Intuity™ Messaging Solutions

Release 5 Integration Using
Inband and Serial Interfaces

Issue 1
January 2001

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Issue 2, January 2001

For additional documents, refer to the section in "About This Book" entitled "Related Documents."
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- Electromagnetic Compatibility (89/336/EEC**)**
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI

The "CE" mark affixed to the equipment means that it conforms to the above directives.

For more information on standards compliance, contact your local distributor.

Comments

Please send an email message to infodev@avaya.com with your comments about this document.

Contents

About This Book

Purpose

This book, *INTUITY™ Messaging Solutions Release 5 Integration with Inband and Serial Interfaces*, Issue 1, contains instructions for integrating the Lucent™ INTUITY system with various switches through inband or serial integration methods.

It includes high-level guidelines and requirements for switch administration and procedures for administering the Lucent INTUITY system for switch integration.

Intended Audiences

The primary audience is on-site technical personnel who are responsible for installing the Lucent INTUITY system, performing initial administration, and completing acceptance testing.

Secondary audiences include:

- Field support — Technical Service Organization (TSO)
- Switch administrators
- Helpline personnel
- Sales support
- Design support
- Factory assemble, load, and test (ALT) personnel
- Provisioning project managers — Sales and Technical Resource Center (STRC)

We assume that the primary users of this book have completed the Lucent INTUITY hardware installation training course (see "Related Resources").

Release History

This is the first release of this book.

How to Use This Book

This book is designed to step you through the entire switch integration process. You can also use it as a quick-reference guide to obtain information on a specific topic.

For Complete Installation Instructions

Chapter 1, "Overview of and Planning for Serial and Inband Switch Integration", contains background information on inband and serial integrations.

Use the information in the other chapters in the order as directed by the checklist (Table 1-1).

For an Integration Checklist

For a quick reference, see Table 1-1 for a checklist of tasks necessary to complete the integration.

Procedures required for switch integration are listed in the order in which you must perform them.

References to other books are provided in Chapter 1, "Overview of and Planning for Serial and Inband Switch Integration".

For Troubleshooting Information

For information on troubleshooting, see Chapter 7, "Integration Validation and Troubleshooting".

For Connectivity and Pinout Information

For pinout and connectivity information for inband and serial connections, see Appendix E, "Cable Connectivity", in the installation book for your platform.

To Locate Specific Topics

This book includes an alphabetical index at the end.

Conventions Used in This Book

This section describes the conventions used in this book.

Terminology

- The word “type” means to press the key or sequence of keys specified.

  For example, an instruction to type the letter “y” is shown as

  Type **y** to continue.

- The word “enter” means to type a value and press ENTER.

  For example, an instruction to type the letter “y” and press ENTER is shown as

  Enter **y** to continue.

- The word “select” means to move the cursor to the desired menu item and then press ENTER.

  For example, an instruction to move the cursor to the start test option on the Voice Equipment screen and then press ENTER is shown as

  Select `Start Test.`

- The word “subscriber” is used in this document when referring to a person administered on the Lucent INTUITY system. Subscriber appears on most of the screens and is the command word you must type at the command line, for example, **change subscriber “Jane Doe”.**

- The word “administrator” is used in this document when referring to the system administrator.

- The Lucent INTUITY system displays *windows, screens, and menus*. Windows show and request system information (Figure 1 and Figure 2).

  Screens request that you enter a command at the `enter command:` prompt (Figure 3). Menus (Figure 4) present options from which you can choose to view another menu, or a screen or window.

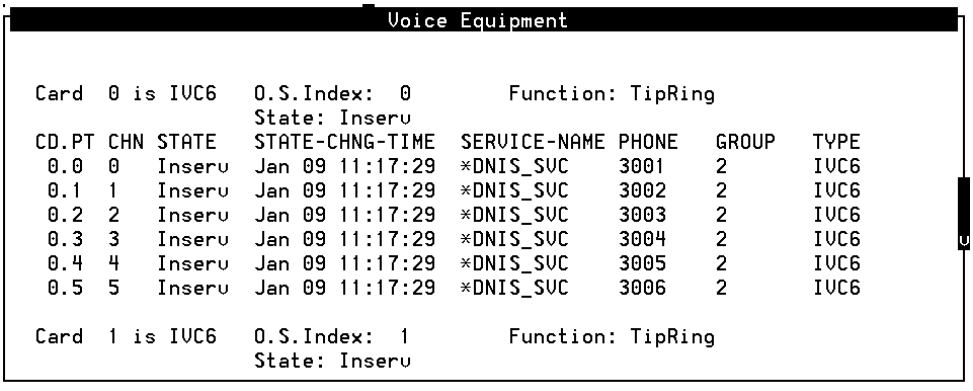


Figure 1. Example of a Lucent INTUITY Window Showing Information

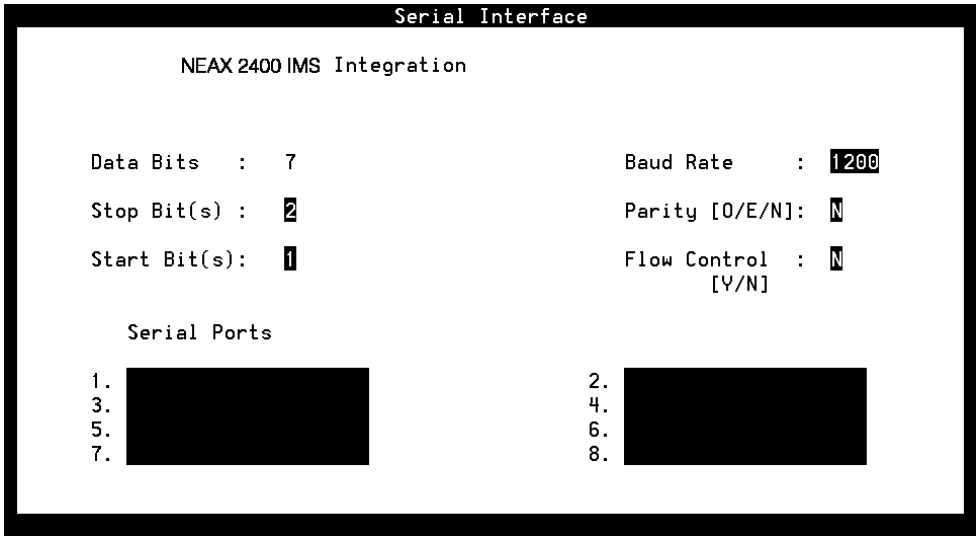


Figure 2. Example of a Lucent INTUITY Window Requesting Information

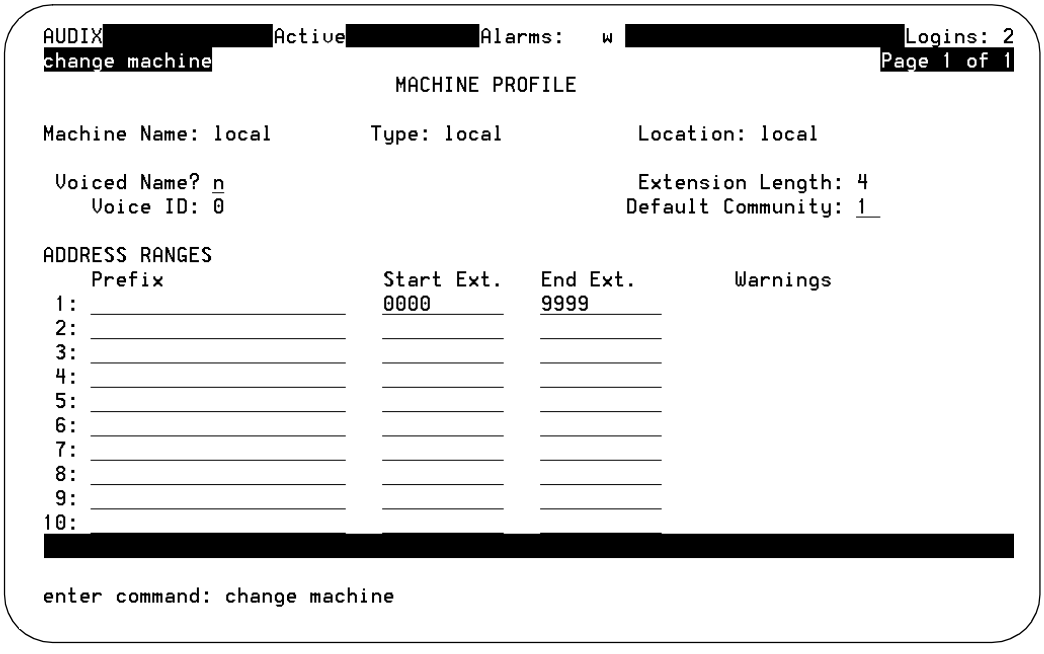


Figure 3. Example of a Lucent INTUITY Screen

Figure 4. Example of a Lucent INTUITY Menu

Keyboard and Telephone Keypad Representations

- Keys that you press on your terminal or PC keyboard are represented as rounded boxes. For example, an instruction to press the Enter key is shown as

  Press (ENTER).

- Two keys that you press at the same time on your terminal or PC keyboard (that is, you hold down the first key while pressing the second key) are represented as a series inside a rounded box. For example, an instruction to press and hold (ALT) while typing the letter “d” is shown as

  Press (ALT-D).

- A combination keystroke is a series of keystrokes that combine the two key function described above plus a third key, that is, you press and hold down the first key, then press the second key, then release those keys and press a third key. A combination keystroke is represented as an equation. For example, an instruction to press and hold (ALT) while typing the letter “d” and then typing the number “1” is shown as

  Press (ALT-D) [1]

- Function keys on your terminal, PC, or system screens (also known as soft keys*)* are represented as rounded boxes followed by the function or value of that key enclosed in parentheses. For example, an instruction to press the function key 3 is shown as

  Press (F3) (CHOICES).

- Keys that you press on your telephone keypad are represented as square boxes. For example, an instruction to press the first key on your telephone keypad is shown as

  Press [1] to record a message.

Screen Displays

- Values, system messages, field names, and prompts that appear on the screen are shown in typewriter-style `Courier` type, as shown in the following examples:

  Example 1:

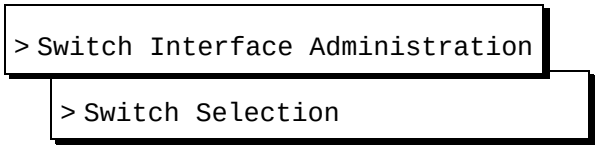
  Enter a switch number in the `Switch Number` field.

  Example 2:

  ```
  You need to restart the voice System to make these
  changes active.
  ```

- The sequence of menu options that you must select to display a specific screen or submenu is shown as follows:

  Start at the Lucent INTUITY Main Menu and select

  In this example, you first access the Switch Interface Administration menu. From that menu you select the Switch Selection window.

- Windows and screens shown in this book are examples only. Those displayed on your system will be similar, but not exactly the same.

Data Entry Conventions

- Commands and text you type in or enter appear in **bold** type, as in the following examples:

  Example 1:

  Enter **change-switch-time-zone** at the `enter command:` prompt.

  Example 2:

  Enter **Y** in the `Remote [Y/N]` field.

- Command variables are shown in ***bold italic*** type when they are part of what you must type in and *regular italic* type when they are not, for example:

  Enter **ch ma *machine_name***, where *machine_name* is the name of the call delivery machine you just created.

Safety and Security Alert Labels

The Lucent INTUITY document set uses the following symbols to call your attention to potential problems that could cause personal injury, damage to equipment, loss of data, service interruptions, or breaches of toll fraud security:

⚠ CAUTION:
*Indicates the presence of a hazard that if not avoided **can** or **will** cause minor personal injury or property damage, including loss of data.*

⚠ WARNING:
*Indicates the presence of a hazard that if not avoided **can** cause death or severe personal injury.*

DANGER:

*Indicates the presence of a hazard that if not avoided **will** cause death or severe personal injury.*

SECURITY ALERT:

Indicates the presence of a toll fraud security hazard. Toll fraud is the unauthorized use of a telecommunications system by an unauthorized party.

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- VoiceBridge is a registered trademark of Voice Technologies Group, Inc.
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- VT100 is a trademark of Digital Equipment Corporation.
- Windows is a trademark of Microsoft Corporation.

Related Resources

This section describes additional resources available for you to learn more about installation of the Lucent INTUITY product.

Documentation

It is suggested that you obtain and use one of the following INTUITY Messaging Solutions Release 5 Documentation CDs in conjunction with this integration book:

- *INTUITY Messaging Solutions Release 5 Documentation*, 585-313-803, Issue 3
- *INTUITY Messaging Solutions Release 5 Documentation for Technicians*, 585-313-807, Issue 3

Training

For information on Lucent INTUITY training, call the Lucent University at one of the following numbers:

- Organizations within Lucent Technologies: (904) 636-3261
- Lucent Technologies customers and all others: (800) 288-5327

Technical Assistance

The following resources are available for technical assistance with Lucent Technologies products and services:

- Within the United States
  - For systems integrated with the subject switches, call 1-800-242-2121.
- Within Canada
  - For all systems, call 1-800-242-1234.
- Within any other country
  - For all systems, call your local distributor.

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Overview of and Planning for Serial and Inband Switch Integration

1

Overview

Inband and serial switches can be integrated with the following Lucent™ INTUITY™ multiapplication platforms (MAPs):

- MAP/40
- MAP/40P
- MAP/100
- MAP/5P

This chapter gives an overview of the integration process. It also describes the information that must be obtained in advance of performing procedures to integrate an inband or serial switch with the Lucent INTUITY system.

Purpose

The purpose of this chapter is to provide background and planning information needed to integrate a Lucent INTUITY system with the following inband and serial switches:

- Inband:
  - Northern Telecom (Nortel) Norstar DR3-DR6
- Serial:
  - NEC NEAX 2400
  - Ericsson MD110

Switch Integration Concepts

Switch integration is the sharing of information between a voice messaging system and a switch to provide services to callers and subscribers.

A fully integrated messaging system uses information sent from the switch to determine how to process each incoming telephone call.

Inband Integration

Inband integration is possible on supported switches through the use of Dual Tone Multifrequency (DTMF) signaling. Strings of DTMF tones are transmitted on the analog voice channel after the channel goes off hook to answer the call, but before the voice is cut through.

Various levels of integration are available and are dependent of the switch.

Typically, the string contains the following information:

- Calling party identification
- Called party identification
- Reason for the call (redirection or direct call)

Dial strings for activation and deactivation of message waiting indicators (MWIs) are included in the specifications specific for the switch.

Support for MWI update command strings and DTMF (interdigit timing and end-of-string) timings are also essential elements.

NOTE:
An interface is necessary to accommodate different inband signaling protocols. These protocols are switch specific. The DTMF strings should be parsed properly for effective integration.

Serial Integration

There are two types of serial integration:

- Proprietary serial integration

  Proprietary serial integrations require an RS-232 interface between the switch's input/output (I/O) port and the Lucent INTUITY system (Figure 1-1).

  The elements of the serial protocol are typically a superset of those in the inband signaling protocol, with the addition of a field describing channel information.

  Information on refresh message waiting lamp (MWL), pause MWL, and disconnect may also be sent by the switch.

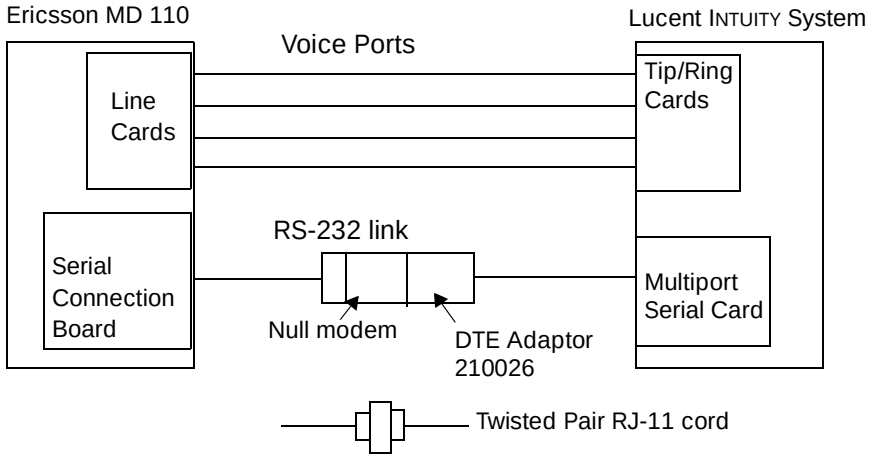


Figure 1-1. Example of a Serial Connection

It is possible to use a multi-port serial circuit card for the particular integration.

When the call is forwarded to the system, a packet of information is sent via the serial cable. This packet provides the integration data for the channel receiving the call.

Baud, parity, etc. must be determined in addition to the protocol.

NOTE:
If the distance between the Lucent INTUITY system and the switch is more than 15 meters (50 feet), a customer-supplied modem is necessary to make the connection.

- Simplified message desk interface (SMDI) serial integration

  SMDI is a Bellcore-defined standard integration protocol that controls the exchange of integration information through a serial interface.

  It is mainly used for central office switches such as the Lucent 5ESS® and the Nortel DMS-100.

Demarcation Points

The following are two demarcation points for the connections made by the Lucent Technologies technicians.

Switches Maintained by Lucent Technologies

Lucent service technicians dispatched for the Lucent INTUITY system installation are responsible for making connections only to switches maintained by the Lucent Technologies personnel or entities.

Switches Not Maintained by Lucent Technologies

The demarcation point for integration of switches not maintained by Lucent depends on the integration type:

- For serial integrations, the demarcation point immediately follows the null modem (if used).

  NOTE:
  A null modem is required for a DTE connection, but not for a DCE connection.

- For inband integrations, the demarcation point is immediately before the modular connectors at the switch end.

Lucent Technologies services personnel are permitted to connect the modem and cables to the Lucent INTUITY system.

For additional information concerning the extent of the installation, refer to the contract between the customer and Lucent Technologies.

Joint Acceptance Testing

Acceptance testing is performed at the end of an installation to demonstrate to the customer that the integration is operational.

Joint acceptance testing is to be conducted by the customer representative and the INTUITY AUDIX® on-site installer when the integration includes Lucent Technologies products and customer-provided equipment.

Checklist for Inband and Serial Switch Integration

Table 1-1 outlines the process of integrating the Lucent INTUITY system with a switch using an inband or serial integration. The following points are assumed:

- The switch integration software package is already installed on your system.
  - — Use the View Installed Software window to verify that the correct switch integration software package is installed. For information on using this window, see the platform maintenance book. The window should list the following packages:

    Serial-Inband Switch Integration Software

    Serial-Inband Telephony Interface Switch Module
  - — If you need to install the software, see “Installing the Switch Integration Software Packages” in your platform maintenance book.
- You are performing the integration as part of the installation of the Lucent INTUITY system and completing the procedures specified in the system installation book.

Table 1-1. Checklist for Inband and Serial Switch Integration

Task	Description	Reference	✔
1.	Modify the switch.	‘‘Switch Link Administration for Inband Switches’’ and ‘‘Switch Link Administration for Serial Switches’’ found in this chapter.	
2.	Complete the procedures in Chapters 1 through 4 up to the section, “Powering Up the System” in the system installation book.	Chapters 1 through 4 in the system installation book.	
3.	Complete the appropriate procedures for your switch type in Chapters 5 of the system installation book.	Chapters 5 of the system installation book.	

