during which this number may be accessed (A = all, D = day, N = night).

Table 12-4 Fields in Day/Night Authorization Time

Field	Description
EXTENSION TYPES	The treatment types that follow are extension treatment types.
Index	The Index number that represents each treatment type
Name	A descriptive name that identifies each treatment type
Auth Time	The authorized time period(s) during which this number may be accessed (A = all, D = day, N = night).

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Auth Code	An authorization code, usually numerical, that the caller must enter before NP Receptionist rings the extension. Special character codes are M (enter any valid mailbox number) and P (enter a valid passcode). A blank field means that no authorization code is required.
Redial Dflt	The redial menu that is played when “Redial” is selected for any extension failure condition
RNA	The action taken when the extension rings, but there is no answer. R = play the default Redial menu (see “Redial Default” above), A = transfer to an assistance number, M = prompt the caller to leave a message in the mailbox.
BUSY	The action taken when the extension is busy. R = play the default Redial menu, A = transfer to an assistance number, M = prompt the caller to leave a message in the mailbox.
REJ	The action taken when call screening is in effect, and the recipient rejects the call. R = play the default Redial menu, A = transfer to an assistance number, M = prompt the caller to leave a message in the mailbox.
SCREEN	Indicates whether the user wants NP Receptionist to screen all outside calls. Y = yes, N = no.
TRUNK TYPES	The following treatment types are Trunk treatment types: Index, Name, Auth Time, Auth Code
Connect	The connect criteria, that is, the conditions under which the server should consider the trunk call to be successful. C = Cut through, R = Ring, T = Tone (dial or modem).
Failure	The action taken when the connect criteria for trunk calls are not met. R = play the default Redial menu, A = transfer to an assistance number, M = prompt the caller to leave a message in the mailbox.

Pre-Extension Dial Strings Report

Another report available to you when NP Receptionist is installed is the Pre-Extension Dial Strings Report. This report (see sample in Figure 12-36) shows pre-extension dial strings associated with each index configured for mailboxes served by NP Receptionist.

Figure 12-36 Sample Pre-Extension Dial Strings Report

```
                    >>> Acme Products System <<<
                     PRE-EXTENSION DIAL STRINGS
                      Fri Apr 27, 1995  9:52 am

INDEX     PRE-DIAL STRINGS          DESCRIPTION
1         T9T+                      Outside line
```

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```
2         T9T+23759                Non-Dial Account
```

List of Authorized Users

You can view a list of users who have access to the server. The list is displayable at a server maintenance console, through the List All Users option in the Security or the FPSA Menu. Figure 12-37 shows a sample list when FPSA is not running, Figure 12-38 shows the output when FPSA is running.

Figure 12-37 Sample List of Authorized Users (without FPSA)

```
User ID-------------UID---Last Login---PW-Bad------Real Name-------------
root                  0  Nov 14 17:26  Y
bob                 101     <none>                 Robert A. Robertson
spencer             100  Oct 20 14:59  Y    1      Spencer F. Hire
```

Figure 12-38 Sample List of Authorized Users (with FPSA)

```
User ID-----------UID---Last Login---PW Exp---Perm---Bad--Lock--Lock Time-------Real
Name-----------------------------------------------

root                  0  Nov 14 17:26  Nov 15  ******
bob                 101     <none>     Nov 15  ....56       Robert A. Robertson
mary                102     <none>     Nov 15  .234..       Mary Contrary
spencer             100  Oct 20 14:59  Nov 15  .2345.    1  Spencer F. Hire
```

History File

The History File is a record of modifications made to the server. Entries are made to this record by the server administrator, a distributor, or technical personnel. You must review this record before updating software on the server to verify that no custom changes have been made that are over-written with the new software.

You can view the current History File, and add entries to it (update it), at a server maintenance console

Operational Parameters for a Hard Disk

To get information about the size and model of the hard disk installed in a module, you can display or print a report of operational parameters for the hard disk. This report also shows error recovery parameters, disconnect and reconnect parameters, format parameters, and other drive parameters such as the number of cylinders. Figure 12-39 shows a Sample Report of Hard Disk Operational Parameters.

Figure 12-39 Sample Report of Hard Disk Operational Parameters