Table 1-1. Checklist for Inband and Serial Switch Integration

Task	Description	Reference	✔
4.	Set up the Lucent INTUITY switch integration windows.	Chapter 6, ''Lucent INTUITY Administration for Inband and Serial Switch Integration'' ''Switch Link Administration for Inband Switches'' and ''Switch Link Administration for Serial Switches'' found in this chapter.	
5.	Ensure that the switch has been set to perform acceptance tests for the two test system subscribers.	None.	
6.	Return to "Administering Channels" section in Chapter 6 of the system installation book and complete all required tasks through Chapter 16.	Chapters 6 through16 in the platform installation book.	
7.	Validate and, if necessary, troubleshoot the integration.	Chapter 7, ''Integration Validation and Troubleshooting''.	
8.	Cut to service by notifying the switch administrator or your project manager to change the system subscribers' call forwarding coverage path to the Lucent INTUITY system	None.	

(2 of 2)

Planning Worksheets

Complete the worksheets in this section for inband and serial integrations.

Worksheets are included to record information. Responsibility for implementing the information on the worksheets is as follows:

- The project planner or project manager is responsible for completing the worksheets.
- The Lucent installer is responsible for implementing information specific to the Lucent INTUITY system.
- The switch administrator is responsible for implementing information on the worksheets specific to the switch.

Planning Worksheets for Inband Switch Integration

Table 1-2 lists the worksheets that must be completed for inband switch integration.

Table 1-2. Planning Checklist for Inband Switch Integration

Worksheet	Section and Page	Nortel Switch Required
A	"Number of Digits in Dial Plan" on page 1-9	Yes
B	"Routing Table" on page 1-12	Yes
C	"Business Schedule" on page 1-14	Yes
D	"Holiday Schedule" on page 1-15	Yes
E	"Automated Attendant Number" on page 1-16	Yes
F	"Switch Link Administration for Inband Switches" on page 1-18	Yes
H	"Device Assignment" on page 1-23	Yes
I	"Dial Plan Translation" on page 1-24	Yes
K	"MWI Parameters" on page 1-26	Yes

Planning Worksheets for Serial Switch Integration

Table 1-3 are the worksheets that you must complete for serial switch integration.

Table 1-3. Planning Checklist for Serial Switch Integration

Worksheet	Section and Page	Switches Required
A	"Number of Digits in Dial Plan" on page 1-9	NEC NEAX 2400 and Ericsson MD110
B	"Routing Table" on page 1-12	NEC NEAX 2400 and Ericsson MD110
C	"Business Schedule" on page 1-14	NEC NEAX 2400 and Ericsson MD110
D	"Holiday Schedule" on page 1-15	NEC NEAX 2400 and Ericsson MD110
E	"Automated Attendant Number" on page 1-16	NEC NEAX 2400 and Ericsson MD110
G	"Switch Link Administration for Serial Switches" on page 1-21	NEC NEAX 2400 and Ericsson MD110
H	"Device Assignment" on page 1-23	NEC NEAX 2400 and Ericsson MD110
I	"Dial Plan Translation" on page 1-24	NEC NEAX 2400 and Ericsson MD110
J	"Attendant Translation" on page 1-25	NEC NEAX 2400
K	"MWI Parameters" on page 1-26	NEC NEAX 2400 and Ericsson MD110

Lucent INTUITY System Integration Planning

Complete the following planning forms to plan for the Lucent INTUITY system side of the integration. Otherwise, provide the information to the installer.

Digits in Dial Plan

The Lucent INTUITY system requires a fixed-length dial plan. You can use a 3-digit or 10-digit dial plan. Write the number of digits on Worksheet A.

Worksheet A: Number of Digits in Dial Plan

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Number of digits in the dial plan: _____

INTUITY AUDIX System Parameters Features

Set the System-Parameters Features window for the INTUITY AUDIX application:

Transfer Type = basic

Transfer Restriction = subscribers

Covering Extension = system console or operator extension

Channel Information for Installation

For the Lucent INTUITY system to operate properly, it must know what extension is assigned to each of its channels (voice ports) and how incoming calls on that channel are to be processed. For each channel, provide the extension number and assign all channels that are part of an integrated voice mail interface (VMI) calling group to *DNIS_SVC for operation.

Assign Service to Called Number

All calls are processed by the *DNIS_SVC. For *DNIS_SVC to function with both the INTUITY AUDIX and INTUITY Lodging applications defined in a shared port group, the installer must fill out a table in the system. The information in this table tells the *DNIS_SVC which called number should receive a particular service.

NOTE:
Calls not specifically routed elsewhere are routed to the INTUITY AUDIX application. The called numbers are processed through the routing table. Trunk numbers must also be routed through the INTUITY AUDIX routing table.

Routing Table

Use the information in Worksheet B to create the routing table. There are a maximum of 25 rows in the routing table. This worksheet has the following columns:

- Incoming Called Number

  Enter the incoming called number or range of called numbers. When a call arrives, the system compares the incoming called number to the numbers in this column. If no match is found, the call is routed to the INTUITY AUDIX application without changing the called number information. If a match is found, the remaining columns are examined for processing.

- Business Schedule

  Leave this column blank or enter **login** or the name of a business schedule.

  NOTE:
  The Business Schedule and the Holiday Schedule columns cannot both be blank.

  If you enter login in this column, the system provides voice mail service from the INTUITY AUDIX application. If you enter the name of a business schedule, the system checks the current date against any holiday schedule. If no holiday schedule applies, the system checks the business schedule to determine if the current time falls within the alternate hours for the current day of the week. If a match is found, the automated attendant mailbox in the “Alternate Service Mailbox” column is substituted for the called number and the call is passed to the INTUITY AUDIX application.

  If a match to the alternate hours is not found, the system checks the business schedule to determine if the switch night service status applies. If night service status applies, the system provides the automated attendant mailbox listed in the “Day Service Mailbox” or “Night Service Mailbox” column, depending on the switch night service status.

  If the business schedule does not follow the switch night service status, the system checks the day service hours for the current day of the week. If a match is found, the system provides the automated attendant mailbox in the “Day Service Mailbox” column. Otherwise, the automated attendant mailbox in the “Night Service Mailbox” column is substituted for the called number, and the call is passed to the INTUITY AUDIX application.

- Holiday Schedule

  Leave this column blank or enter the name or number of a holiday schedule.

  NOTE:
  The Business Schedule and the Holiday Schedule columns cannot both be blank.

After checking the Business Schedule column for the specific entry “login,” the system checks the current date against any specified holiday schedule. If a matching date is found, the system provides the automated attendant mailbox from the Mailbox column of the holiday schedule. If no match is found, the business schedule (if any) is checked.

- Day Service Mailbox

  This column contains the automated attendant mailbox that replaces the called number if a match is found for day service hours in the business schedule. This matching is performed after checking for a match on alternate service hours.

- Night Service Mailbox

  This column contains the automated attendant mailbox that replaces the called number if a *no* match is found in the business schedule for day service hours. This matching is performed after checking for a match on alternate service hours.

- Alternate Service Mailbox

  This column contains the automated attendant mailbox that replaces the called number if a match is found in the business schedule for alternate service hours.

NOTE:
The mailboxes listed in the routing table and holiday schedules typically do not correspond to extensions on the telephone system. They are defined as automated attendant main menus. Update these mailboxes before modifying the routing table and holiday schedules.

Worksheet B: Routing Table

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Incoming Called Number	Business Schedule	Holiday Schedule	Day Service Mailbox	Night Service Mailbox	Alternate Service Mailbox

Business Schedules

The purpose of a business schedule is to allow you to specify different automated attendant services based on normal hours (day-service range) and, if needed, an alternate service range (for example, lunch break). Day or night service can follow the switch night service status.

The system supports a maximum of four business schedules. Each business schedule is associated with specific called numbers (which may be trunk numbers). Complete a copy of Worksheet C for each business schedule. This worksheet has the following fields and columns:

- Business Schedule

  Enter the name of the of the business schedule. Default names are “bus*n*” where *n* is 1, 2, 3, or 4. The business schedule can be referred to in the routing table by either its name or number. Do not use “login” as the name of a business schedule.

- Follow Night Service Status

  If this field contains “n,” a match is made against day service hours for the day of the week to determine whether day or night service should be provided.

  If this field contains “y,” leave the day service hours blank. Night service is provided based on the switch night service status.

  NOTE:
  In either case, a match for the alternate service hours for the day of week is performed first.

- Day Of Week

  This column lists the seven days of the week. It cannot be changed.

- Day Service Hours (Start Time and End Time)

  These columns list the start time and end time for day service on the specified day of the week. Use 24-hour time (00:00 to 23:59) to specify these times. The end time must be later than the start time. For night service only, leave the columns blank. For day service only, specify start time as **00:00** and end time as **23:59**.

- Alternate Service Hours (Start Time and End Time)

  These columns list the start time and end time for alternate service on the specified day of the week. Use 24-hour time (00:00 to 23:59) to specify these times. The end time must be later than the start time.

Worksheet C: Business Schedule

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Follow Switch Night Service Status (y/n)?

Day of Week	Day Service Hours		Alternate Service Hours	
	Start Time (hh:mm)	End Time (hh:mm)	Start Time (hh:mm)	End Time (hh:mm)
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Holiday Schedules

The purpose of a holiday schedule allows a business to specify appropriate greetings and automated attendant services based on specific holidays.

There can be a maximum of four holiday schedules, each with up to 26 holidays. Each holiday schedule is associated with specific called numbers (which may be trunk numbers). Complete a copy of Worksheet D for each holiday schedule. This worksheet has the following fields and columns:

- Holiday Schedule

  This field contains the name of the holiday schedule. Default names are "hol*n*" where *n* is 1, 2, 3, or 4. The holiday schedule can be referred to in the Routing Table by either name or number.

- Holiday Name

  This column contains the name of the holiday.

- Date

  This column contains the date of the holiday (*mm/dd*) to be used for matching.

- Mailbox

  This column contains the automated attendant mailbox that replaces the called number if a match is found in the “Date” column. This mailbox does not need to correspond to an extension on the switch.

Worksheet D: Holiday Schedule

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Holiday Name	Date (mm/dd)	Mailbox

Determining the Automated Attendant Number

NOTE:
Use this worksheet only for integrations where the customer uses the automated attendant feature of the INTUITY AUDIX application.

The automated attendant number is the INTUITY AUDIX extension number indicated for the automated attendant mailbox.

Use Worksheet E to record the automated attendant number.

Worksheet E: Automated Attendant Number

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Automated attendant number: _____

Planning for Phantom Numbers

A *phantom number* (also called a **dummy number**) is an extension number not associated with a switch port or a telephone station. It is typically assigned when the channels in a hunt group have shared usage for coresident applications, such as the INTUITY AUDIX application and the Lucent INTUITY Lodging application.

When the phantom number is dialed, the switch forwards the call to a channel in the hunt group.

CAUTION:
The selected switch must support the phantom number feature.

From there the Lucent INTUITY system service assignment determines the correct application to start for the call.

There must be two numbers established in a coresident system:

- A start hunt number for one application
- A phantom number for the coresident application

CAUTION:
All phantom numbers must be assigned to switch 0 in the INTUITY AUDIX database. If switch 0 is not used for these extensions (which do not have real stations), the system will try to turn MWIs on and off and continually fail. This condition can seriously impede system performance.

Switch Link Administration for Inband Switches

Switch link administration is performed to ensure that the correct data is received on the designated ports.

Worksheet F contains the following field:

- Interdigit Timeout

  Interdigit timeout is the period for which the INTUITY AUDIX application waits before assuming that no more digits are being received in a transmission and that the transmission is complete.

  This data is entered in seconds.

  The minimum value that can be entered in this field is 1 second. The maximum value that can be entered is 9 seconds.

  NOTE:
  Only the remote support center can set the interdigit timeout.

Worksheet F: Switch Link Administration for Inband Switches

Customer: _____

Prepared by: _____

Telephone number: _____

Date: _____

Lucent INTUITY location/name: _____

Interdigit timeout: _____

Switch Link Administration for Serial Switches

Switch Link Administration is performed to ensure that the correct data is received on the given ports.

Worksheet G contains the fields listed below. These fields are switch-dependent.

- Data Bits

  Enter the number of bits for transmitting data in this field.

  The two options available are **7** or **8**.

- Stop Bits

  Enter the stop bits for transmitting data in this field.

  The two options available are **1** or **2**.

- Start Bits

  Enter the start bits for transmitting data in this field.

  The two options available are **1** or **2**.

- Baud Rate

  Enter the baud for transmission of data.

  There is a list of default bauds that you can choose from. These range from 1200 to 9600.

- Parity

  Set parity to check for any transmission errors in the message received.

  Parity can be set to any of the following:

  - Odd
  - Even
  - None

  If the parity is set to Odd, an extra digit is added (if required) to the original message to make it an odd number of digits. If the message received at the other end has an even number of digits, a transmission error has occurred.

- Flow Control

  Flow of control helps to ensure that the Lucent INTUITY system can handle all of the data it receives. If too much data is received, a message is displayed asking the switch administrator to modulate the flow.

- Serial Ports

  Enter the name for each serial ports on the switch.

  For multi-port serial card, a maximum number of eight ports can be specified in this column.

- DCE or DTE Connector Required

  In this column, enter either *DCE* or *DTE* to state the type of connector required.

- Connector Type (Male/Female)

  In this column, enter either Male or Female based on the connector type.

Worksheet G: Switch Link Administration for Serial Switches

Data bits: _____

Stop bits: _____

Start bits: _____

Baud rate: _____

Parity: _____

Flow Control: _____

Switch Link Administration Table

Number	Serial Ports	DCE or DTE Connector Required	Connector Type (Male/Female)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Device Assignment Worksheet

Use Worksheet H to assign the channel group number(s) on which the system performs MWI updates.This procedure allows you to partition the channel(s) on which MWI updates are performed.

This worksheet has the following fields and columns:

- Switch Number
- Device ID

  The data to be entered in this field is different for inband switches and serial switches.

  — Inband switches

  The device IDs are the group numbers set using the Channels to Group option.

  The valid range of device IDs is 1-32.

  By default all groups are assigned to Channel 2.

  Outcalling is also done on Group 2.

  If the channels are to be assigned to another group for MWI updates the functionality must be enabled on the Device Assignment Window.

  More than one device ID can be specified per line.

  — Serial switches

  For serial switches, enter the name of a port on the multi-port serial circuit card.

  The device ID must also be specified in the Serial Ports field on the Serial Interface Window.

  Only one device ID can be specified in each line.

  NOTE:
  It is recommended that you use the lowest ports available on the multi-port serial circuit card. Device IDs for this card are in the format /dev/ttysa*x*, where x is a letter (a through h) representing a port on the card, from right to left (Example: /dev/ttysaa).

See "Setting the MWI Device Assignments" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration" for additional information on the above fields.

Worksheet H: Device Assignment

Device Assignment Table

No.	Switch Number	Device ID
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		

Dial Plan Translation

Dial Plan Translation allows you to record the switch start and end extensions that are needed for the dial plan translations.

This worksheet has the following fields and columns:

- INTUITY Extension Length
- Switch Network Access Code
- Switch Prefix
- Switch Start Extension
- Switch End Extension
- INTUITY Prefix
- Switch number

See "Setting the Dial Plan Translations" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration" for additional information on the above fields.

Worksheet I: Dial Plan Translation

INTUITY Extension Length: _____

Switch Network Access Code: _____

Dial Plan Translation

Switch Prefix	Switch Start Ext.	Switch End Ext.	INTUITY Prefix	Switch Number

Attendant Translation

NOTE:
This worksheet is required for the NEC NEAX 2400 switches only.

See "Setting the Attendant Translation" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration" for more information.

Worksheet J: Attendant Translation

Attendant number:_____

Lucent INTUITY subscriber number: _____

MWI Parameters

Worksheet K allows you to specify the time and periodicity with which you would like MWI updates to take place.

This worksheet has the following fields:

- Background Refresh
- Background Interval
- Background Update
- Broadcast Interval
- Broadcast Update
- Block Start Time
- Block End Time

See "Setting MWI Parameters" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration" for additional information on the above fields.

Worksheet K: MWI Parameters

MWI Block Time

Field	Data
Background Refresh	
Background Interval	
Background Updates	
Broadcast Interval	
Broadcast Update	
Block Start Time	
Block End Time	

Connectivity

2

Overview

This chapter contains information that describes the hardware components and connections used to connect a Lucent™ INTUITY™ system and serial or inband switches. This chapter includes:

- Configuration descriptions that explain each of the components required to establish a link
- Wiring diagrams that show the different hardware, physical connections, and cables used for connection

NOTE:
The numbers in the wiring diagrams do not show the order of connection. Follow the written instructions to make the connections.

Read the information in this chapter *before* you attempt to connect the components.

Purpose

The purpose of this chapter is to provide instructions to connect the Lucent INTUITY System, serial or inband switches, and adjuncts.

Lucent INTUITY System Connections for Inband Switches

Use the information and diagrams in this section to connect or verify the connections for the Lucent INTUITY system with an inband switch.

CAUTION:
See Voice Port Requirements and follow the carrier restrictions connecting cables to the inband Communications system.

Tip/Ring Connections

There are two ways to connect to Tip/Ring circuit cards (AYC10, AYC29, or AYC30):

- Use an 885A adapter to connect to RJ11C connections
- Connect to a type-104B connecting block

Connecting Tip/Ring Circuit Cards Using an 885A Adapter

Connect Tip/Ring circuit cards using an 885A adapter as follows:

1. Make sure that the line pairs are run individually (RJ11C).
2. Use a type-885A adapter to consolidate the six individual lines into three paris consisting of two cables for each pair.
3. Remove the paper from the adhesive strip on the back of the 885A adapter and attach the 885A adapter in a convenient place.
4. Use the supplied 6-conductor modular cables between the Tip/Ring circuit card and the adapter.
5. Use the supplied 2-conductor or 4-conductor modular cables between the adapter and the RJ11C modular jacks.
6. Label the connections in the space provided on the 885A adapter.

NOTE:
The label on the 885A adapter refers to an IVP6 circuit card. This should be interpreted as an IVC6 card (AYC10, AYC29, or AYC30).

Connecting Serial Ports

The Lucent INTUITY system communicates with various devices through serial ports. Serial ports are required for:

- Switch administration
- The remote maintenance modem
- Customer administration terminals (optional)

The inband switch administration and the remote maintenance modem must be connected to specific ports. You may make any other connections to any available ports. The Lucent INTUITY system has two built-in ports, COM1 and COM2. COM2 is reserved for remote maintenance and can not support any other use. If two or more devices are required, include a multi-port serial card in the configuration.

- Built-in serial port 2 (COM2, tty01) is used for the remote maintenance modem or the Remote Maintenance board (RMB). The port is reserved for the use of remote maintenance and cannot be used for any other purpose.
- Add-on serial ports (ttysa through ttsah) on a multi-port serial card are used for the second and subsequent devices.
- The preferred order of connection of the devices is:
    1. Remote maintenance modem
    2. Customer remote access terminals or modems (optional)

The remote maintenance modem must be collocated with the Lucent INTUITY system and must be connected to serial port 2.