```
Operational Parameters for Hard Disk 0:0

        Vendor: IBM
        Model:  0664M1H       !P
        Rev:    6 61

Page 1 - Error Recovery Parameters
```

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```
AWRE: TRUE          ARRE: TRUE
TB  : FALSE         RC  : FALSE
EER : FALSE         PER : TRUE
DTE : FALSE         DCR : FALSE
Read retry count:         4
Correction span:          48
Head offset count:        0
Data strobe offset count: 0
Write retry count:        1
Recovery time limit:      0

Changeable page 1 data:
flags=0xf7, rd_retry=255, c_span=0, hd=0, ds=0, wt_retry=0, rcv=0

        Page 2 - Disconnect/Reconnect Parameters
Buffer full ratio:               0
Buffer empty ratio:              0
Bus inactivity limit:            0
Disconnect time limit:           0
Connect time limit:              0
Maximum burst size :             0
Data transfer disconnect control: 0

        Changeable page 2 data:
bf_ratio=255, be_ratio=255, inact=0, disc=0, con=0, burst=0, dtdc=0

        Page 3 - Format Parameters
Tracks per zone:                  15
Alternate sectors per zone:       34
Alternate tracks per zone:        0
Alternate tracks per logical unit: 0
Sectors per track:                94
Data bytes per sector:            512
Interleave factor:                1
Track skew factor:                8
Cylinder skew factor:             17
Flags:                            0x40

        Changeable page 3 data:
tpz=0, aspz=0, atpz=0
atpl=0, sec_per_trk=0, data_bytes=0
interleave=0, trk_skew=0, cyl_skew=0, flags=0x0

        Page 4 - Drive Geometry Parameters
Number of cylinders:            2857
Number of heads:                15
Write precomp cylinder:         0
Reduced write current cylinder: 0
Step rate:                      0
Landing zone:                   3069
RPL:                            0
Rotational offset:              0
Rotational offset:              5400
Disk capacity:                  3933039
```

Phonebook Report

The server allows you to produce a phonebook listing mailbox owners.

If the Dial-by-Name function is enabled and the FCOS assigned to a mailbox includes feature bit

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092 (User will be in Dial-by-Name database), the mailbox owner's name is included in the Dial-by-Name database. The server uses the Dial-by-Name database to create a telephone book, when you choose the Phonebook Report option in the Reports Menu. The Phonebook Report is an alphabetic listing of mailbox names that shows the corresponding mailbox number and GCOS assigned to the mailbox (see sample in Figure 12-40). As with other reports, you can print the Phonebook Report on a serial printer or other output device connected to your server through serial port 1 or serial port 2, or display it at the server maintenance console.

Figure 12-40 Sample Phonebook Report

```
>>>Acme Management Systems<<<
          PHONEBOOK
   Tue Apr 31, 1995 12:57 pm

NAME                        MAILBOX  GCOS
--------------------------- -------- -----
ATTEND. MB                  3850     2
Allen, Debbi                3852     9
Allen, Richard               511     14
Bau, Lee                     255     14
Barry, Randall               601     14
Borregas, Rita              3809     9
```

Glossary

Access code.
A **dial string** used by the **Pager application**. See **Pager system**.

ACD.
Automatic Call Distributor; a specialized phone system used for handling a large number of incoming calls, which includes recorded announcements, routing, and call data logging.

Administration by phone.
The capability to perform certain **server** administrative functions through a telephone set instead of the **server console**. This is usually done by the **Administrator**.

Administrator.
Person responsible for day-to-day **server** implementation, changes and maintenance.

Administrator's mailbox.
Special **mailbox** belonging to the **Administrator**, with system-wide abilities.

Affinity group.
See GCOS.

Alternate MWI.
A "backup" **message waiting indicator**, used when the **mailbox owner** does not respond to the primary **MWI**.

Alternate pager
A "backup" **pager**, used when the mailbox owner does not respond to the **primary pager**; also,

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a mailbox configuration parameter that sets **message delivery**.

AMIS
Audio Messaging Interchange Specification; a council set up to develop a standard for exchange of voice **messages** between different vendors. Used with the AMIS Analog Optional Feature.

Analog networking
Networking scheme that reconverts voice **messages** to analog signals for transmission between two or more voice messaging systems. Voice messages are sent over regular telephone lines.

Append
Add comments to the end of a message.

Answer
Send a new **message** to a **user** in response to the original message.

Application
A set of voice processing functions assigned to a **line group.** The **NuPoint Voice application** is an example.

Attendant
Person responsible for handling live telephone calls, such as a switchboard operator.

Attendant's mailbox
Special **mailbox** belonging to the **Attendant**, with **server**-wide abilities.

BBL paging
Paging system with direct RS-232 connection from **server**, instead of a dial-up system. This is an **optional feature.**

Billed outdial index
See **Outdial index.**

Bitmapped group
See **GCOS.**

Broadcast mailbox
Mailbox address that sends simultaneous **messages** to a group of **users** without requiring use of a **distribution list.** The distribution list assigned to the broadcast mailbox determines which users get the broadcast message.

Callers
People who do not have voice **mailboxes** on the **server**, also called "outside callers." Callers usually have fewer call processing options than **users** (mailbox owners). Callers can call in to extensions, route their calls to other extensions and listen to **greetings**; they may also be able to leave **messages.**

Call placement
The ability to send a **message** to an outside telephone number instead of a **mailbox.**

Call placement pager access type

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Used with **call placement**, this works the same as the access type for a **pager**. It is stored in the **user's mailbox.**

Centrex
Central Exchange; a business telephone system where the equipment is at the CO instead of at the customer site. Contrast with CPE.

Child mailboxes
Mailboxes assigned to **distribution lists** of **parent mailboxes.** Child mailboxes can give information to **users** and **callers**, or can connect users and callers to other extensions and allow them to make **messages.**

CO
Central Office; of a telephone company.

Confidential message
A **message** that cannot be Given to another **user.**

Console
See **server maintenance console.**

Console user
When **FPSA** is activated, persons who have access to the Change **Password** option in the FPSA Menu and to all options in any combination of other menus except the network configuration menus. This classification is the most restricted level of access.

CPE
Customer Premise Equipment; equipment at customer's site.

CSO
NP CSO; an optional feature that allows the **server** to continue operation when individual **modules** or assemblies experience hardware or software failures.

Cut-through paging
An **optional feature** that allows a **caller** to **page** a **user** by entering a telephone number on the **keypad.** The telephone number will then be displayed on the user's **pager.**

Day and night programming
A feature of the NuPoint Voice application that sets the work schedule and handles certain situations such as a user wishing to speak to an Attendant.

DDD
Direct Distance Dialing; telephone calls placed over the public telephone network.

Default
The value a **NuPoint Voice** parameter takes if not specifically changed by the **Administrator.**

Dial-by-Name
A **NuPoint Voice application** capability that allows someone to leave a **message** for a **user** without knowing the mailbox number. Instead, the caller can enter the user's name on the **keypad.**

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Dialing plan
A numerical structure of how **mailbox** numbers are assigned, and their length. Also used to determine which digit implements a capability, such as **call placement.**

Dial string
Group of alphanumeric characters dialed or **outdialed** by the **server.** Often used to facilitate call transfers. Outdialing is used in the **Pager application.**

DID
Direct Inward Dialing; routes outside calls to a specific **station** without operator or **attendant** assistance.

DID line
Direct Inward Dial Line; a trunk line that accepts incoming calls only. You cannot use this line to make **outcalls** or transfers. If you try to make an outcall or transfer a call, you will not get a dial tone. This trunk line uses **E & M signaling** and requires special trunk circuits from the telephone company, and interfacing circuitry for the **server.**

DID NuPoint Voice application
A **NuPoint Voice application** that handles DID lines.

DIL
Direct In-Line; an outside **caller** can reach a specific extension by dialing the seven-digit telephone number. The caller does not go through an **attendant** or switchboard.

Digit absorption
Used by the **DID NuPoint Voice application**, this process ignores leading **DN** digits not needed for a **user's** extension or **mailbox** number.

Digit offset
Used by the **DID NuPoint Voice application**, this process adds digits to or subtracts digits from the **DN** to correspond a **user's** extension or **mailbox** number.

Digital networking
Networking method that transmits voice **messages** to remote **servers** as digital files. See **NP Net.**

Distribution list
A group of **mailboxes** to which the **NuPoint Voice application** sends the same **message.** Distribution lists allows a **user** to send the same message to a number of recipients at the same time. Users and the **Administrator** can assign mailbox numbers to distribution lists.