Optional customer access terminals can be collocated with the Lucent INTUITY system processor. These can be directly connected to the next available serial port, or one or more modems can be connected to the next available serial ports for dial-in access.

Connecting Administration Ports Within 15 Meters (50 Feet), Same Power Outlet

Use this method only when the inband system and the Lucent INTUITY system are located within 15 meters (50 feet) of each other and share the same power outlet.

The following parts are required:

- DB-9S to DB-25P adapter
- 355AF adaptor
- D8W-87 modular cord

To connect the inband communications system admin port and the Lucent INTUITY system serial port 1 (COM1):

1. Connect one end of a D8W-87 modular cord to the Admin (lower) jack of the inband Communications System.
2. Connect the other end of the D8W-87 modular cord to a 355AF adapter.
3. Connect to the 355AF adapter to the 25-pin end of the DB-9S to DB-25P adapter and then connect the 9-pin end of that adapter to port COM1 (tty00).

SInstalling and Testing the Hardware

Use the following procedure:

- To configure the hardware when the Lucent INTUITY system and the switch are being connected directly
- When the Lucent INTUITY system is being connected to a customer-supplied modem (see Figure 2-1)

The procedure for installing and testing the hardware is as follows:

1. Attach the 4.3 meter (14 feet.) modular cable to the multi-port serial circuit card.
2. Attach the other end of the modular cable to the DTE adapter.
3. Attach the DTE adapter (male connection) to the RS-232 minitester (female connection).

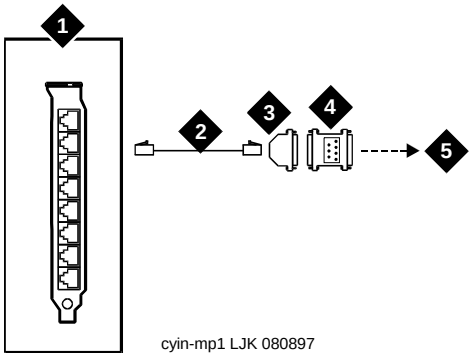
   NOTE:
   Do *not* connect the minitester to the customer equipment at this time.

4. Power on the Lucent INTUITY system.

   NOTE:
   The system must be powered on to use the RS-232 minitester.

5. Ensure that the following LEDs on the minitester are green:
   - DTR (data terminal ready)
   - RTS (request to send)
   - TD (transmit data)
   - DSR (data set ready)
6. Leave the minitester connected to the cable.

   NOTE:
   The minitester can be left in-line with the customer equipment.



1. Multi-port serial circuit card
2. 4.3-m (14-ft) cable
3. RS-232 6-25 pin DTE adapter
4. RS-232 minitester
5. To customer premise equipment

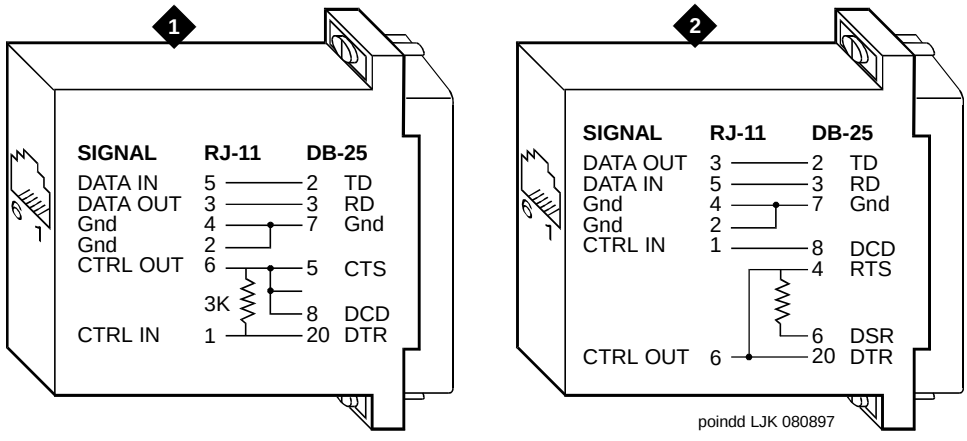
Figure 2-1. Connecting from the Multi-Port Serial Circuit Card on the Lucent INTUITY System to a Customer-Supplied Modem or Other Equipment

The remaining connections are the customer's responsibility.

- The connection may require punching, depending upon the service provider's requirements.
- A customer-supplied gender changer may be required to connect to the customer equipment.
- If the customer equipment is DTE (data terminal equipment), a customer-supplied null modem cable is required. If the customer equipment is DCE (data communications equipment), the connection can be made directly to the Lucent-supplied RS-232 DTE adapter (or the RS-232 minitester, if it is left in-line).
  - DCE Comcode 407050111
  - DTE Comcode 407050095

Pinouts

Use the pinout connections shown in Figure 2-2 as a reference if needed when configuring or testing DTE and DCE devices.



1. DB-25 DCE (for terminals and printers)
2. DB-25 DTE (for modems)

Figure 2-2. Pinout Connections for DTE and DCE Devices

Switch Requirements and Administration for the Nortel Norstar Switch

3

Overview

This chapter provides information on requirements for the following:

- Switch software
- Hardware
- Administration for integration of the Nortel Norstar range of key telephone systems with the Lucent™ INTUITY™ system

NOTE:
The information in this chapter does not apply to the Norstar ICS switch.

Purpose

The purpose of this chapter is to help Lucent technicians administer the Norstar KTS so that the switch and the Lucent INTUITY system can be integrated successfully.

NOTE:
The switch administrator is responsible for performing the switch administration. However, Lucent technicians and the switch administrator must cooperate to ensure that the appropriate administration is completed.

Lucent INTUITY Features Supported by the Nortel Norstar Switch

Table 3-1 lists the Lucent Intuity system features supported by Nortel Norstar.

Table 3-1. Features of the Lucent INTUITY System

Feature	Details
Call Coverage	■ The distinction between busy and no answer is not supported. ■ All calls that are redirected to the Lucent INTUITY system are be treated as external calls. Therefore, only one greeting message can be activated for internal and external calls.
Transfers	■ Only analog transfers to valid extensions are supported. ■ The transfer time is in the range of 5–8 seconds. ■ To avoid a period of silence during the call transfer, turn on the music-on-hold switch.
Disconnect	■ The Lucent INTUITY system disconnects when it listens to the appropriate tone (busy in Europe). ■ The disconnect time is approximately 4–6 seconds. ■ The switch must be programmed to send the disconnect code as '**9' to the Lucent INTUITY system upon disconnect. This will ensure a faster disconnect rate.
Voice Mail Access	■ Direct voice mail access from the dedicated sets is supported. ■ Stations equipped with voice mail button can be programmed to pass the calling party number so that subscribers calling from the station are not required to dial their extension number to log in. ■ subscribers are required to dial # before they enter the password.
Auto Attendant	■ Direct inward dialing (DID) calls may require proper switch translation and routing setup.

(1 of 2)

Table 3-1. Features of the Lucent INTUITY System

Feature	Details
Networking	■ Only TCP/IP, AMIS analog networking or low-speed digital networking are supported.
Leave Word Calling (LWC)	■ LWC is not supported by the Lucent INTUITY system behind the Nortel Norstar switch.
Message Waiting Indicator (MWI) updates	■ Audible, visual, and lamp MWI updates are supported only on digital stations. ■ The Nortel Norstar switch uses the same channel to turn on and off the MWI lamp. If this channel is busy, the MWI updates may be delayed.

(2 of 2)

Hardware and Software Specifications

Table 3-2 shows the hardware and software specifications for the Nortel Norstar switch.

Table 3-2. Hardware and Software Specification

Units	Details
Interface type	Tip/Ring
Integration type	Inband
Lucent INTUITY system protocol	Voice Mail Interface (VMI)
Switch model/release	DR 3 to DR 6
Required switch packages	Release 10 version 6.0 and later
Switch hardware options required	OneVMI interface unit for every two Lucent INTUITY ports
Lucent INTUITY system requirements	■ Lucent INTUITY system Release 4.44.4 or later platform software ■ INTUITY AUDIX® Release 4.4 or later software ■ Switch Integration software

Setting the Nortel Norstar Switch

To ensure the smooth integration with the Lucent INTUITY system, you must modify settings on the Nortel Norstar switch.

NOTE:
You must program the prefix code, transfer code, and disconnect code. These steps are not optional.

The following are procedures to set the Nortel Norstar switch. Consult the Nortel Norstar switch documentation or the switch administrator for more information.

NOTE:
The extension of the VMI unit and the extension connected to Channel 0 on the Lucent INTUITY system side is the INTUITY AUDIX number subscribers dial to access their voice mail messages on the system.

1. Change each of the voice mail extensions to forward (on busy) to the next extension on the Lucent INTUITY system.

   For example, if the extensions assigned to Channel 0 to Channel 3 on the Lucent INTUITY system are extension 300, extension 301, extension 302, and extension 303, respectively, you must program extension 300 for call forward busy to extension 301.

   You must, in turn, program extension 301 for call forward busy to extension 302, extension 302 for call forward busy to extension 303, and extension 303 for call forward busy back to extension 300.

2. For each voice mail subscriber, set the CFB and the call forward no answer to the voice mail extension.

3. Program Feature 901 as:

   a. Set the disconnect code to **9

   b. Set the prefix code to #02#

   NOTE:
   The INTUITY AUDIX application requires a minimum extension length of 3-digits. Therefore, if the Nortel Norstar switch is set up to have a 2-digit dial plan, the entries must be programmed. If the Lucent INTUITY system is set up to have system subscribers from 300–399, make the following entries:

   1. Set the Prefix code to #02#3
   2. Set the transfer code to L*703

NOTE:
Consult your Nortel Norstar switch documentation or switch administrator for additional information.

Translation Code

A translation code is the setting used by the VMI and the Nortel Norstar switch to ensure compatibility with the voice mail device.

NOTE:
No two translation codes can be the same.

Determining Translation Codes

The VMI uses translation codes to interpret the command codes from the INTUITY AUDIX application to the Nortel Norstar switch.

The following procedure explains how to determine the command codes for each feature of the INTUITY AUDIX application:

For the VMI to interface with the INTUITY AUDIX application, the translation codes must match the command codes.

The VMI can be programmed to match the command codes of the INTUITY AUDIX application.

The following procedure explains how to program the VMI:

1. Enter Feature 9 X X

   The system displays the VMI Administration screen.

2. Press NEXT until the display shows the Feature Table screen.

3. Press SHOW until the display shows the Send Message screen.

4. Press CHANGE until the display shows the Send Message for Change screen.

5. Enter the command code.

   NOTE:
   Use the dialpad to enter characters 1 to 9, * and #. Press SHIFT and NEXT to enter special characters A,B,C,D and Link.

6. Press NEXT.

   The system displays the Cancel Message Screen.

7. Press NEXT.

   The system displays the Transfer Screen.

8. Press NEXT.

   The system displays the Prefix Screen.

9. Press CHANGE.

10. Enter **#02#** for the new prefix code.

11. Press NEXT.

    The system displays the Disconnect Screen.

12. Press CHANGE.

13. Enter ****9** for the new Disconnect code.

    NOTE:
    The default code is the dial tone code.

14. Press NEXT.

    The system displays the Feature Table Screen.

15. Press RIs to end this session**.**

Default Translation Codes

These codes must be programmed to match the command codes of the voice mail device.

NOTE:
The first code character of the Send message, Cancel message, and Transfer Translation codes defaults to Link. The first code character of the Prefix and Disconnect code do not default to Link.

A translation code can have a maximum of seven digits.

These digits can be a combination of the following characters:

- The numbers 0 to 9
- The letters A-D
- The symbols * and #

Table 3-3 shows the default translation codes.

Table 3-3. Default Translation Codes

Code Name	Default Code	Additional Information
Send Message	LNK * 1 DN	Used to notify subscribers of new mail in their mailbox
Cancel Message	LNK # 1 DN	Used to cancel message notification
Transfer	LNK * 7 0 DN	Sent to the VMI to transfer a call This is a blind transfer.
Prefix	**9	Used to indicate that an incoming call to the voice mail device is forwarded
Disconnect	#02#	Used to indicate line disconnection The VMI translation code is programmable as the fourth column or extended DTMF tone.

Switch Requirements and Administration for the Ericsson MD 110 Switch

4

Overview

This chapter provides information on requirements for the following:

- Switch software
- Hardware
- Administration for integration of the Ericsson MD110 switch with the Lucent™ INTUITY™ system.

Purpose

The purpose of this chapter is to help Lucent technicians administer the switch for successful integration with the Lucent INTUITY system.

NOTE:
The switch administrator is responsible for performing the switch administration. However, Lucent technicians and the switch administrator must cooperate to ensure that the appropriate administration is completed.

Lucent INTUITY System Features Supported by the Ericsson MD110 Switches

Table 4-1 lists the Lucent INTUITY system features supported by the Ericsson MD110 switch.

NOTE:
Some features may not be supported on older releases of this switch.

Table 4-1. Lucent INTUITY System Features

Feature	Details
Call Coverage	■ The distinction between busy and no answer is supported. Separate greetings for busy and no answer can be played. ■ Separate greetings can be activated for internal and external calls.
Transfers	■ Only blind analog transfers to valid extensions are supported. ■ The transfer time is in the range of 5–8 seconds. ■ To avoid a period of silence during the call transfer, turn on the music-on-hold switch.
Disconnect	■ There is a change on all three signals that are sent online. ■ Tone detection is used to detect if the call has been disconnected.
Voice Mail Access	■ Direct voice mail access from dedicated sets is supported. ■ Stations equipped with voice mail button can be programmed to pass the calling party number so that subscribers calling from the station are not be required to dial their extension number to log in. ■ subscribers are required to dial # before they enter the password.

Table 4-1. Lucent INTUITY System Features

Feature	Details
Auto Attendant	■ Direct inward dialing (DID) calls may require proper switch translation and routing setup. ■ Implementation of the auto attendant feature may require the assignment of a dedicated phantom station port. ■ Call coverage may change depending on the version of the ICU being used. ■ Calls can be forwarded to the auto attendant in the night mode.
Networking	■ Only TCP/IP, AMIS analog or low-speed digital networking can be supported when the Lucent INTUITY system is connected to the Ericsson MD110 switch.
Leave Word Calling (LWC)	■ LWC is not supported by the Lucent INTUITY system behind the Ericsson MD110 switch.

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Hardware and Software Specifications

Table 4-2 shows the hardware and software specifications for the Ericsson MD110 switch.

Table 4-2. Hardware and Software Specifications

Units	Details
Interface type	Serial
Integration type	Out-of-band
Lucent INTUITY system protocol	ICU
Switch model/release	Models ■ 20 ■ 40 ■ 50 ■ 90 Software version BC 5.3 or later
Required Switch Packages	Programming units in LIM with the ICU: ■ IHAH ■ IH ■ DIM ■ ILP Programming units in each LIM: ■ DIR ■ MWP
Switch Hardware Options Required	■ ELU analog station line card (version R1A) for Lucent INTUITY voice port connection ■ ICU card (version R1A) ■ SFU card for serial interface
Lucent INTUITY Requirements	■ Lucent INTUITY system Release 4.3 or later platform software ■ INTUITY AUDIX® Release 4.3 or later software ■ Serial inband integration software

Setting the Ericsson MD110 Switch

To ensure the smooth integration with the Lucent INTUITY system, you must modify settings on the Ericsson MD110 switch.

The procedures covered in this section are:

- Setting Up the ICU Port in the Ericsson MD110 Switch
- Programming for MWI Update
- Assign Voice Mail Ports
- Activating the Voice Mail Integrationn
- System Subscriber Administration
- Auto Attendant Set Up for External Calls through the Central Office Trunk

The following are guidelines for completing the required procedures. Please consult the Ericsson MD110 documentation or the switch administrator for more information.

NOTE:
The Lucent INTUITY voice mail access number is the hunt group number administered which contains all the Lucent INTUITY extensions.

Setting Up the ICU Port in the Ericsson MD110 Switch

The Lucent INTUITY system supports the use of XON/OFF. It is recommended that ICU should use XON/OFF.

NOTE:
The ICU link settings must match those of the Lucent INTUITY system.

Enter the following commands to set up the ICU port when no flow control is used and the switch MWI update is not used (where <a> is the link index number and <b> is the equipment location number).

- ICFUI:ICUIND=<a>
- EQU=<b>
- UPDFCN=NO
- DFMT=<c>
- RATE=9600
- PARITY=NONE
- CCHECK=NO

- TXC=NO
- FILLER=40

Table 4-3 shows the various field descriptions.

Table 4-3. Field Descriptions

Field	Description
ICUIND	An ICU index number in the range of 0–15. The Ericsson MD110 switch can support up to 16 ICU links. Replace <a> with the link index number. Enter the link index number here.
EQU	Consult your system administrator for equipment location.
UPDFCN	If this field is set to YES, the switch requests an MWI update from the voice mail system at the time specified in the UPDTIM field. If the field is set to NO, no updates are requested from the switch. **NOTE:** Do not set the UPDFCN to NO. This feature is not supported by the Lucent INTUITY system. A background refresh should be used instead.
UPDTIM	This is the MWI refresh request time. It is recommended that this be set at 2:00 a.m.
DFMT	This field must be set to the length of the extension number. In the case of a networked configuration, the DFMT must be set to the largest extension length used in the network. The Lucent INTUITY dial plan table must be modified to convert various switch extension ranges to a fixed INTUITY AUDIX number.
RATE	Baud for the ICU serial interface. The Lucent INTUITY system settings should match the ICU settings.
PARITY	Parity settings. The Lucent INTUITY system settings should match the ICU settings.

(1 of 2)

Table 4-3. Field Descriptions

Field	Description
CCHECK	Must be set to YES if the TXC is set to YES. Enables detection of character overrun errors and reports them.
TXC	Flow control. The Lucent INTUITY system supports flow control.
FILLER	Filler characters are used when a variable-length dial plan is used. Must be set to 40 (blank). The Lucent INTUITY system integration software is set to handle blanks.

(2 of 2)

To list and print the ICU settings

1. Enter **ICFUP:ICUIND=*a***

   where *a* is the ICU index number.

Programming for MWI Update

To evaluate how the Ericsson MD110 switch is programmed for MWI updates use the following values:

- ICMWC:SID=<x>

  <x> is any value between 00 and 99 that denotes the messaging system number.

  A similar number on the Lucent INTUITY system side must be set through the MWI setup process.

- DTXT=<y>

  <y> is a voice mail hunt group pilot number.

- KFCN=MWC
- DIG=<y>

Table 4-4 lists the field descriptions.

Table 4-4. Field Descriptions

Field	Description
SID	Messaging system number
DTXT	If MWI is turned on, a string used for digital station display.
KFCN	Message waiting key function at the station set. If this is set to MWC, the MWI button acts as a speed dial to the number programmed in the DIG parameter.
DIG	Used only when KFCN is set to MWC.

Performing a Pling Interval Test

Typically the highest value, 90 which indicates a 15-minute interval, is the most suitable for most installations.

To perform a pling interval test:

1. Enter ASPAC:PARNUM=45;VAR=***a***

   where **a** can be between 30 and 90 that represents the interval at which you want to pling the analog stations for MWI.

MWI updates can be turned on for either digital stations only or for all stations in the following manner:

- MWF=ALL

  Turns on MWI for all stations

- MWF=PARTIAL

  Turns on MWI for digital stations only

The Ericsson MD110 switch supports stutter dial tone as an MWI indication for analog stations. This approach may be more suitable over the use of pling.

NOTE:
Consult your switch administrator for specific set up instructions.

Assign Voice Mail Ports

The following procedure explains how to assign voice mail ports and create a Voice Mail Hunt Group.

Creating a Range of Voice Mail Ports

To create a range of voice mail ports, use the following values:

- EXTEI:DIR=<m>&&<n>

  where <m> and <n> are starting and ending port numbers.

- TYPE=EL6
- EQU=<l>-<d>-<e>-<f>

  where <l> is the LIM number on which the Voice Mail ports reside; <d> is a magazine number in an ELU; <e> is slot number where the card is located in a magazine; and <f> is a port number

- TRAF=03151515
- SERV=00001000
- ICAT=0004

Assigning Ports One at a Time

NOTE:
Voice mail ports should be assigned one at a time.

To create individual voice mail ports, use the following values:

- EXTEL:DIR=<m>

  where <m> is the port number

- TYPE=EL6
- EQU=<l>-<d>-<e>-<f>
- TRAF=03151515
- SERV=00001000
- ICAT=0004

Verifying Directory Category and Data

To verify the directory category and data enter, use the following values:

- EXCAP:DIR=<m>&&<n>
- EXDDP:DIr=<m>&&<n>

Setting Up a Linear Hunt Group Pilot Number (for Software Release BC5 and Later)

To set up a linear hunt group pilot number, use the following values:

- GHGRI:GRP=<k>

  where <k> is the hunt group pilot number

- LIM=<l>

  where <l> is the LIM number where the voice mail ports reside

- SERV=1
- TRAF=15
- SEL=1
- QUE=0

Assigning the Hunt Group Number to Voice Mail Extensions

To assign the hunt group number to voice mail extensions, use the following values:

- GHGMI:GRP=<k>
- DIR=<m>&&<n>

Verifying the Hunt Group Assignment

To verify the hunt group assignment, use the following values:

- GHDAP:GRP=<k>

  where <k> is the hunt group number

Activating the Voice Mail Integration

To activate the voice mail integration, use the following values:

- VMFUI:ICUIND=<a>

  where <a> is the ICU index number

- VMF=EXTND

  VMF (voice mail functionality) is set to EXTND for the standard message format.

  The Lucent INTUITY system supports both the STD and the EXTND mail formats. The EXTND format provides better integration.

- POFMT=<p>

  where <p> is the voice mail port ID field length

  NOTE:
  For the Lucent INTUITY system POFMT should be set to “2” digits.

To verify the above settings, use the following values:

1. Assign the voice mail port to the ICU link

   VMFUP:ICUIND=<a>

2. Execute the following commands for all the voice mail ports
   - VMPOI:ICUIND=<a>
   - DIR=<voice mail port directory number>
   - PORT=<voice mail port Index>
3. Assign the hunt group number to the ICU link
   - VMPOI:ICUIND=<a>
   - GRP=<k>
4. Verify the settings with the following:
   - VMPOP:ICUIND=<a>

System Subscriber Administration

The following sections describe:

- Call Redirection
- MWI Key
- Call Diversion

Call Redirection

To set up call redirection to voice mail, use the following values:

- CDCNI:DIR=<subscriber directory number>
- DIV=<hunt group pilot number>

MWI Key

To set up an MWI key for a station, use the following values:

- KSFKC:DIR=<subscriber directory number>
- KEY=<station key number for MWI>
- FCN=MEW

Call Diversion

Table 4-5 explains what action to take for a given condition.

Table 4-5. Call Diversion Table

Call Diversion	Condition	Action
Activate	Ring No Answer	Press *21# from the station
Deactivate	Ring No Answer	Press #21# from the station
Activate	Forward All Calls	Press *2# from the station
Deactivate	Forward All Calls	Press #2# from the station
Activate	Busy Calls	Press *22# from the station
Deactivate	Busy Calls	Press *22# from the station

Auto Attendant Set Up for External Calls through the Central Office Trunk

The Ericsson MD110 switch does not pass any call information for external calls coming through the central office trunk (lines).

NOTE:
The central office calls can only be directed to the INTUITY AUDIX Auto Attendant application.

The following procedure explains how to set up the auto attendant for external calls through the central office trunk:

To reach the INTUITY AUDIX auto attendant,

1. Set up a directory number on the Ericsson MD110 switch.

   NOTE:
   One analog port is required for this.
   Do not connect the telephone to this port.

2. Route all central office calls to this directory number.
3. Forward all calls from this directory number to the voice mail hunt group number.
4. Use the same directory number on the Lucent INTUITY system for the auto attendant setup.

5. Assign the following values to the fields:
   - RODNI:ROU=<r>

     where <r> is a route number
   - TRU=<t>

     where <t> is a trunk number
   - NIG=<directory number>
6. Forward all calls from the directory number to the voice mail hunt group using the following values:
   - CDINI:DIR<directory number>
   - DIV=<k>

     where <k> is the voice mail hunt group pilot number

Switch Requirements and Administration for the NEC NEAX 2400 Switch

5

Overview

This chapter provides information on requirements for the following:

- The Lucent™ INTUITY™ features supported
- Switch software and software requirements
- Setup for integration of the NEC NEAX 2400 switch with the Lucent INTUITY system

Purpose

The purpose of this chapter is to help Lucent technicians administer the switch for successful integration with the Lucent INTUITY system.

NOTE:
The switch administrator is responsible for performing the switch administration. However, Lucent technicians and the switch administrator must cooperate to ensure that the appropriate administration is completed.

Lucent INTUITY System Features supported by the NEC NEAX 2400 Switch

The Lucent INTUITY system features supported by the NEC NEAX 2400 switch can be seen in Table 5-1.

Table 5-1. Lucent INTUITY System Features Supported

Feature Name	Details
Call Coverage	■ The distinction between busy and no answer is supported. ■ Separate greetings can be activated for internal and external calls.
Transfers	■ Only blind analog transfers to valid extensions are supported. ■ Transfer time is in the range of 5–8 seconds. ■ To avoid a period of silence during the call transfer, turn on the music-on-hold switch.
Disconnect	■ The loop disconnect signal from the switch is supported by the Lucent INTUITY system. ■ The Lucent INTUITY system disconnects when it listens to the appropriate tone (busy). ■ The disconnect time is approximately 4–6 seconds.
Voice Mail Access	■ Direct voice mail access from dedicated sets is supported. ■ Subscribers are required to dial # before they enter the password.
Auto Attendant	■ Direct inward dialing (DID) calls require proper switch translation and routing set up. ■ The Automated Attendant table needs to be administered to transfer calls based on attendant identification.
Networking	■ Only TCP/IP, AMIS analog networking or low-speed digital networking are supported when the Lucent INTUITY system is connected to the NEC NEAX 2400 switch.
Leave Word Calling (LWC)	■ LWC is not supported by the Lucent INTUITY system for the NEC NEAX 2400 switch.
Message Waiting Indicator (MWI) updates	■ MWI update types can vary with the parameters programmed on the switch. check with your system administrator to determine what MWI updates are supported.

Hardware/Software Specifications

Table 5-2 displays the hardware and software specifications for the NEC NEAX 2400 switch.

Table 5-2. Hardware and Software Specifications

Units	Details
Interface type	Serial
Integration type	Out-of-band
Lucent INTUITY system protocol	Message center interface (MCI)
Switch model/release	UMG or MMG with software level 4000 or greater. IMG or SIM software level 5200 or greater
Required switch packages	MCI link support
Required switch hardware	Analog ports (PA-16LCQ recommended, or equivalent with loop disconnect signaling) for connection to the Lucent INTUITY system.
Lucent INTUITY requirements	Lucent INTUITY system Release 4.3 or later platform software INTUITY AUDIX® application Release 4.3 or later Serial inband integration software

Setting the NEC NEAX 2400 Switch

To set the NEC NEAX 2400 switch for integration with the Lucent INTUITY system:

- Set Analog Voice Mail Ports
- Setting Voice Mail Extensions to a UCD Group
- Configure the MCI Link

Setting Analog Voice Mail Ports

Each voice mail port is connected to the switch through an analog line.

For the integration process to function, the voice mail port analog lines are configured in the same manner as the analog lines are configured for a 2500 telephone set.

NOTE:
The automated attendant feature may not work properly on the NEC NEAX 2400 with software version 4200 due to limitations in the switch.

To setup the analog lines for the voice mail ports:

NOTE:
Ensure that you have the NEC NEAX 2400 logon instructions from the system administrator before you begin this procedure.

1. Log on to the NEC NEAX 2400 Maintenance and Administration Terminal (MAT). The system displays the 2400 Maintenance Command menu.
2. Enter **6** to select the `Station Data` option.

   The system displays the Station Data Commands menu.
3. Enter **1** to select `Assignment of Station Data`.

   The system displays the Assignment of Station Data screen.
4. In the `TN` (Tenant Number) field, the system displays a default value of `1`.

   Tenant numbers are used to differentiate between the various subscriber communities. A unique tenant number can be assigned to a particular type of subscriber community. This allows the subscriber to assign different services to all communities with the same tenant number.

   To select the default value, press ENTER.

   NOTE:
   On the NEC NEAX 2400 switch message waiting for subscribers can be set for one tenant number only.

5. At the `STN` (station) field, enter the number that is to be used as an analog voice mail port extension.

   For example, if you want to assign extensions 500, 501, 502, and 503 to a four-port system, enter **500** as the first extension.

   In the `LENS` (Line Equipment Number) field, a default value of `00000` is displayed.

6. Enter the correct LENS value.

   NOTE:
   Contact your switch system administrator for the correct line equipment assignment.

   In the TEC (Telephone Class) field, the default value 1 is displayed.

7. Enter **3** to specify dial pulse and push button functionality.

   In the RSC (Route Restriction Class) field, the default value 0 is displayed.

8. Enter the correct RSC value.

   NOTE:
   Contact your switch system administrator to determine if the default value is correct.

9. Enter the correct SFC.

   NOTE:
   Contact your switch system administrator for the correct SFC value.

10. After editing the final field, press ENTER to confirm the station setup.

    When the first station data command is assigned for a line package, the message PKG CHECK appears on the screen.

11. Ensure that the circuit card is inserted in the correct slot.

12. Press ENTER.

    The cursor returns to the first field.

    If station data commands are continuously assigned to the same lLine package, a WRT? message is displayed after the station information is entered.

13. Enter **y** to confirm the information.

14. Repeat 4 through 9 for each analog voice mail port that needs to be assigned.

    For example, if extension 500 has already been assigned, but extensions 501, 502, and 503 need to be assigned, return to 5 and enter **501** as the second extension.

    Repeat the process until the extensions 502 and 503 have also been assigned.

15. When you finish entering the analog voice mail port numbers, press / to return to the Station Data Commands menu.

Setting Voice Mail Extensions to a UCD Group

After the analog voice mail ports have been setup, the ports must be assigned to a Uniformed Call Distribution (UCD) group or *switch group*.

Forwarding Target Number

The first extension of a UCD group becomes the forwarding target number for the group.

Hunting Process

When a system subscriber calls the Lucent INTUITY system, the subscriber dials the target number of the UCD group.

If the target number is busy, the system *hunts* or moves through the other members of the Lucent INTUITY system UCD group. When the system finds an open channel, it completes the call.

UCD Groups Supported

The NEC NEAX 2400 supports up to seven UCD groups with 20 members in each group.

UCD Overflow

The UCD groups do not automatically transfer calls to each other.

Using the UCD overflow feature, calls can flow to the next UCD group if all the members of the first UCD group are busy. More than 24 ports can be supported on the Lucent INTUITY system with this feature.

Instructions to set up the UCD overflow groups are given in "Setting Up a UCD Overflow Group".

To assign voice mail port extensions to a UCD group:

1. In the Assignment of Station Hunting-UCD screen enter the Tenant Number assigned to the analog voice mail ports in the TN field.

   The system shows a default value of 1 in the field.

2. In the STN field, enter the number assigned as the first voice mail port extension.

   For example, in the previous section a group of analog voice mail ports was assigned extensions 500, 501, 502, and 503. Since 500 was the first extension assigned, enter the number **500**.

3. In the CNT (count) field, enter the number of extensions to be included in the UCD group.

   For example, to set up a UCD group using extensions 500, 501, 502, and 503, enter **4**.

4. In the second STN field, enter the second voice mail port station to be assigned to the UCD group.

   Using the previous example of analog voice mail ports assigned to extensions 500, 501, 502, and 503, enter **501** as the second voice mail port station.

5. Repeat 4 until all the voice mail port extensions in the UCD group are entered.

   The system continues to ask for voice mail port extensions until the number of entries matches those of the CNT field.

   In the examples given above, CNT was set to 4. Extensions 500, 501, 502, and 503 were assigned to the UCD group. Extension 503 is the fourth and last extension.

   After the last extension for the UCD group is entered, a message WRT? is displayed on the screen.

6. Enter **y** to confirm and save the information you entered.

7. Press / to exit the screen and return to the Station Data Commands menu.

Setting Up a UCD Overflow Group

On the NEC NEAX 2400 switch, a maximum of seven UCD groups can be created.

Each UCD group can have a maximum of 20 station extensions.

If you plan to use the Lucent INTUITY system with more than 24 ports, you must use the UCD overflow feature.

NOTE:
The NEC NEAX 2400 switch must have software version 4200 or greater to support UCD overflow.

To modify the UCD Overflow feature:

1. Use the instructions in the previous section "Setting Voice Mail Extensions to a UCD Group" to assign all voice mail ports to UCD groups.

   For example, if you are setting up the Lucent INTUITY system with 24 ports, four UCD groups with 6 ports can be set up in each group.

   Determine the best method for your application.

2. After all the necessary UCD groups are created, return to the Station Data Commands menu.
3. Enter **15** to select the Assignment of UCD Overflow option.

   The system displays the Assignment of UCD Overflow Group screen.
4. In the TN-A field, enter the Tenant Number assigned to the first UCD group created.
5. In the STN-A field, enter the target number of the first UCD group created.

   For example, if two UCD groups are created with extensions 500 and 501 in the first group and extensions 502 and 503 in the second group, the target number for the first UCD group is 500.
6. In the TN-B field, enter the Tenant Number assigned to the UCD group that the system should transfer to when the first UCD group is busy.
7. In the STN-B field, enter the target number of the UCD group that the system should transfer to when the first UCD group is busy.

   In the Assignment of UCD Overflow Group Screen the extension 502 is used as the target number of the second group.

In the example, when all stations in UCD group 500 are busy, voice messaging traffic automatically *overflows* or transfers to the target number of the second UCD group that is extension 502.

Linking more than two UCD Groups

More than two UCD groups can be linked at a time.

When linking more than two UCD groups, assign the overflow for the target number of the second UCD group to the target number of the third UCD group.

Overflow can be assigned to as many as seven groups consisting of 20 stations in each group.

Configuring the MCI Link

The MCI link needs to be configured for it to operate as required.

To configure the MCI link:

1. Modify the message waiting lamp (MWL)
2. Assign a port for the MCI link
3. Define the MCI port as a terminal

Modifying the MWL Control

The NEC NEAX 2400 switch needs to be modified to assign MWL control to the MCI link.

To assign MWL control to the MCI link.

NOTE:
Do not change any information on any screen until you contact your NEC NEAX 2400 switch administrator.

1. At the 2400 Maintenance Command menu, enter the number **13** to select the Installation option.

   The system displays the Installation Commands menu.

2. Enter **1** to select the `System Data` option.

   The system displays the Assignment of System Data screen.

3. Enter **1** in the SYS field.

   The system displays three types of switch system settings.

   Each type of switch system setting has a different effect on the switch.

   - Type 1 settings affect the entire system.
   - Type 2 settings affect specific system tenants.
   - Type 3 settings affect the system timing.

   Select one of the switch system settings.

   The MWL control effects the entire system.

4. Enter **28** in the `INDEX` field.

   System data (SYS) 1, which you specified in 3, uses 255 indexes to control a variety of system settings.

   Index 28 controls MWLs.

5. Enter **20** in the DATA field.

   The value of 20 works with the information you entered in the SYS field and `INDEX` field to set MWL control to the MCI link.

6. Press / to exit the screen and return to the Installation Commands menu.

NOTE:
For additional information about the screen fields or processes described in this section, contact your switch administrator or see the switch documentation.

Assigning a Port for the Message Center Interface Link

A port is assigned so that the switch knows which port it should send the information to.

The following procedure explains how to assign a port for the MCI link:

1. At the Installation Commands menu, enter **1** to select the `System Data` option.

   The system displays the Assignment of System Data screen.

2. Enter **1** in the SYS field to inform the switch that the setting changes affect the entire system.

3. Enter **29** in the `INDEX` field.

   The system data (SYS) 1 uses 255 indexes to control a variety of system parameters.

   Index 29 controls the port assignment for the MCI link.

4. Enter the port assignment number in the `DATA` field.

5. Use Table 5-3 to determine the port assignment for the MCI link.

   To use the chart, find the port number to use under the Port heading. When you find the port number, find the Data value in the Data column.

   NOTE:
   One port is reserved for the MAT.

Table 5-3. Port Assignment Data Field Values

Port	Data	Bit
MAT Terminal		
1	02	1
2	04	2
3	08	3
4	20	4
5	40	5

6. After entering the information, press / to exit the screen and return to the Installation Commands menu.

NOTE:
For additional information about the screen fields or processes used in this section, contact your switch administrator or consult the switch documentation.

Defining the Port as a Terminal

It is essential to determine if the port assigned to the MCI link is a terminal or two-way communication port. If this is not done, the switch uses the port as a printer or one-way communication port.

To define the MCI port type:

1. At the “Installation Commands Menu” above, enter **1** to select the System Data option.

   The system displays the ‘Assignment of System Data Screen’.

2. Enter **1** in the SYS field to tell the switch that the parameter changes affect the entire system.

   Refer to the Table 5-4 to determine the index number for the port.

Table 5-4. Index numbers for ports

Port	Index	Data
MAT Terminal		
1	117	01
2	118	01
3	119	01
4	120	01
5	121	01

3. Enter the index number in the INDEX field that corresponds to the port number you entered in “Assigning a Port for the Message Center Interface Link” above.
4. Enter **1** in the DATA field.

   The number tells the switch that the port is a terminal and allows two-way communication.

Assign the MCI Link to a UCD Group

To send instructions to the switch to associate the MCI link with the UCD group created in the previous section:

NOTE:
If this step is not performed, the switch does not communicate through the MCI link.

Use the following instructions to configure the UCD group with the MCI link.

1. At the Installation Commands menu, enter **1** to select the `System Data` option.

   The system displays the Assignment of System Data Screen.

2. Enter **2** in the SYS field to tell the switch to associate the MCI link with a UCD group on a tenant-by-tenant basis.

3. Enter **1** in the TN field.

   You must use the same tenant value that you used to create the analog stations and UCD groups in "Setting Up a UCD Overflow Group".