DN
Directory number; a telephone number.

DTMF tone
Dual Tone Multi Frequency; the sounds created by pressing the keys on a pushbutton telephone.

E & M signaling
Ear and mouth signaling; a pair of wires carrying signals between trunk equipment and separate signaling equipment. The E lead receives, the M lead transmits.

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ESMDI
Enhanced Simplified Message Desk Interface; a standard call data packet format used in **Centrex** applications, with additional features not found in SMDI. used in unified **integrations.**

ESS
Electronic Switching System; switching equipment used in Bell System **COs.**

FCOS
Features Class of Service; a combination of **features.** By assigning an FCOS to a **mailbox**, the **Administrator** determines what capabilities a mailbox has.

Feature bit
The smallest unit of **NuPoint Voice mailbox** capability, also called a feature or an FCOS bit (avoid the latter term as it is often confused with FCOS). Each feature bit has a number and a name. Example: Feature bit 053 (Keep messages), allows **users** to store **messages** in their mailboxes after they have played them. You cannot assign an individual feature bit to a mailbox; you must assign a feature bit to an FCOS and assign the FCOS to the mailbox.

FPSA
Functionally Partitioned System Administration. **Server** software that prevents unauthorized changes and offers better security.

Functionally Partitioned System Administration
See **FPSA.**

Full-screen interface
An input screen on the **server maintenance console** where data is entered in different places by moving the cursor around the screen. Items can be changed and then all are saved at the same time. Contrast with **scrolling interface.**

Give
Ability to send an existing **message** to another **user.**

Greetings
Information meant to welcome **callers** when they reach the **NuPoint Voice application** or a **mailbox.** Typically, callers hear a general company greeting, directions for using the system and a greeting from a **user** when they call from outside the system. **Administrators, Attendants** and users can record greetings.

Greeting-Only Mailbox
Mailbox that does not allow **callers** to leave a **message**.

GCOS
Group Class of Service; a method of restricting communication between **mailboxes.** By assigning a GCOS to a each mailbox, the **Administrator** determines which **users** can exchange **messages.** There are two types, affinity GCOS and bitmapped GCOS. An affinity GCOS consists only of a GCOS number, whereas a bitmapped GCOS is a set of groups. A bitmapped GCOS can have from 0 to 128 **groups.**

Group
A component of a bitmapped **GCOS.** A single group has no intrinsic meaning; it simply acts as an “on/off” switch within a bitmapped GCOS. You cannot assign an individual group to a **mailbox;**

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you must assign a group to a bitmapped GCOS.

Guest mailbox
A temporary **mailbox** set up by a subscriber for guests. Used in the hotel/motel environment.

Hard play prompt
An instruction from the **NuPoint Voice application** that cannot be interrupted by pressing a key on the telephone keypad. The keypress must send a **DTMF** tone to NuPoint Voice before it will interrupt the instruction. See also **Prompts.**

Idle mailbox
A **mailbox** that has been created and assigned but which has not yet been logged into.

Integration
Hardware and software used to interface the **server** with a specific PBX or switch. Allows the **NuPoint Voice** application to know what telephone number was originally dialed, for example.

Internal outdial index
See **Outdial index.**

Keep
The ability to store a **message** for future playing.

Keypad
The set of pushbuttons on a telephone set.

Keypress
Data entry using a telephone **keypad.**

LCOS
Limits Class of Service; a set of options that restricts the capabilities of a **mailbox.** By assigning an LCOS to each mailbox, the **Administrator** determines the controls, or **limits,** on a mailbox.

Limit
A single restriction on one of the capabilities of a **mailbox.** Limits may be on such things as time length of **messages** and number of messages per mailbox. You cannot assign an individual limit to a mailbox; you must assign an **LCOS.**

Line
Telephone line input to a **NuPoint Voice port.**

Line card
Hardware circuit board in a **server** with **ports** for each telephone **line.** The line card interfaces between the **caller** and **NuPoint Voice** software.