4. Enter **6** in the INDEX field.

   The value contains fields that allow the system to associate the MCI link with the UCD group or groups.

5. Write value in the DATA field on the following line

   Current DATA Value: _____

   NOTE:
   Do not change the value in the DATA field until you consult with your switch administrator. This index contains other fields that control features not related to MCI.

6. Enter **01** in the DATA field.

Lucent INTUITY Administration for Inband and Serial Switch Integration

6

Overview

This chapter describes how to administer the Lucent™ INTUITY™ system for integration with an inband or serial switch.

To complete the integration procedures listed in Table 6-1, you must use the windows in the order indicated for your integration and switch type.

NOTE:
These integration procedures are also included in the system installation book for your platform.

Table 6-1. Procedure Matrix

Integration				
Serial	**Inband**	**Procedure**	**Order**	**Window**
Yes	Yes	Verifies the Country and Switch	Complete this procedure first for all integration.	Switch Selection Window
Yes	No	Sets the Serial Interface Parameters	For serial integrations, complete this procedure second (and before beginning "Setting the MWI Device Assignments"). Do not use this procedure for inband switches.	Serial Interface Window
Yes	Yes	Sets the MVI Device Assignments	For serial integrations, complete this procedure third (and before beginning the "Setting MWI Parameters").	Device Assignment Window
Yes	Yes	Sets MWI Parameters	**NOTE:** For serials and inband integrations, you can complete these procedures in any order.	MWI Parameters Window
Yes	Yes	Sets the Dial Plan Translations		Dial Plan Translation Window
Yes (for NEC NEAX 2400 only)	No	Sets the Attendant Translation	Complete this procedure after setting the dial plan translation.	Attendant Translation Window

Purpose

The purpose of this chapter is to provide instructions to administer the system switch integration using the Lucent INTUITY user interface.

Before You Begin

This chapter assumes you have completed the installation procedures for the Lucent INTUITY system.

Before configuring your system for switch integration, complete the following procedures:

- Assign extension numbers to channels. Use the switch Extension to Channel option under the Voice Equipment menu.
- Assign NDIS or AUDIX to all channels. Use the Services to Channels option under the Voice Equipment menu.
- Assign service through the Number Services option under the Voice System Administration menu. Select **any** for calling and called number. Specify the appropriate service (for example, **AUDIX**).
- Assign transfer restrictions (if any) using the Transfer Security option from the Voice System Administration menu (for inband switches only).
- Set the State of Voice Equipment option under the Voice Equipment menu:
  - New State — **inserv**
  - Equipment — **channel**
  - Equipment Number — **all**
  - Change Immediately? — **yes**
- Assign the appropriate channel group to voice channels using the Channels to Group option under the Voice Equipment menu.

NOTE:
All of the above procedures apply to both serial and inband integrations except for the Channels to Group option which applies to serial integration only. The default setting for the channel group is 2.

Permissions for Switch Integration Windows

The **sa** login can view all the windows used in these procedures but cannot change any parameter values. The **craft** and **remote maintenance** logins can set parameter values in all windows, except the Message Waiting Indicator (MWI) Parameters window, which contains some fields restricted to the craft login

Other Switch Integration Windows

In the user interface, some windows used for switch integration can be viewed by the sa and craft logins. However, these windows require remote maintenance login permissions to change the values for the permissions.

When to Stop and Restart the Voice System

To implement changes made to the windows used for switch integration, you must stop and restart the system. However, you can make all of the changes and then restart the system once.

Lucent INTUITY Main Menu

All procedures in this chapter begin at the Lucent INTUITY Main Menu (Figure 6-1).

NOTE:
The figures used to illustrate the various INTUITY AUDIX screens illustrate the NEC NEAX 2400 switch. For all the other switches, the values indicated in the control fields may vary.

NOTE:
Figure 6-1 is a sample window only and may not reflect the options available for the system that you are installing.

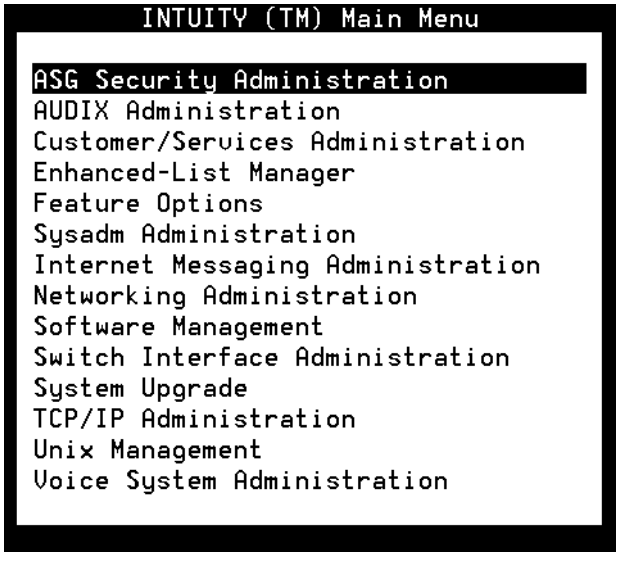


Figure 6-1. Lucent Intuity Main Menu

Verifying the Country and Switch

Use this procedure to check the country and switch for the system's switch integration. The selections in this window determine the defaults set in the system. If the system does not offer an exact match, contact your remote support center and ask them to select the country the matches the installation conditions as closely as possible.

NOTE:
Only the remote support center can set the country and switch options.

1. Start at the Lucent INTUITY Main Menu (Figure 6-1) and select:

   ```
   > Feature Options
   ```

   The system displays Feature Options window.

2. Press F1 (Acknowledge Message).

3. Press F7 (Switch Select).

   The system displays the Switch Selection window (Figure 6-2).

   NOTE:
   Only the remote support center can administer this window.

Figure 6-2. Switch Selection Window

4. Verify that the country and switch parameters match your location. If they do not, contact your remote support center.

5. Press F6 (Cancel) twice to return to the Lucent INTUITY Main Menu.

Table 6-2. Switch Selection Window — Field Descriptions

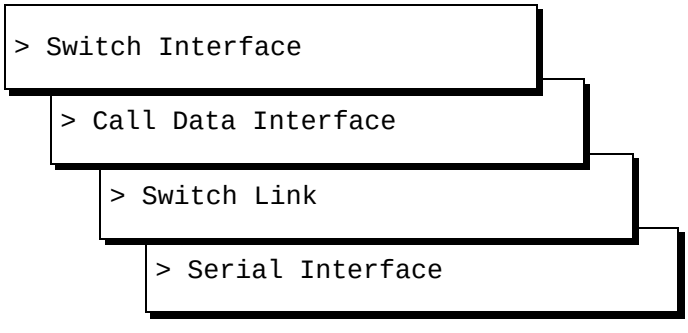
Field	Description and Values
`Country`	Specifies the country for which the system sets country-specific default parameters. Normally the country is factory-preset for your integration. Verify that the country matches your location. If it does not, contact your remote support center.
`Switch`	Specifies the switch for which the system sets default parameters in the call data interface. Normally the switch type is factory-preset for your integration. Verify that the switch matches your switch. If it does not, contact your remote support center.

Setting the Serial Interface Settings

The following procedure establishes serial communication settings between the switch and the Lucent INTUITY system.

NOTE:
The serial communication settings for the switch and the Lucent INTUITY system must match.

1. From the Lucent Intuity Main Menu (Figure 6-1), select



The system displays the Serial Interface window (Figure 6-3) with the current values.

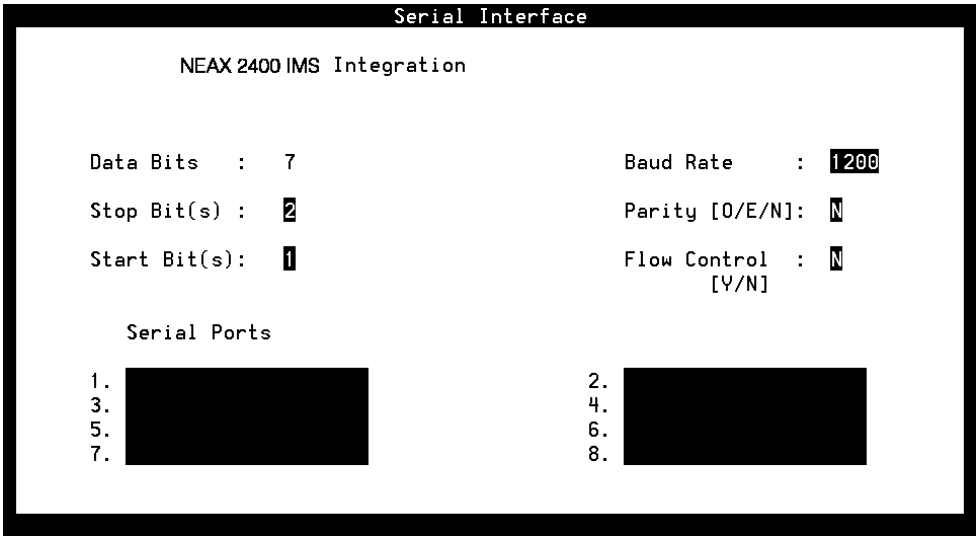


Figure 6-3. Serial Interface Window

2. Use Table 6-3 to complete the following fields:
   - Data Bits
   - Baud Rate
   - Stop Bit(s)
   - Parity [O/E/N]
   - Start Bit(s)
   - Flow Control [Y/N]

Table 6-3. Serial Interface Window—Field Descriptions

Field	Description	Values
<switch> Integration	Displays the switch selected on the Switch Selection window (Figure 6-2).	Display only.
Data Bits:	Specifies the number of data bits.	7 or 8
Stop Bit(s):	Specifies the number of stop bits used when sending information. A Stop Bit is an interval at the end of the character that allows the receiving device to pause before the start of the next character.	1 or 2

Table 6-3. Serial Interface Window—Field Descriptions

Field	Description	Values
`Start Bit(s):`	Specifies the number of start bits used when sending information. A Start Bit is a character sent to signal the beginning of a transmission.	1
`Baud Rate:`	Specifies the transmission speed for communication between the switch and the INTUITY System.	1200, 2400, 4800, or 9600
`Parity [O/E/N]:`	Specifies the parity type for all serial ports. Parity is used for detection of errors in transmitted data.	■ O for odd parity ■ E for even parity ■ N for no parity
`Flow control [Y/N]:`	Specifies whether flow control is enabled or disabled for all the serial ports. Flow control is a handshaking process whereby transmission is regulated to prevent receive buffers on peripheral devices from overflowing.	■ Y to enable ■ N to disable
`Serial Ports:`	Specifies the device ID of the serial ports used for integration. Only one port can be specified on each line.	It is recommended that you use the lowest port(s) available on the multi-port serial circuit card. Device IDs for the multi-port serial circuit card are in the format /dev/ttysax, where *x* is a letter (a through h) representing a port on the card (from right to left).

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3. Press F3 (SAVE).

   The system displays the following message:

```
You need to restart the Voice System to make these
changes active.
```

4. Press F1 (ACKNOWLEDGE MESSAGE).
5. Press F6 (CANCEL) three times to return to the Lucent INTUITY Main Menu (Figure 6-1).

Setting the MWI Device Assignments

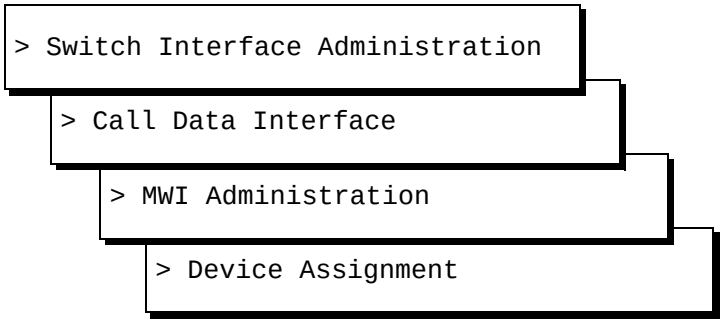
This procedure assigns the devices on which the system performs MWI updates.

- For inband integrations the device is the channel group on which the system performs MWI updates. This procedure allows you to partition by number the channel(s) on which MWI updates are performed.

  NOTE:
  Use the Channels to Group option under the Voice Equipment menu to specify a channel group for MWI updates.

- For serial integrations, the device is a port on the multi-port serial circuit card.

1. From the Lucent INTUITY Main Menu (Figure 6-1), select



The system displays the first of two screens of the Device Assignment window (Figure 6-4). This screen displays the current system values. Press F5 (NEXT PAGE) to go to the second screen. Press F4 (PREV PAGE) to return to the previous page.

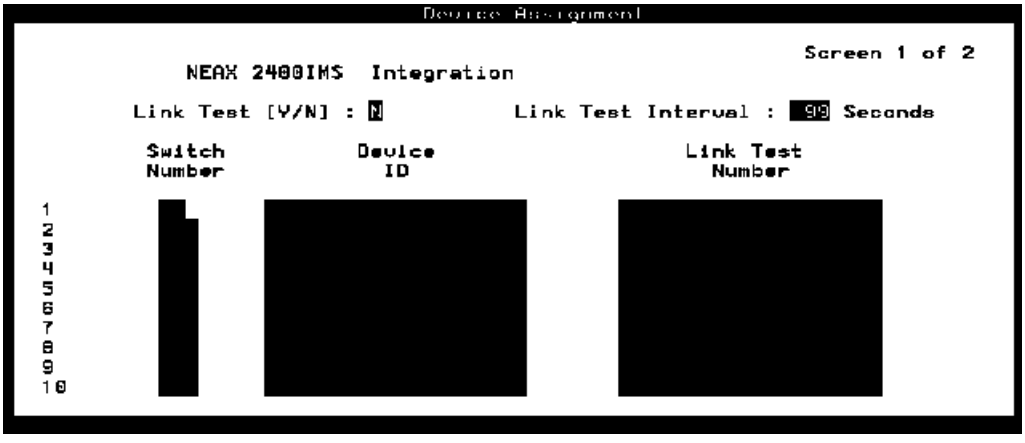


Figure 6-4. Device Assignment Window

2. Use Table 6-4 to modify the screen.

Table 6-4. Device Assignment Window — Field Descriptions

Field	Description	Values
`<switch> Integration`	Displays the switch selected on the Switch Selection window (Figure 6-2).	Display only
`Link Test (Y/N):`	**NOTE:** Use this field *only* for serial integrations. Specifies if integration enables heartbeat processing. If the link test is disabled, the **`Link Test Interval:`** and **`Link Test Number`** fields are not used. If the link test is enabled, these fields are required. **NOTE:** In heartbeat processing, an MWI update is requested for an invalid extension. The switch reply to this request confirms that the link is established.	n to disable the link test If a serial integration is being used, enter **n** in the `Link Test (Y/N):` field. **NOTE:** A link test cannot be used for inband integrations. A link test can be used for serial integrations, but it is not supported by the switch.
`Link Test Interval:`	Specifies the heartbeat interval in seconds.	Leave this field blank.
`Switch Number`	Number that uniquely identifies and addresses the switch. The Lucent INTUITY system uses this number to differentiate between system subscribers on different switches.	Maximum of 3 digits, range 1-999. The switch number must match the switch number assigned for system subscribers in the INTUITY AUDIX application.

(1 of 2)

Table 6-4. Device Assignment Window — Field Descriptions

Field	Description	Values
`Device ID`	Name(s) of the device(s) used for MWI update. Values are integration dependent: ■ Serial The name of a port on the multi-port serial circuit card. The device ID must be specified in the Serial Ports field on the Serial Interface window (see "Setting the Serial Interface Settings"). Only one device ID can be specified on each line.	Use the lowest ports available on the multi-port serial circuit card. Device IDs for this card are in the format /dev/ttysax, where *x* is a letter (a through h) representing a port on the card, from right to left (example: /dev/ttysaa).
	■ Inband The group number using the Channels to Group option under the Voice Equipment menu. Valid range 1-32. By default, all channels are assigned to group 2. Outcalling is always done on group 2. If, however, channels have been assigned to another group for MWI updates, enable the functionality here.	The device IDs can be comma-separated or specified in ranges. For example, device IDs 1, 2, 3, 4, 5, 16, and 18 can be specified in either of the following ways: 1,2,3,4,5, 16, 18 1-6, 16, 18
`Link Test Number`	Specifies the destination extension for the heartbeat message.	Leave this field blank.

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3. Press F3 (SAVE).

   The system displays the following message:

   ```
   You need to restart the Voice System to make these
   changes active.
   ```

4. Press F1 (ACKNOWLEDGE MESSAGE).
5. Press F6 (CANCEL) four times to return to the Lucent INTUITY Main Menu (Figure 6-1)

Setting MWI Parameters

Use this procedure to specify settings that determine how the system performs MWI updates. Permissions to change settings on this window depend on the type of integration. The settings satisfy several purposes:

- MWI updates can be disabled altogether on the system or blocked during a specified period of time on a daily basis.

  The switch administrator may request that this be done.

  All logins can set and change block times.

- MWI prefix or suffix strings may need to be changed to match the settings on the switch so that MWI updates can occur.

  The **craft** login can change the strings for inband integrations.

  For serial integrations, only the remote maintenance login can change the strings.

- The frequency with which the system performs background updates can be altered.

  In background updates, the system periodically refreshes the status of the MWI indicators.

  Staggering the updates prevents overload of the system resources.

  Enabling background updates is useful if the switch or Lucent Intuity system goes down.

  Only the remote maintenance login can alter the timing for background updates.

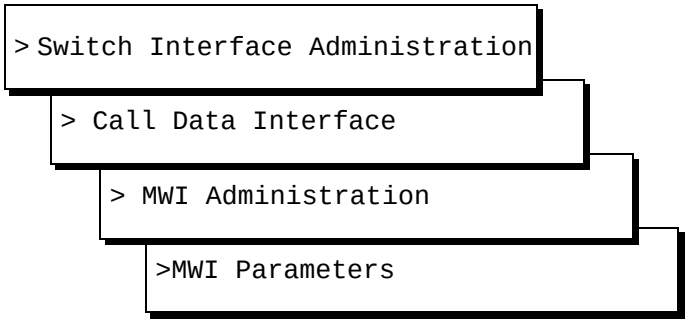
- The system handles MWI updates for messages sent from broadcast mailboxes separately from other messages.

  You can alter the frequency with which broadcast message updates occur.

  Only the remote maintenance login can administer updates for broadcast mailboxes.

Complete the following procedure to set the MWI Parameters.

1. From the Lucent INTUITY Main Menu (Figure 6-1), select



The system displays the MWI Parameters Window (Figure 6-5) with system defaults for the integration (see Table 6-5).

Table 6-5. Default values displayed in the MWI Parameters Window

Switch Name	MWI on Prefix	MWI on Suffix	MWI Off Prefix	MWI Off Suffix
Eurogeneris	#	101#	#	100#
Nortel Norstar	*1		#1	
Intecom	OP:MWI,0x20	1,0x04	RMV:MWI,0x20	1,0x04
Ericsson MD110	0x02,06,0x20	01,0x0d,0x0a	0x02,07,0x20	01,0x0d,0x0a
NEC NEAX 2400	0x02,0!B2	01,0x03	0x02,0!B6	01,0x03

The system displays the current settings (Figure 6-5).

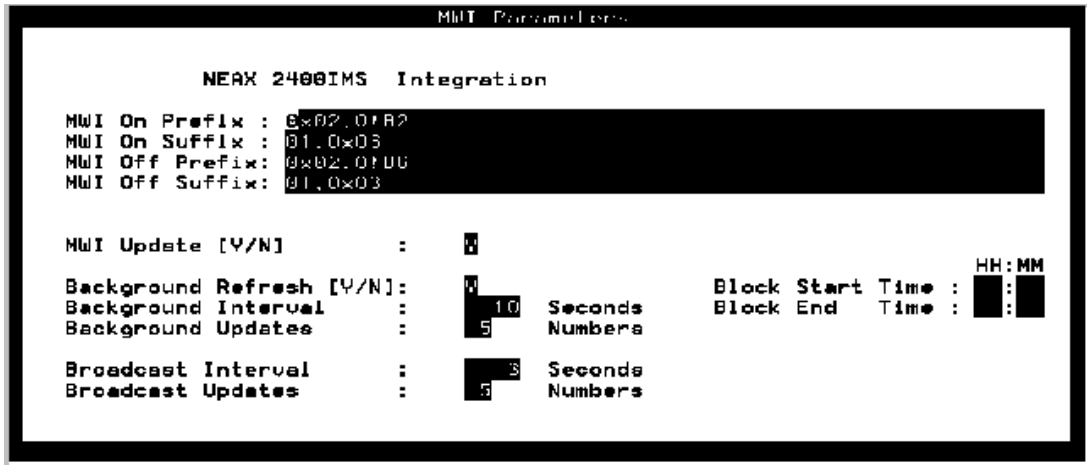


Figure 6-5. MWI Parameters Window

2. Change the MWI prefix or suffix for integration.
   - Modify values in the following fields to those required for your switch (Table 6-6):
     - `MWI on prefix:`
     - `MWI on suffix:`
     - `MWI off prefix:`
     - `MWI off suffix:`
   - If you do not need to change the MWI prefix, go to step 4.
3. Block MWI updates (including background and broadcast refresh) from occurring for a specified period of time.
   - Enter the time for blocking in the `Block Start Time:` field.

Table 6-6. MWI Parameters Window—Descriptions

Field	Descriptions	Values
`<switch> Integration`	Displays the switch selected on the Switch Selection window (Figure 6-2)	Display only.
`MWL on prefix:`	A string added before the extension to turn on MWIs.	Maximum of 20 alphanumeric characters or their ASCII values in hexadecimal notion (see Table 6-7). ■ The ASCII value must be represented as Ox*HH*, where *HH* is the ASCII value in hex. ■ Two ASCII values must be separated by a comma (,). ■ The space character is invalid. You must use its ASCII value—0x20. All entries not satisfying the above conditions are treated as character strings. Examples: xyz123, 0x40, 0x23, abc345
`MWS on suffix:`	A string added after the extension to turn on MWIs.	
`MWL off prefix:`	A string added before the extension to turn off MWIs.	
`MWL off suffix:`	A string added after the extension to turn off MWIs	
`MWI Update [Y/N]:`	Specifies whether the Lucent INTUITY system instructs the switch to perform MWI updates.	**NOTE:** Only the remote maintenance login can change values in this field.
`Background Refresh [Y/N]:`	Specifies whether the MWI status for each extension status is periodically checked and updated	**NOTE:** Only the remote maintenance login can change values in this field.
`Background Interval:`	Sets the interval between MWI background updates for non-broadcast messages.	**NOTE:** Only the remote maintenance login can change values in this field.
`Background Updates:`	Sets the number of background updates done in the interval entered in the `Background Interval:` field.	**NOTE:** Only the remote maintenance login can change values in this field.

Table 6-6. MWI Parameters Window—Descriptions

Field	Descriptions	Values
`Broadcast Interval:`	Sets the interval between MWI background updates for broadcast messages.	**NOTE:** Only the remote maintenance login can change values in this field.
`Broadcast Updates:`	Sets the number of broadcast updates done in the interval entered in the `Broadcast Interval:` field.	**NOTE:** Only the remote maintenance login change values in this field.
`Block Start Time:`	Sets the time when blocking of MWI updates begin on a daily basis.	Format *HH/MM/SS*, where: ■ *HH* is the hour in a 24-hour system (range 0-23) ■ *MM* is the minute (range 0-59). ■ *SS* is the second (range 0-59).
`Block End Time:`	Sets the time when blocking of MWI updates ends on a daily basis.	

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4. Press F3 (SAVE).

   The system displays the following message:

   ```
   You need to restart the Voice System to make these
   changes active.
   ```

5. Press F1 (ACKNOWLEDGE MESSAGE).
6. Press F6 (CANCEL) four times to return to the Lucent INTUITY Main Menu (Figure 6-1).

Hexadecimal equivalents for ASCII values used in the `MWI on prefix`, `MWI on suffix`, `MWI off prefix`, and `MWI off suffix fields` are shown in Table 6-7.

Table 6-7. Hexadecimal Equivalents for ASCII Values

00 NUL	01 SOH	02 STX	03 ETX	04 EOT	05 ENQ	06 ACK	07 BEL
08 BS	09 HT	0A NL	0B VT	0C NP	0D CR	0E SO	0F SI
10 DLE	11 DC1	12 DC2	13 DC3	14 DC4	15 NAK	16 SYN	17 ETB
18 CAN	19 EM	1A SUB	1B ESC	1C FS	1D GS	1E RS	1F US
20 SP	21 !	22 “	23 #	24 $	25 %	26 &	27 '
28 (	29)	2a *	2b +	2c ,	2d -	2e .	2f /
30 0	31 1	32 2	33 3	34 4	35 5	36 6	37 7
38 8	39 9	3 :	3 ;	3 <	3 =	3 >	3 ?
40 @	41 A	42 B	43 C	44 D	45 E	46 F	47 G
48 H	49 I	4a J	4b K	4c L	4d M	4e N	4f O
50 P	51 Q	52 R	53 S	54 T	55 U	56 V	57 W
58 X	59 Y	5a Z	5b [	5c \	5d]	5e ^	5f _
60 `	61 a	62 b	63 c	64 d	65 e	66 f	67 g
68 h	69 i	6A j	6B k	6C l	6D m	6E n	6F o
70 p	71 q	72 r	77 s	74 t	75 u	76 v	77 w
78 x	79 y	7A z	7B {	7C |	7D }	7E ~	7F DEL

Setting the Dial Plan Translations

Use Dial Plan Translations to

- Set the Lucent INTUITY extension length (also called the dial plan).
- Set up the translations for calls for the calling party indication (CLI) and called party identification (CPID) to interface the Lucent INTUITY system and the switch.

To set the Dial Plan Translations.

1. From the Lucent INTUITY Main Menu (Figure 6-1), select

```
> Switch Interface Administration
    > Call Data Interface Administration
        > System Translation Administration
            > Dial Plan Translation
```

The system displays the first of five screens of the Dial Plan Translation window (Figure 6-6) This screen contains your current settings.

To access the next screen, press F5 (NEXT PAGE). To return to the previous screen, press F4 (PREV PAGE).

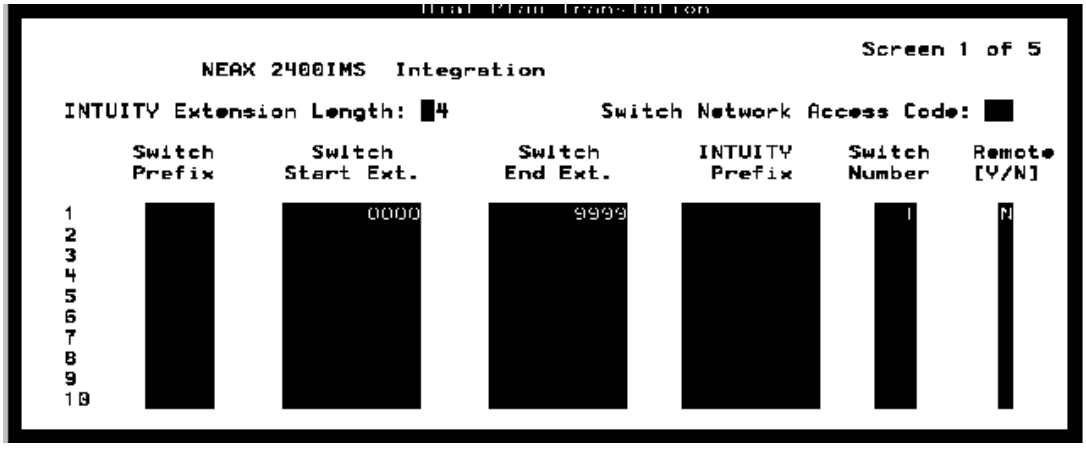

Figure 6-6. Dial Plan Translation Window

2. Use Table 6-8 to modify the screen.

Table 6-8. Dial Plan Translation Window—Field Descriptions

Field	Description	Values
<switch> Integration	Displays the switch selected on the Switch Selection window (Figure 6-2).	Display only.
Intuity Extension Length	Specifies the number of digits in the dial plan.	3 to 10 digits. Must be the same as the number of digits for the INTUITY prefix combined with the number of digits for the (start or end) extension number.
Switch Network Access Code:	Specifies the code necessary to reach the network. For example, you might dial 9 first to connect to an outside line.	
Switch Prefix	Specifies the initial part of the code sent by the switch as part of the call information. It can be an NNX code using the North American Numbering Plan Scheme. Or it can be a switch network code for private networks having a different extension length within a switch or among switches. For example, if the extension length on the INTUITY system is 4 and the call information is 8604000, then 860 is the switch prefix and 4000 is the INTUITY mailbox number.	
Switch Start Ext.	Specifies the first extension number in the range of allowed extension numbers.	The number of digits specified for the start and end extension numbers must be identical and must match the dial plan. For example, to specify the range 2000-3999, enter: ■ Start extension 2000 ■ End extension 3999
Switch End Ext.	Specifies the last extension number in the range of allowed extension numbers.	

Table 6-8. Dial Plan Translation Window—Field Descriptions

Field	Description	Values
`Intuity Prefix`	Specifies the digits that prefix the Intuity mailbox numbers. For example, if the Intuity extension length is 5, the range of numbers under the dial plan is 860 4000 to 860 5999, and the Intuity mailbox numbers range from 24000 to 26999, then the: Switch Prefix = 860 Switch Start Ext = 4000 Switch End Ext = 5999 INTUITY Prefix = 2	The dialing number obtained by combining an INTUITY prefix with any number in the range between start and end extension number must be a unique number. No overlaps are allowed. **NOTE:** This feature is available for the Nortel Norstar switch only.
`Switch Number`	The number that uniquely identifies and addresses the switch. The Lucent INTUITY system uses this number to differentiate between system subscribers on different switches.	Maximum of 3 digits, range 1-999.
`Remote [Y/N]`	Specifies whether the switch named in the `Switch Number` field is a remote switch on the network or a local switch.	Enter *N*.

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3. Press F3 (SAVE).

   The system displays the following message:

   `You need to restart the Voice System to make these changes active.`

4. Press F1 (ACKNOWLEDGE MESSAGE).
5. Repeat Steps 2 through 4 for the remaining translations.
6. Press F6 (CANCEL) four times to return to the Lucent INTUITY Main Menu (Figure 6-1).

Examples

The following example illustrates entries used for the common scenario where there are single switch connections and fixed-length switch system subscriber extensions.

NOTE:
The switch network access code is not used in this example.

INTUITY `extension length =4`

Switch Prefix	Switch Start Ext.	Switch End Ext.	INTUITY Prefix	Switch ID	Remote [Y/N]
	0000	9999		1	N

For Nortel Norstar switches: The following example illustrates entries used where the ranges for a Lucent INTUITY subscriber are three digits from 111 to 222, and 555 to 999. The valid extension ranges on the switch consist of four digits from 1111 to 1222, and 2555 to 2999:

NOTE:
The switch network access code is not used in this example.

INTUITY `extension length =4`

Switch Prefix	Switch Start Ext.	Switch End Ext.	INTUITY Prefix	Switch ID	Remote [Y/N]
1	111	222		1	N
2	555	999		1	N

Setting the Attendant Translation

Attendant translation is required if the switch uses an index string instead of an attendant translation number for the automated attendant feature.

NOTE:
This screen is required for NEC NEAX 2400 switches only.

To set the attendant translation,

1. From the Lucent INTUITY Main Menu (Figure 6-1), select

```
> Switch Interface Administration
    > Call Data Interface
        > MWI Administration
            > MWI Parameters
```

The system displays the Attendant Translation Window (Figure 6-7).

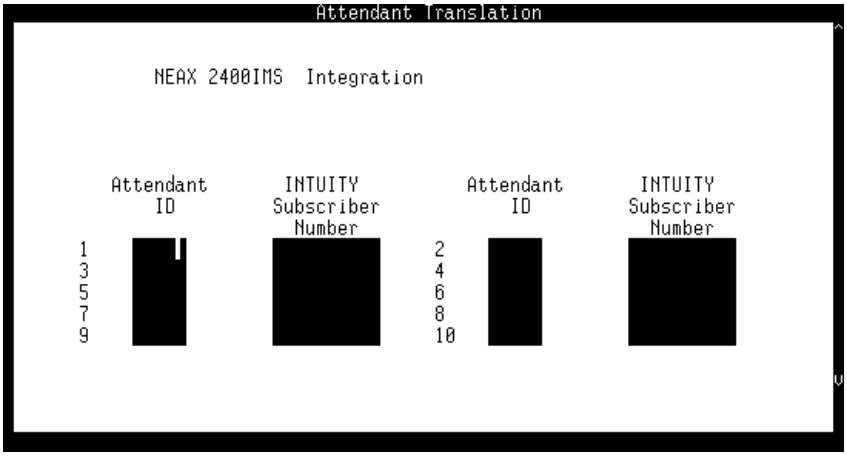

Figure 6-7. Attendant Translation Window

2. Use Table 6-9 to modify the screen.

Table 6-9. Attendant Translation Window—Field Descriptions

Field	Description	Values
`Attendant ID`	Specifies the Attendant Extension Number.	The number of digits allowed depends on the switch being installed. This number should be unique.
`Intuity Subscriber Number`	Specifies the equivalent substitute for the Attendant ID string that is passed by the switch.	This number should match the dial plan table entries.

3. Use the Lucent INTUITY subscriber number as the Auto Attendant extension after completing the Attendant Translation screen.
4. Record the appropriate greetings.

Integration Validation and Troubleshooting

7

Overview

Validating an inband or serial switch integration with the Lucent™ INTUITY™ system requires use of the following procedures:

- "Validating the Port Connectivity" on page 7-2
- "Validating Busy Extensions" on page 7-2
- "Validating Forward All Calls and Call No Answer" on page 7-3
- "Validating Transfers" on page 7-3
- "Validating Call Disconnection" on page 7-3
- "Validating Message Waiting Indicator Updates" on page 7-3
- "Validating the Automated Attendant" on page 7-4
- "Viewing the System Monitor" on page 7-4
- "Viewing the Switch Integration Logs" on page 7-5

In addition, some switch-specific validation is required, as explained in the section, "Switch-Specific Integration Validation" on page 7-16.

Troubleshooting an inband or serial integration involves determining the reasons why:

- Calls Are Not Integrated (Table 7-12)
- Transfers Fail (Table 7-13)
- MWI Updates Do Not Occur Properly (Table 7-14)
- MWI Updates Occur Late (Table 7-15)
- Outcalling Fails (Table 7-16)

- Weak DTMF Detection (Table 7-17)
- Fax Transmission and Reception Failures (Table 7-18)

Purpose

This chapter contains procedures for validating an inband or serial switch integration and guidelines for troubleshooting integration problems.

Before You Begin

This chapter assumes that:

- The switch is set for integration with theLucent INTUITY system.
- The hardware and software necessary for integration is installed.
- The Lucent INTUITY system is set for switch integration and has been stopped and restarted to activate the changes.

Integration Validation for All Inband and Serial Switches

Procedures to validate the integration require the cooperation of the switch administrator.

Validating the Port Connectivity

To test whether the ports are physically connected properly:

1. Access the System Monitor - Voice Channels window.

   See "Viewing the System Monitor" for the procedure.

2. Ask the switch administrator to place calls to each individual Lucent INTUITY voice channel, one at a time.
3. Use the System Monitor window to verify that the correct channel is accessed from the switch.

Validating Busy Extensions

To test call forwarding for busy extensions:

1. Busy out a system subscriber extension.
2. Call the busy extension.

3. Verify that the call follows the correct call forwarding coverage path and that the Lucent INTUITY system plays the busy greeting.
4. Repeat this procedure for the other extensions to be validated.

Validating Forward All Calls and Call No Answer

When a system subscriber forwards all calls to the Lucent INTUITY SDGN number, a call placed to that subscriber should follow the call forwarding coverage path. The correct system prompt should be played for that subscriber.

To test the operation of forward all calls and call no answer for all system subscribers:

1. Call the system subscriber.
2. Verify that the correct prompt is played.

Validating Transfers

To test transfers for all system subscribers:

1. From an INTUITY AUDIX mailbox, use the "*T" option to transfer to an extension or another INTUITY AUDIX mailbox.
2. Monitor the transfer time.

   The transfer time should be approximately 5 to 8 seconds.

Validating Call Disconnection

To validate call disconnection for all system subscribers:

1. Leave a message in the system subscriber's mailbox.
2. Retrieve the message, and listen for the sign of call progress tone recording.

   If there is no call progress tone in the message, call disconnection occurred properly.

Validating Message Waiting Indicator Updates

To validate the Message Waiting Indicator (MWI) updates for all system subscribers:

1. Leave a voice message for the system subscriber.
2. Check that the system subscriber's MWI (tone or indicator light) is turned on.

Validating the Automated Attendant

To test the automated attendant for all system subscribers (if configured):

1. Call the system subscriber.
2. Verify that the automated attendant message plays.

Viewing the System Monitor

The System Monitor - Voice Channels windows is used to validate the Tip/Ring mapping. To view the System Monitor - Voice Channels window:

1. Start at the Lucent INTUITY Main Menu and select

```
> Voice System Administration
    > System Monitor
```

The system displays the System Monitor Window (Figure 7-1). The window shows the service status of each channel on the system.

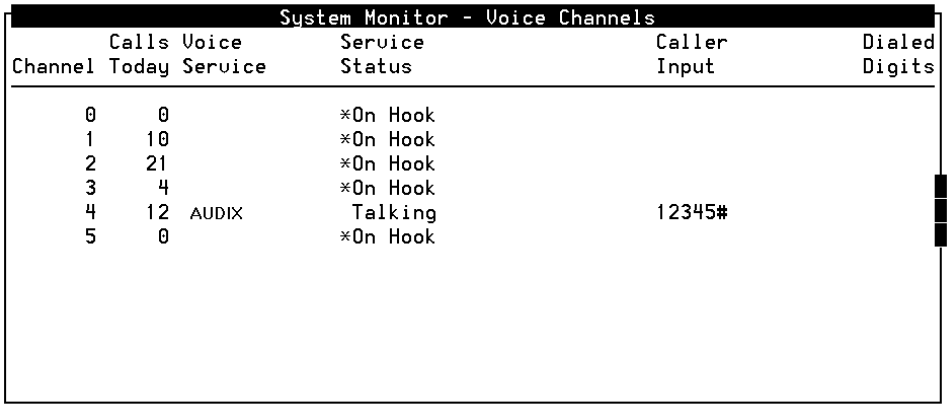

Figure 7-1. System Monitor Window

2. Press F3 (CANCEL) twice to return to the Lucent INTUITY Main Menu.

Viewing the Switch Integration Logs

To view the log entries generated by the various switch integration processes, select the entries by date and time or by process or, by selecting an event sequence number. You can also view only those entries associated with a specified event. Usually, selecting an event by sequence number presumes that you have viewed the log to obtain the number of the event. The log records only the most recent 2000 events.