Line group
A set of one or more **lines** that are configured the same way. **Line groups** are assigned to specific applications such as the **NuPoint Voice application** or the **Pager application.**

Login
The process of entering a (1) **passcode** from the telephone **keypad** to use various **server**

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functions from within a **mailbox**; or (2) a user ID then a **password** at a **server maintenance console** to gain access to menus, if **FPSA** is activated; or (3) a user ID and then an optional **password** at a server maintenance console to gain access to menus, if FPSA is not activated.

Logout
The **user**'s process of exiting (1) a **mailbox** by entering the proper command from the telephone **keypad**; or (2) from the **server maintenance console**, by selecting Exit when in the Main Menu.

Mailbox
The area set apart for each **user**'s **messages**, **distribution lists**, and other options.

Mailbox owner distribution list
A **distribution list** created by a **user**, assigned to that user's **mailbox**, and not accessible to any other **server** user.

Mailbox passcode
A **mailbox** security feature that requires a numeric security code to verify a mailbox owner's access to a mailbox; can be used whether **FPSA** is activated or not. Contrast with **password.**

Main Menu
The first and top-level set of choices that the **NuPoint Voice application** offers people who have voice **mailboxes** in the server and are logged into it (for example, **users**).

Master feature bit
A **feature bit** that must be included in an **FCOS** in order for related features to work. For example, if you include feature bit 021 (Make and request receipt) in an FCOS, you must also include the master feature bit 020 (Make messages).

Master distribution list
A **distribution list** created by an **Administrator** (which is assigned to the **Administrator's mailbox**), accessible to many **users** with the proper **FCOS**.

Manu parameter
A particular menu choice whose value you can alter through the **server console.**

Message
Also voice message; a voice recording left by **users** and **callers** in a **mailbox**, and stored by the **server.**

Message delivery
A **message waiting indication** that places a telephone call to a **user**, asks for a **passcode**, and plays the user's **messages.**

Message of the day
The "message of the day" is actually a **greeting.** Mailbox **users** hear it when they log in. It is stored in the **Attendant's mailbox.**

Message Waiting Indication/Indicator
See **MWI.**

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Message waiting type
A number used to indicate which form of **MWI** is being used by a particular **mailbox.**

Modifier
NuPoint Voice characteristics common to all **applications.** Changing them alters the behavior of the application. Example: **Dialing plan.**

Module
An individual processor (CPU) and attached components on a **server.** The server can have between one and four modules. Modules are sometimes called “hosts.”

MWI
Message waiting indication/indicator; a way to inform **users** of new **messages.** Examples include **pagers** and message waiting lights. There are 3 message waiting indication parameters for each **mailbox**, and each can have both a **primary MWI** and an **alternate MWI.**

NCOS
Network Class of Service; a **mailbox** option that controls access to network features. Examples include the ability to send, receive, or give **messages** across the network, and access to urgent or batch queues when sending messages.

New user tutorial
See **Standard tutorial.**

NP Forms
Voice forms; question and answer **mailboxes.**

NP Net
An **optional feature** used for **digital networking** a **server.**

NP Receptionist
An **optional feature** that allows **callers** and **users** to reach extensions by **keypad** inputs. This is the only **application** that can be assigned to a **line group** that already has another application configured.

NP TDD
An **optional feature** for the **server** that furnishes English prompts for a **TDD**. This functionality allows the hearing-impaired to use **NuPoint Voice** software.

NPA
A communications industry term for the area code of a **DN.**

NPA/NXX screening
A communications industry term for restricting telephone calls based on the area code and exchange. See **NPA**, **NXX**, and **RCOS.**

NuPoint Voice application
The basic software application for the **server** that provides voice messaging.

NuPoint Voice superuser
When **FPSA** is activated, persons have access to the Change **Password** option in the FPSA

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Menu and to all options in all other menus. This classification is the second-widest level of access.

NuPoint Voice tutorial
See **Standard tutorial.**

NXX
A communications industry term for the exchange (prefix) of a **DN**. The exchange follows the area code and is a grouping of telephone numbers coming from the same **CO.**

Off-system messaging
See **Call placement.**

Optional feature
A capability that is not included in the base **NuPoint Voice** software, and must be specifically configured.

Outcall
See **Outdial.**

Outdial
Creation of **DTMF** tones by the **server** when it originates a telephone call, such as when **paging** a **user.**

Outdial index
A number from 0 to 15 that indicates which **pager system** to use. There are three available outdial indexes: internal, billed, and unbilled. This information is set up in a **user**'s **mailbox.** Formerly called "pager system access code index."

Pager
Also radio pager; the device activated by a **Paging** system.

Pager application
The **NuPoint Voice application** that allows **paging**, **message delivery** and **call placement.**

Pager number
A **dial string** used to dial a **pager.** Used with the **outdial index** and the **post-pager number**, all three of which are stored in the **user's mailbox.**

Pager system
A **dial string** used to access a group of **pagers.** This information is stored when configuring the **Pager application.** Referred to by the **outdial index**, and used with the **pager number** and **post-pager number** to reach a particular pager. Sometimes called "access code."

Pager system access code
See **Outdial index.**

Paging
Process where the **NuPoint Voice application outdials** a **pager number** to activate a **user's pager** when a new **message** is received.

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Parent mailbox
Mailbox that routes **users** and **callers** to **child mailboxes.** Parent mailboxes must contain a **distribution list** so that the **server** knows how to route users and callers. Parent mailboxes can be **broadcast**, **rotational**, or **tree mailboxes.**

Passcode
See **Mailbox passcode.**

Password
A **server** security feature consisting of an alphanumeric code required during **login** to verify a **user**'s access to server menus. See also **mailbox passcode.**

PBX
Private Branch Exchange; a business telephone system, usually on premises, that switches calls from public telephone network to **stations** in the system.

Permission category
When **FPSA** is activated, one of five levels of access that the **server superuser** assigns to **NuPoint Voice superusers** and **console users.** At least one category is associated with a user ID and every **server** menu.

Phoneline exceptions (LEs)
Parameters that tell the **NuPoint Voice application** how to handle phone **lines**, in terms of dialing speed, voltages, etc.

Play message
To listen to a voice **message**.

Played message
A **message** which the **user** has heard and decides to keep.

PMS
Property Management System. Integrated with a **server**, allows **mailbox** creation directly from the PMS.

Port
A physical hardware connection. A **server** port is the physical telephone **line** connection to the server. Also see **Serial port.**

Post-pager number
A **dial string** used to control a **pager**, either to display a set of numbers or to enter special codes. Used with the **outdial index** and the **pager number**, all three of which are stored in the **user**'s **mailbox.**

Primary MWI
The **message waiting indication** that is signaled when a **mailbox** gets a new **message**. If an **alternate MWI** is also defined, that one will be signaled if the **user** does not respond by calling into the **server.**

Primary pager
The **pager** that is signaled when a **mailbox** gets a new **message**. If an **alternate pager** is also

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defined, that one will be signaled if the **user** does not respond by calling into the **server.**

Prompts
Recorded instructions that offer options to **users** and **callers.** For example, after users and callers reach a **mailbox**, they may hear the prompt, “Record your message.” Prompts can be given in foreign languages (an **optional feature**). See also **Hard play** and **Soft play prompts.**

Queue
A group of related **messages.** Each **mailbox** should have a queue for **unplayed messages**, **played messages**, **receipts**, and **urgent messages.**

Receipt
Notification to a **user** about a **message**’s status.

Return receipt
Request by a **user** for notification when a sent **message** has been played.

RCOS
Restriction Class of Service; a parameter assigned to **mailboxes** which limit what telephone numbers they can **outdial.** Limits are placed on the area codes or exchanges a mailbox can outdial. See **NPA/NXX screening.**

RNA
Ring No Answer; a condition where an extension rings but no one answers the telephone.

Rotational mailbox
Information-only **mailbox** whose **prompts** are changed on time or usage-sensitive basis.

Scrolling interface
An input menu on the **server maintenance console** where data is entered one line at a time. You are prompted for each item by the **server.** Contrast with **full-screen interface.**

Serial port
A physical interface to a serial data connection. Also see **Serial port index.**

Serial port index
A numeric pointer to the **serial port number** to be used by an **application.** This number can be 0 (don’t use), 1, or 2. Each **serial port** can then be assigned to a device name.

Serial port number
A number assigned to a **serial port index** that points to a device name. For a CPU **serial port**, the number 1 or 2 will refer to $term1 or $term2. For a serial port hardware card, the numbers 1 through 32 refer to names $cti1 through $cti32.

Server
The NuPoint Messenger server, both hardware and software used to run **NuPoint Voice**.