If calls are made to the system and the logs:

- Contain the normally expected data, the calls are integrated.
- Contain no data, calls are not integrated
- Contain only part of the normally expected data, most likely the switch is set incorrectly. Contact your remote support center for assistance.

To view the switch integration logs:

1. Start at the Lucent INTUITY Main Menu and select

```
> Switch Interface Administration
    > Call Data Interface
        > Switch Integration Log
```

The system displays the Switch Integration Log window (Figure 7-2) with the current date and time displayed.

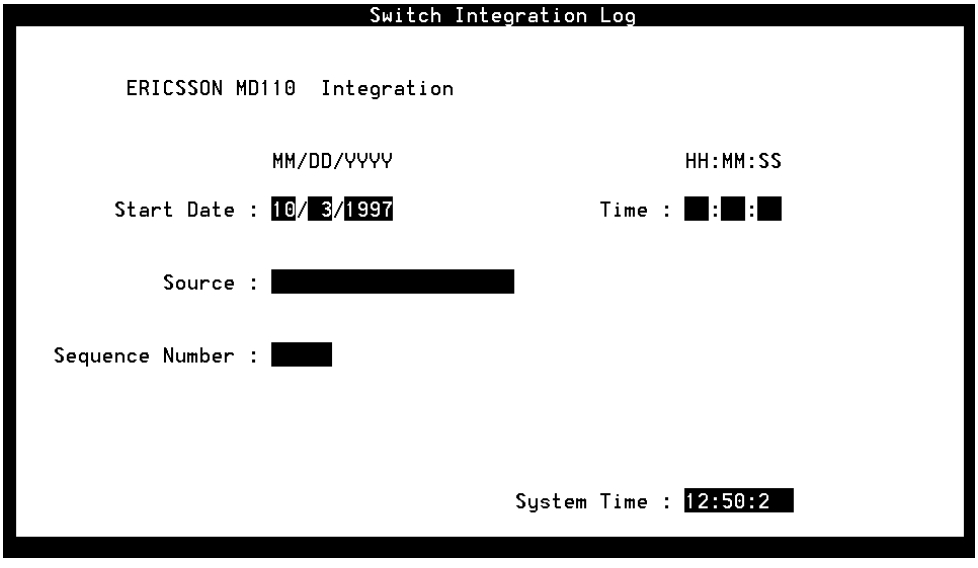

Figure 7-2. Switch Integration Log Window

2. Do you want to view the log entries by sequence number?
   - If yes, enter the sequence number in the `Sequence Number:` field (see Table 7-1) and go to Step 6.
   - If no, go to Step 3.
3. Enter the date for the first log entry you want to view in the `Start Date:` field (see Table 7-1).
4. Enter the time for the first log entry you want to view in the `Time:` field (see Table 7-1).

   The time entered must be earlier than the time displayed in the `System Time:` field.
5. Do you want to select entries by process type?
   - If yes, enter the name of process for which you want to view entries in the `Source:` field (see Table 7-1).
   - If no, enter **all** in the `Source`: field.
6. Press F3 (Display).

   The system displays the log data you selected. A maximum of 2000 entries can be displayed (see the examples following Table 7-1).
7. Press F6 (Cancel) three times to return to the Lucent INTUITY Main Menu (Table 7-1).

Table 7-1. Switch Integration Log Window — Field Descriptions

Field	Description	Values
<*switch*> `Integration`	Displays the switch selected on the Switch Selection window.	Display only
`Start Date:`	Selects events logged in the specified interval up to a maximum of 2000 events. If you use the `Sequence Number:` field, the system ignores data in these fields and the `Source:` field.	Format *MM DD YYYY*, where: ■ *MM* is the month (range 1–12) ■ *DD* is the day (range 1–31) ■ *YYYY* is the year
`Time:`		Format *HH MM SS*, where: ■ *HH* is the hour in the 24-hour system (range 0–23) ■ *MM* is the minute (range 0–59) ■ *SS* is the second (range 0–59)
`Source:`	Selects the name of a switch integration process for display. The display includes all events logged by this process from the 2000 events currently contained in the log. Choices are integration dependent. If you use the `Sequence Number.` field, the system ignores data in this field and the `Start Date:` and `Time:` field.	■ Inband integrations — CHDIP — SWINDIP — MWIDIP ■ Serial integrations — RDR — SWINDIP — WTR and CHDIP ■ ALL — all logs for the integration type.
`Sequence Number:`	Specifies a sequence number that corresponds to a logged event. If you use this field, the system ignores the other fields in the window. The display includes all data logged with the specified sequence number from the 2000 events currently contained in the log.	A 5-digit number
`System Time:`	Displays the system time as a convenience.	Display only. The format is the same as in the `Time:` field.

Inband Switch Integration Log Entries

Log entries for inband integrations are generated by the CHDIP, SWINDIP, and MWIDIP processes (Figure 7-3).

- Each CHDIP entry contains the raw data sent from the switch for one call.
- SWINDIP entries associated with the CHDIP entry contain the corresponding parsed and translated data.
- Each MWIDIP entry contains data about one MWI update.
- Data fields are separated by a forward slash (/).

```
21344                    MWIDIP                    Sat May  3 10:40:29 1997
MWI_ON:/SWID 1/CHGRP 2/AUDIX EXTN 4190/XLAT EXTN 4190/
21344                    MWIDIP                    Sat May  3 10:40:32 1997
MWI_SUCCESS:/#534190/
21345                    MWIDIP                    Sat May  3 10:40:34 1997
MWI_OFF:/SWID 1/CHGRP 2/AUDIX EXTN 4224/XLAT EXTN 4224/
10138                    CHDIP                     Sat May  3 10:40:42 1997
Raw:/CHANNEL 0/#00#2018##/
10138                    SWINDIP                   Sat May  3 10:40:42 1997
Parsed:/DIR_INT/CHANNEL 0/CHANEXT /CLI 2018/CP /
10138                    SWINDIP                   Sat May  3 10:40:42 1997
Translated:/DIR_INT/CHANNEL 0/CHANEXT /CLI 2018/CP /
21345                    MWIDIP                    Sat May  3 10:40:37 1997
MWI_SUCCESS:/#*534224/
```

Figure 7-3. Example of a Switch Integration Log

Each type of inband log entry contains two lines. The first line for all types identifies the entry as in Table 7-2.

Table 7-2. Inband Switch Integration Log — All Entries — Event ID

Field	Description
<*sequence number*>	Identifies the event. A CHDIP entry and its corresponding SWINDIP entries share a sequence number. Pairs of MWIDIP entries share a sequence number.
<*process name*>	CHDIP, SWINDIP, or MWIDIP
<*date and time*>	The time and date stamp of the event.

Inband CHDIP Log Entries

Inband CHDIP entries for call data contain the following information (Table 7-3).

Table 7-3. Inband CHDIP (Raw) — Field Description

Field	Description
Raw	Indicates the unparsed, untranslated data stream from the switch.
CHANNEL	The Lucent INTUITY channel number for the call. (Channel-to-extension mapping is done on the Voice Equipment window or as part of voice system administration.)
<data string>	The touch tones sent by the switch

Inband SWINDIP Log Entries

Inband SWINDIP entries for parsed and translated data contain the following information (Table 7-4).

Table 7-4. Inband SWINDIP (Parsed/Translated) — Field Descriptions

Field	Description
`Parsed` and `Translated`	Indicates the data stream sent from the switch after parsing or translation, respectively.
<*call type*>	Identifies the call as: ■ DIR_INT (direct internal) ■ DIR_EXT (direct external **NOTE:** NA_INT (no answer internal) This category includes Call Forward All Calls. ■ NA_EXT (no answer external) ■ BUSY_INT (busy internal) ■ BUSY_EXT (busy external) ■ REF_MWL (refresh MWL)
<*call type*> (continued)	Identifies the call as: ■ PRT_INS (port-in service) ■ PRT_OOS (port-out-of-service) ■ DAY_SVC (day service) ■ NGT_SVC (night service) ■ LWC (leave word calling) For DIR_INT, NA_INT, BUSY_INT calls and LWC both the CLI and CP are shown. For DIR_EXT, NA_EXT, and BUSY_EXT calls, only the CP is shown. For REF_MWL, PRT_INS, PRT_OOS, DAY_SVC, NGT_SVC and LWC, neither the CLI nor the CP is shown.
`CHANNEL` <*number*>	The Lucent INTUITY channel number for the call. **NOTE:** Either one of these fields may be displayed, depending on the switch. (Channel-to-extension mapping is done on the Voice Equipment window as part of voice system administration.)

Table 7-4. Inband SWINDIP (Parsed/Translated) — Field Descriptions

Field	Description
CHANEXT	The Lucent INTUITY extension number for the call. **NOTE:** Either one of these fields may be displayed, depending on the switch. (Channel-to-extension mapping is done on the Voice Equipment window as part of voice system administration.)
CLI	The extension of the calling party, if available (see <*call type*> above). The number of digits in the parsed and translated CLI may differ depending on how the dial plan is set on the Dial Plan Translation window in the call data interface. CLI is only an informational message sent by the switch.
CP	CPS is only an informational message sent by the switch.

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Inband MWIDIP Log Entries

There are two types of Inband MWDIP entries. One type provides information on requests for MWI updates that the Lucent INTUITY system sends to the switch. The other provides information on the status of the updates.

Inband MWIDIP MWI request entries contain the following information (Table 7-5).

Table 7-5. MWIDIP (MWI Requests) — Field Descriptions

Field	Description
MWI_ON or MWI_ OFF	Indicates whether MWI is to be turned on or off.
SWID <n*umber*>	Uniquely identifies the switch in the Lucent INTUITY system.
CHGRP	Identifies the Lucent INTUITY channel group for the update. (Extension-to-group mapping is done on the Voice Equipment window as part of voice system administration.)
AUDIX EXTN	The pilot INTUITY AUDIX extension number.
XLAT EXTN	For inband switches this should be the same as the AUDIX extension.

Serial Switch Integration Log Entries

Log entries for serial integrations are generated by the RDR, SWINDIP, and WTR processes (Figure 7-4).

- Each serial RDR entry contains the raw data sent from the switch for one call.
- Serial SWINDIP entries associated with the serial RDR entry contain the corresponding parsed and translated call data.
- Each serial WTR entry logs data about one MWI update.
- Data fields are separated by a forward slash (/).

```
10002                    RDR                       Fri May  2 13:55:04 1997
Raw: /tty00/[0XD][0XA]MD9993276D ...4001 [0XD][0XA][0X19]/
10002                    SWINDIP                   Fri May  2 13:55:04 1997
Parsed:/DIR_INT/CHANNEL -1/CHANEXT 3276/CLI 4001/CP /
10002                    SWINDIP                   Fri May  2 13:55:04 1997
Translated:/DIR_INT/CHANNEL -1/CHANEXT 3276/CLI 4001/CP /
10003                    RDR                       Fri May  2 14:00:23 1997
Raw: /tty00/[0XD][0XA]MD9993276B...4000  [0XD][0XA][0X19]/
10003                    SWINDIP                   Fri May  2 14:00:23 1997
Parsed:/BUSY_EXT/CHANNEL -1/CHANEXT 3276/CLI /CP 4000/
10003                    SWINDIP                   Fri May  2 14:00:23 1997
Translated:/BUSY_EXT/CHANNEL -1/CHANEXT 3276/CLI /CP 4000/
21002                    WTR                       Fri May  2 14:00:54 1997
MWI_ON:/SWID 1/TTY /dev/tty00/AUDIX EXTN 4000/XLAT EXTN 4000/
21002                    WTR                       Fri May  2 14:00:54 1997
MWI_SUCCESS:/OP:MWI ...4000![0X4]/
```

Figure 7-4. Example of a Serial Switch Integration Log

Each type of serial log entry contains two lines. The first line fof the serial log identifies the entry as follows (Table 7-6).

Table 7-6. Serial Switch Integration Log — All Entries — Event ID

Field	Description
<*sequence number*>	Identifies the event. A RDR entry and its corresponding SWINDIP entries share a sequence number. Pairs of WTR entries share a sequence number.
<*process name*>	RDR, SWINDIP, or WTR
<*date and time*>	The time and date stamp of the event

Serial RDR Log Entries

Serial RDR entries contain the following information (Table 7-7).

Table 7-7. Serial RDR (Raw) — Field Descriptions

Field	Description
Raw	Indicates the unparsed, untranslated data sent from the switch.
tty<*number*>	The name of the serial device used for the call
<*data string*>	The data stream sent by the switch, consisting of ASCII and hexadecimal characters.

Serial SWINDIP Log Entries

Serial SWINDIP entries contain the following information (Table 7-8).

Table 7-8. Serial SWINDIP (Parsed/Translated) — Field Descriptions

Field	Description
`Parsed` and `Translated`	Indicates the data stream sent from the switch after parsing or translation.
<*call type*>	Identifies the call as: ■ DIR_INT (direct internal) ■ DIR_EXT (direct external **NOTE:** NA_INT (no answer internal) This category includes call forward, all calls. ■ NA_EXT (no answer external) ■ BUSY_INT (busy internal) ■ BUSY_EXT (busy external) For DIR_INT, NA_INT, and BUSY_INT calls, both the CLI and CP are shown. For DIR_EXT, NA_EXT, and BUSY_ EXT calls, only the CP is shown.
`CHANNEL` <*number*>	The Lucent INTUITY channel number for the call. **NOTE:** Either one of these fields may be displayed, depending on the switch. If the `CHANNEL`<*number*> is not displayed, its default value is -1. (Channel-to-extension mapping is done on the Voice Equipment window as part of voice system administration.)

(1 of 2)

Table 7-8. Serial SWINDIP (Parsed/Translated) — Field Descriptions

Field	Description
CHANEXT	The Lucent INTUITY extension number for the call. **NOTE:** Either one of these fields may be displayed, depending on the switch. If the CHANNEL<*number*> is not displayed, its default value is -1. (Channel-to-extension mapping is done on the Voice Equipment window as part of voice system administration.)
CLI	The extension of the calling party, if available (see <*call type*> above). The number of digits in the parsed and translated CLI may differ depending on how the dial plan is set on the Dial Plan Translation window in the call data interface.
CP	The extension of the called party, if available (see <*call type*> above).

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Serial WTR Log Entries

There are two types of Serial WTR entries. One type provides information on requests for MWI updates that the Lucent INTUITY system sends to the switch. The other provides information on the status of the updates.

Serial WTR MWI request entries contain the following information (Table 7-9).

Table 7-9. Serial WTR (MWI Requests) — Field Descriptions

Field	Description
MWI_ON or MWI_OFF	Indicates whether the MWI is to be turned on or off.
SWID <n*umber*>	Uniquely identifies the switch in the Lucent INTUITY system.
TTY	The name of the serial device used for the call.
AUDIX EXTN	The INTUITY AUDIX® extension number.
XLAT EXTN	The translated extension number. The number of digits may differ from that in the AUDIX EXTN fields depending on how the dial plan is set on the Dial Plan Translation window in the call data interface.

Serial WTR MWI status entries contain the following information (Table 7-10).

Table 7-10. Serial WTR (MWI Status) — Field Descriptions

Field	Description
MWI_SUCCESS or MWI_FAIL	Indicates whether the requested MWI update occurred.
<MWI string>	A string that contains the INTUITY AUDIX extension number for which the MWI is updated plus any prefix or suffix needed to turn the MWI on or off. (MWI prefixes and suffixes are set on the MWI Parameters window. See "Setting MWI Parameters" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration".) "Padding" characters, such as periods (. . .) may also be included in the string.

Switch-Specific Integration Validation

Table 7-11. Serial WTR (MWI Status) — Field Descriptions

Field	Description
MWI_SUCCESS or MWI_FAIL	Indicates whether the requested MWI update occurred.
<MWI string>	A string that contains the INTUITY AUDIX extension number for which the MWI is updated plus any prefix or suffix needed to turn the MWI on or off. (MWI prefixes and suffixes are set on the MWI Parameters window. See "Setting MWI Parameters" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration".) "Padding" characters, such as periods (. . .) may also be included in the string.

The following section provides procedures for validation of switch features or functionality.

Integration Troubleshooting for Serial and Inband Switches

The troubleshooting procedure for serial and inband switches is categorized according to the problems.

Calls Are Not Integrated

Calls may not be integrated due to any of the following reasons in Table 7-12.

Table 7-12. Calls are not Integrated

Possible Problems	Possible Solutions
Incorrect switch settings for translations, class of service, or system subscriber setup.	Work with the switch administrator to correct the switch settings.
For Serial Switches only	
Bad Serial connection	1. Check the connection using an RS-232 mini-tester or a serial breakout box. 2. Ensure that the transmit data and receive data leads are crossed properly. 3. Try the connection both with and without a null modem.
Serial port setting mismatch between the switch and the Lucent Intuity system	1. Check the setting settings on the Serial Interface window in the Lucent INTUITY system. For information on the window, see "Setting the Serial Interface Settings" in Chapter 6, "Lucent INTUITY Administration for Inband and Serial Switch Integration". 2. Work with the switch administrator to check the settings on the switch.

Transfers Fail

Call transfers could fail due to the following reasons in Table 7-13.

Table 7-13. Transfers Fail

Possible Problems	Possible Solutions
Incorrect transfer administration on the Lucent INTUITY system.	Verify the transfer restrictions set for the INTUITY AUDIX application.
Inappropriate transfer restrictions set on the switch.	Ask the switch administrator to check any transfer restrictions set on the switch.
Dial tone is not detected and the Lucent INTUITY transfer function times out due to a mismatch in the tone settings between the switch and the Lucent INTUITY system.	Work with the switch administrator to check the tone settings on the switch, or use the Tone Capture and Analysis window to check the switch tones. Verify that matching settings are set on the Lucent INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, “Troubleshooting Procedures”, in the system installation book for your platform.
The caller is dropped because the flash duration on the switch does not have the same value as the one on the Lucent INTUITY system.	Verify that the flash duration on the switch is the same as the one set for the Lucent INTUITY system.

MWI Updates Do Not Occur Properly

MWI updates could not be occurring due to the following reasons in Table 7-14.