Server administrator
See **Administrator.**

Server greeting

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Initial **greeting** heard by **callers** who dial into a voice processing system.

Server maintenance console
The video display monitor and keyboard, (the terminal) connected to the **server.**

Server superuser
When **FPSA** is activated, the only person who has unlimited access to all **server** menus. This classification is the widest level of access.

Shared extension mailbox
A kind of **tree mailbox** used when several people share one telephone. Each **user** has a personal **mailbox**, which is a **child mailbox** of the shared extension (**parent**) mailbox. **Callers** leave a **message** by pressing a digit to chose a user.

Site Tutorial
A company-specified **tutorial** that you can create for your **users.** It is a form of **greeting.**

SMDI
Simplified Message Desk Interface. A standard call data packet format used in **Centrex** applications.

Soft play prompt
An instruction from the **NuPoint Voice application** that can be interrupted by pressing a key on the telephone **keypad.** The **keypress** must send a **DTMF** tone to the **server** to interrupt the instruction. See also **Prompts**.

Standard tutorial
A **tutorial** supplied that is set to play by default when a new **mailbox** is created and logged into for the first time. Sometimes called user tutorial, new user tutorial, and NuPoint Voice tutorial.

Station
Telephone set.

System attendant
See **Attendant.**

TCOS
Tenant Class of Service; a **mailbox** option used with the **SMDI integration**. This feature governs mailbox interaction between **user** communities.

TDD
Telecommunications Device for the Deaf; a terminal used by a hearing-impaired person to communicate over telephone **lines.** A TDD operator relays information from the TDD to another party, and types in any spoken information, which is sent back to the TDD.

Tie trunks
Private telephone circuits used to connect two or more telephone systems together, or to connect a telephone system to a voice processing system.

Time stamp
Voice **prompts** that inform a **user** of the time and date each **message** was recorded.

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Tip & Ring
Telephony term for the ground (tip) and positive (ring) wires in an electrical circuit. Also known as Tip-Ring or T-R.

Transfer
Moving a call from one **station** to another within a telephone network or site.

Tree mailbox
Mailbox that routes **users** and **callers** to **child mailboxes**, based on **keypad** input. Tree mailboxes must contain a **distribution list** so that the **server** knows how to route users and callers.

Triplet
A set of three numbers, separated by colons, that refer to a specific **line** connected to the **server.** Triplets use the form m:s:p, where m refers to the **module** number (1-4), s the **line card** slot number (0-15), and p the **port** number (starting from 0) on the line card.

Trunk.
A telephone communication channel between two points, where one is usually the **CO** or switching center.

Tutorial
A **user** option which is a series of detailed **prompts** that guides the user through simple **mailbox** operation.

UCD
Uniform Call Distributor; a device to handle incoming calls and distribute them among several agents. Less “intelligent” than **ACD.**

Unbilled outdial index
See **Outdial index.**

Unplayed message
A **message** that has not been played (heard) by the **user.**

Urgent message
A **message** that is played before normal messages. Messages marked Urgent are put in a different **queue** and can be treated differently.

User
Also called “mailbox user.” A person who has one or more voice **mailboxes** in the **server** and is logged into it. Users may have extensive call processing options, such as play messages, answer messages, give messages, keep messages and use distribution lists. Contrast with **server superuser**, **NuPoint Voice superuser**, and **console user.**

User Distribution list
See **Mailbox owner distribution list.**

User ID
(User identifier). A security feature consisting of a unique identifier of up to 17 letters that is required as the first step in logging in to a **server.** The **server superuser**, each **NuPoint Voice**

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superuser, and each **console user** have a user ID.

User options
Choices that the **server** announces to **users** during a call. When a user presses the U key (8 on the keypad) while listening to the main menu, the server presents the user with some or all of these options: name, **greeting**, **passcode**, **distribution lists**, **tutorial**, **pagers.**

User tutorial
See **Standard tutorial.**

VMUIF
A set of voice messaging **prompts** used by a number of vendors. This **user** interface is distinct from the standard **NuPoint Voice application** user interface.

Voice message
See **message.**

Voice processing
Generic term for any equipment that can handle voice **messages** from **callers.**

Wink
A short interruption in single-frequency tone, showing the **CO** is ready to receive digits you just dialed.

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