Table 7-14. MWI Updates Do Not Occur

Possible Problems	Possible Solutions
See the reasons above for calls not integrated.	See the solutions above for calls not integrated.
Incorrect settings or setting mismatch between the switch and the Lucent INTUITY system.	Work with the switch administrator to verify sets for MWI on the switch.
Incorrect settings or setting mismatch between the switch and the Lucent INTUITY system. (continued)	■ Verify that the MWI update flag is set to y (yes) on the MWI Parameters window (Figure 6-5). If it is not, set the flag correctly. ■ Verify that the on/off prefix is set correctly on the MWI Parameters window (Figure 6-5). If it is not, set the prefix correctly. **Inband switches only:** Verify the channels are assigned to the correct groups. See the installation book for your platform for information on channel assignments and group assignments.
Incorrect switch settings for translations, class or service, or system subscriber setup.	Work with the switch administrator to correct the switch settings.
Only for Inband switches	
Dial tone is not detected.	Work with the switch administrator to check the tone settings on the switch, or use the Tone Capture and Analysis window to check the switch tones. Verify that matching settings are set on the Lucent INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, “Troubleshooting Procedures”, in the installation book for your platform. **Nortel Norstar Switches only:** The flash duration may not be set properly.

MWI Updates Occur Late

MWI updates could occur late due to the reasons given in Table 7-15.

Table 7-15. MWI updates occur late

Possible Problems	Possible Solutions
All the ports are busy due to the amount of updates requested.	Reserve one or two channels from the voice hunt group. Assign them only for MWI updates in separate channel groups.

Outcalling Fails

Outcalling could fail due to the reasons given in Table 7-16.

Table 7-16. Outcalling Fails

Possible Problems	Possible Solutions
The switch dial tone is not detected.	Work with the switch administrator to check the tone settings on the switch, or use the Tone Capture and Analysis window to check the switch tones. Verify that matching settings are set on the Lucent INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, “Troubleshooting Procedures”, in the system installation book for your platform.
The switch dial tone is not detected.	Verify that outcalling in enabled in each of the following: ■ INTUITY AUDIX administration ■ Class of service for all ■ On subscribers mailboxes
Disconnect not recognized.	For local system subscriber calls, the wink may not be detected. Check for the correct matching wink interval. Make sure that the switch is set correctly for wink detection. For external calls, the far-end disconnect tone may not be recognized. Work with the switch administrator to check the tone settings on the switch, or use the Tone Capture and Analysis window to check the switch tones. Verify that settings match those set for the Lucent INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, “Troubleshooting Procedures”, in the installation book for your platform.

Weak DTMF Detection from Certain Stations or Outside Calls

Weak DTMF detection from certain stations or outside calls could be due to the reasons given in Table 7-17.

Table 7-17. Weak DTMF Detection

Possible Problems	Possible Solutions
Some wireless signals produce very weak DTMF signals.	Tier IV can change DTMF detection levels in the Lucent INTUITY system.

FAX Transmission and Reception Failures

FAX transmission and reception failures could be due to the reasons given in Table 7-18.

Table 7-18. Fax Transmission and Reception Failures

Possible Problems	Possible Solutions
Fax transmission failures due to low signal level at the remote end	Increase the transmit level of all modes. The five transmit level modes supported on the INTUITY AUDIX application are: ■ V21 ■ V27-24 ■ V27-48 ■ V29-72 ■ V29-96
Fax reception failures due to loss of incoming Fax signal	■ Set the Fax receive gain for Fax modem receive operations. ■ The valid range for fax reception is -48 to 12 dB. This setting can be increased to avoid loss of incoming signal.

Glossary

Numerics

5ESS Switch
A central office switch manufactured by Lucent Technologies that can be integrated with the Lucent INTUITY™ system.

A

accessed message
A message that was received and scanned (either the entire message or just the header).

ACA
See *automatic circuit assurance*.

ACD
See *automatic call distribution*.

activity menu
The list of options spoken to subscribers when they first access a messaging system. Selecting an activity is the starting point for all subscriber operations.

ADAP
See *administration and data acquisition package*.

address
INTUITY AUDIX subscriber identification, containing the subscriber's extension and machine, that indicates where the system needs to deliver a message. An address may include several subscribers or mailing lists. Name or number addressing can be selected with the ☐ A (Address) command.

adjunct
A separate system closely integrated with a switch, such as a Lucent INTUITY system or a call management system (CMS).

administration
The process of setting up a system (such as a switch or a messaging system) to function as desired. Options and defaults are normally set up (translated) by the system administrator or service personnel.

administration and data acquisition package (ADAP)
A software package that allows the system administrator to transfer system subscriber, maintenance, or traffic data from an INTUITY AUDIX system to a personal computer (PC).

ADU
See *asynchronous data unit*.

alarm log
A list of alarms that represent all of the active or resolved problems on a Lucent INTUITY system. The alarm log is stored in a software file on disk and can be accessed either locally or remotely on a terminal connected to the system.

alarms
Hardware, software, or environmental problems that may affect system operation. Alarms are classified as *major*, *minor*, or *warning*.

alphanumeric
Consisting of alphabetic and numeric symbols or punctuation marks.

ALT
See *assemble, load, and test.*

American wire gauge (AWG)
A standard measuring gauge for nonferrous conductors.

AMIS
See *Audio Messaging Interchange Specification*.

AMIS prefix
A number added to the destination number to indicate that it is an AMIS analog networking number.

analog networking
A method of transferring a message from one messaging system to another whereby the message is played back (voiced) during the transfer.

analog signal
In teleprocessing usage, a communications path that usually refers to a voice-grade telephone line.

announcement
A placeholder within the Lucent INTUITY system for playing fragments. Each event that may occur within AUDIX has one or more announcement numbers permanently assigned to it. Fragment numbers are then assigned to the announcement numbers.

announcement fragment
A numbered piece of spoken information that makes up a system message or prompt.

antistatic
A treatment for material to prevent the build-up of static electricity.

API
See *application programming interface.*

application
A computer software program.

application identifier
A two-letter code used in the administrator's log to identify the application or subsystem for which an alarm is being generated. There are 11 application identifiers as follows: CA (Call Accounting), EL (Enhanced List), LF (Lodging Fax), LG (Lucent INTUITY Lodging), ML (MERLIN LEGEND), MT

(Maintenance), NW (Digital Networking), SW (Switch Integration), VM (Voice Messaging), VP (Voice Processing), and VR (Voice Response).

application programming interface (API)
A set of formalized software calls and routines that an application program can reference to access underlying network services.

assemble, load, and test (ALT)
The Lucent factory process that preloads software, installs hardware, and tests the system prior to shipping.

ASP
advanced signal processor

asynchronous communication
A method of data transmission in which bits or characters are sent at irregular intervals and spaced by start and stop bits rather than time. See also *synchronous communication*.

asynchronous data unit (ADU)
An electronic communications device that can extend data transmission over asynchronous lines more than 50 feet in length. Recommended ADUs for use with the Lucent INTUITY system include Z3A1 or Z3A4.

asynchronous transmission
A form of serial communications where each transmitted character is bracketed with a start bit and one or two stop bits. The Lucent INTUITY system provides asynchronous EIA-232 capabilities for INTUITY AUDIX Digital Networking, if required.

attendant console
A special-purpose telephone with numerous lines and features usually located at the front desk of a business or other organization. The front desk attendant uses this telephone to answer and transfer calls.

Audio Messaging Interchange Specification (AMIS)
An analog networking protocol that allows subscribers to exchange messages with any messaging system that also has AMIS Analog Networking capabilities. Messages can be exchanged with subscribers on Lucent INTUITY systems as well as with subscribers on remote messaging systems made by vendors other than Lucent Technologies.

Audio Information Exchange (AUDIX)
A complete messaging system accessed and operated by touch-tone telephones and integrated with a switch.

audit
A software program that resolves filesystem incompatibilities and updates restored filesystems to a workable level of service. Audits are done automatically on a periodic basis, or can be performed on demand.

AUDIX
See *Audio Information Exchange*.

autodelete
An INTUITY AUDIX feature that allows subscribers to designate that faxes be automatically deleted from their mailboxes after they are printed.

automated attendant
A Lucent INTUITY system feature that allows subscribers to set up a main extension number with a menu of options that routes callers to an appropriate department at the touch of a button.

automatic call distribution (ACD)
The System 85, Generic 2, or Generic 3 call-distribution group of analog ports that connects Lucent INTUITY subscribers to the system. See also *call-distribution group*.

automatic circuit assurance (ACA)
A feature of the switch that keeps records of both very long and very short calls and notifies the attendant when these calls exceed a certain parameter. The logic is that many very short calls or one very long one may suggest a trunk that is hung, broken, or out of order. The attendant can then physically dial into the trunk to check it.

automatic message scan
An INTUITY AUDIX feature that allows subscribers to scan all message headers and messages at the touch of two buttons. With Lucent INTUITY FAX Messaging, this feature allows all new faxes to be bundled and transmitted over a single fax call delivery call. Also called *autoscan*.

autoprint
An INTUITY AUDIX feature that allows subscribers to designate that faxes be automatically sent to a specified print destination.

autoscan
See *automatic message scan*.

AWG
See *American wire gauge.*

B

background testing
Testing that runs continuously when the system is not busy doing other tasks.

backplane
A centrally located device within a computer to which individual circuit cards are plugged for communication across an internal bus.

backup
A duplicate copy of files and directories saved on a removable medium such as floppy diskette or tape. The back-up filesystem can be copied back (restored) if the active version is damaged (corrupted) or lost.

basic input/output system (BIOS)
A system that contains the buffers for sending information from a program to the actual hardware device for which the information is intended.

basic call transfer
The switch-hook flash method used to send the INTUITY AUDIX transfer command over analog voice ports.

basic rate access
See *basic rate interface*.

basic rate interface (BRI)
International standard protocol for connecting a station terminal to an integrated systems digital network (ISDN) switch. ISDN BRI supports two 64-Kbps information-bearer channels (B1 and B2), and one 16-Kbps call status and control (D) channel (a 2B + D format). Also called b*asic rate access*.

binary synchronous communications (BSC)
A character-oriented synchronous link protocol.

BIOS
See *basic input/output system*.

body
The part of a Lucent INTUITY voice mail that contains the actual spoken message. For a leave word calling (LWC) message, it is a standard system announcement.

boot
The operation to start a computer system by loading programs from disk to main memory (part of system initialization). Booting is typically accomplished by physically turning on or restarting the system. Also called *reboot*.

boot filesystem
The filesystem from which the system loads its initial programs.

BRI
See *basic rate interface*.

broadcast messaging
An INTUITY AUDIX feature that enables the system administrator and other designated subscribers to send a message to all subscribers automatically.

BSC
See *binary synchronous communications*.

buffer
A temporary storage area used to equalize or balance different operating speeds. A buffer can be used between a slow input device, such as a terminal keyboard, and the main computer, which operates at a very high speed.

bulletin board
An INTUITY AUDIX feature that allows a message to be played to callers who dial the bulletin board extension. Callers cannot leave a message since it is a listen-only service. Also called *information service*.

bundling
Combining several calls and handling them as a single call. See also *automatic message scan*.

bus
An electrical connection/cable allowing two or more wires, lines, or peripherals to be connected together.

busy-out/release
To remove a Lucent INTUITY device from service (make it appear busy or in use), and later restore it to service (release it). The Lucent INTUITY switch data link, voice ports, or networking ports can be busied out if they appear faulty or when maintenance tests are run.

C

CA
Call accounting system application identifier. See *application identifier*.

call accounting system (CAS)
A software device that monitors and records information about a calling system.

call-answer
An INTUITY AUDIX feature that allows the system to answer a call and record a message when the subscriber is unavailable. Callers can be redirected to the system through the call coverage or call forwarding switch features. INTUITY AUDIX subscribers can record a personal greeting for these callers.

call-answer language choice
The capability of subscriber mailboxes to accept messages in different languages. For the INTUITY AUDIX application, this capability exists when the multilingual feature is turned on.

callback number
In AMIS analog networking, the telephone number transmitted to the recipient machine to be used in returning messages that cannot be delivered.

call classification analysis (CCA)
A process that enables application designers to use information available within the system to classify the disposition of originated and transferred calls.

call coverage
A switch feature that defines a preselected path for calls to follow if the first (or second) coverage points are not answered. The Lucent INTUITY system can be placed at the end of a coverage path to handle redirected calls through call coverage, send all calls, go to cover, etc.

call data handler process (CDH)
A software process that accumulates generic call statistics and application events.

call detail recording (CDR)
A switch feature that uses software and hardware to record call data. See also *call detail recording utility*.

call detail recording utility (CDRU)
Applications software that collects, stores, optionally filters, and outputs call detail records for direct or polled output to peripheral devices. See also *call detail recording*.

call delivery
See *message delivery*.

call-distribution group
The set of analog port cards on the switch that connects switch subscribers to the Lucent INTUITY system by distributing new calls to idle ports. This group (or split) is called automatic call distribution (ACD) on System 85, Generic 2, and Generic 3 and uniform call distribution (UCD) on System 75, Generic 1, and Generic 3. See also *automatic call distribution* and *uniform call distribution*.

call management system (CMS)
An inbound call distribution and management reporting package.

called tone (CED tone)
The distinctive tone generated by a fax endpoint when it answers a call (a constant 2100-Hz tone).

called subscriber information (CSI)
The identifier for the answering fax endpoint. This identifier is sent in the T.30 protocol and is generally the telephone number of the fax endpoint.

calling tone (CNG tone)
The distinctive tone generated by a fax endpoint when placing a call (a constant 1100-Hz tone that is on for 1/2 second, off for 3 seconds).

call vectoring
A System 85 R2V4, Generic 2, and Generic 3 feature that uses a vector (switch program) to allow a switch administrator to customize the behavior of calls sent to an automatic call distribution (ACD) group.

card cage
An area within the Lucent INTUITY hardware platform that contains and secures all of the standard and optional circuit cards used in the system.

cartridge tape drive
A high-capacity data storage/retrieval device that can be used to transfer large amounts of information onto high-density magnetic cartridge tape based on a predetermined format. This tape is to be removed from the system and stored as a backup.

CAS
See *call accouting system*.

CCA
See *call classification analysis.*

CDH
See *call data handler process*.

CDR
See *call detail recording*.

CDRU
See *call detail recording utility (CDRU).*

CED tone
See *called tone*.

CELP
See *code excited linear prediction*.

central office (CO)
An office or location in which large telecommunication equipment such as telephone switches and network access facilities are maintained. In a CO, private customer lines are terminated and connected to the public network through common carriers.

central processing unit (CPU)
The component of the computer that manipulates data and processes instructions coming from software.

channel
A telecommunications transmission path for voice and/or data.

channel capacity
A measure of the maximum bit rate through a channel.

class of restriction (COR)
A feature that allows up to 64 classes of call-origination and call-termination restrictions for telephones, telephone groups, data modules, and trunk groups. See also *class of service*.

class of service (COS)
The standard set of INTUITY AUDIX features given to subscribers when they are first administered (set up with a voice mailbox). See also *class of restriction*.

clear to send (CTS)
Located on Pin 5 of the 25-conductor RS-232 interface, CTS is used in the transfer of data between the computer and a serial device.

client
A computer that sends, receives and uses data, but that also shares a larger resource whose function is to do most data storage and processing. For Lucent INTUITY Message Manager, the subscriber's PC running Message Manager is the client. See also *server*.

CMS
See *call management system*.

CNG tone
See *calling tone*.

CO
See *central office*.

COR
See *class of restriction*.

COS
See *class of service*.

code excited linear prediction (CELP)
An analog-to-digital voice coding scheme.

collocated
A Lucent INTUITY system installed in the same physical location as the host switch. See also *local installation*.

collocated adjunct
Two or more adjuncts that are serving the same switch (that is, each has voice port connections to the switch) or that are serving different switches but can be networked through a direct RS-232 connection due to their proximity.

comcode
A numbering system for telecommunications equipment used by Lucent Technologies. Each comcode is a 9-digit number that represents a specific piece of hardware, software, or documentation.

command
An instruction or request given by an administrator to the software to perform a particular function. An entire command consists of the command name and options. Also, one-key or two-key touch tones that control a mailbox activity or function.

community
A group of telephone subscribers administered with special send and receive messaging capabilities. A community is typically comprised of people who need full access to each other by telephone on a frequent basis. See also *default community*.

compound message
A message that combines a voice message and a fax message into one unit, which INTUITY AUDIX then
handles as a single message.

configuration
The particular combination of hardware and software components selected for a system, including external connections, internal options, and peripheral equipment.

controller circuit card
A circuit card used on a computer system that controls its basic functionality and makes the system operational. These cards are used to control magnetic peripherals, video monitors, and basic system communications.

COS
See *class of service*.

coverage path
The sequence of alternate destinations to which a call to a subscriber on a Lucent INTUITY system is automatically sent when it is not answered by the subscriber. This sequence is set up on the switch, normally with the Lucent INTUITY system as the last or only destination.

CPU
See *central processing unit*.

cross connect
Distribution-system equipment used to terminate and administer communication circuits.

cross connection
The connection of one wire to another, usually by anchoring each wire to a connecting block and then placing a third wire between them so that an electrical connection is made.

CSI
See *called subscriber information*.

CTS
See *clear to send*.

D

DAC
See *dial access code*.

database
A structured set of files, records, or tables. Also, a collection of filesystems and files in disk memory that store the voice and nonvoice (program data) necessary for Lucent INTUITY system operation.

data communications equipment (DCE)
Standard type of data interface normally used to connect to data terminal equipment (DTE) devices. DCE devices include the data service unit (DSU), the isolating data interface (IDI), and the modular processor data module (MPDM).

data communications interface unit (DCIU)
A switch device that allows nonvoice (data) communication between a Lucent INTUITY system and a Lucent switch. The DCIU is a high-speed synchronous data link that communicates with the common control switch processor over a direct memory access (DMA) channel that reads data directly from FP memory.

data link
A term used to describe the communications link used for data transmission from a source to a destination, for example, a telephone line for data transmission.

data service unit (DSU)
A device used to access digital data channels. DATAPHONE II 2500 DSUs are synchronous data communications equipment (DCE) devices used for extended-local Lucent INTUITY system connec-

tions. The 2600 or 2700 series may also be used; these support diagnostic testing and the DATA-PHONE II Service network system.

data set
Another term for a modem, although a data set usually includes the telephone. See also *modem*.

data terminal equipment (DTE)
Standard type of data interface normally used for the endpoints in a connection. Normally the Lucent INTUITY system, most terminals, and the switch data link are DTE devices.

DBP
See *data base processor*.

DCE
See *data communications equipment*.

DCIU
See *data communications interface unit*.

DCP
See *digital communications protocol*.

DCS
See *distributed communications system*.

debug
See *troubleshooting*.

dedicated line
A communications path that does not go through a switch. A dedicated (hard-wired) path can be formed with directly connected cables. MPDMs, DSUs, or other devices can also be used to extend the distance that signals can travel directly through the building wiring.

default
A value that is automatically supplied by the system if no other value is specified.

default community
A group of telephone subscribers administered with restrictions to prevent them from sending messages to or receiving messages from other communities. If a system is administered to use communities, the default community is comprised of all the AUDIX subscribers defined on that system.

default print number
The subscriber-administered extension to which autoprinted faxes are redirected upon their receipt into the subscriber's mailbox. This default print destination is also provided as a print option when the subscriber is manually retrieving and printing faxes from the mailbox.

delivered message
A message that has been successfully transmitted to a recipient's incoming mailbox.

demand testing
Testing performed on request (usually by service personnel).

diagnostic testing
A program run for testing and determining faults in the system.

dial-ahead/dial-through
The act of interrupting or preceding INTUITY AUDIX system announcements by typing (buffering) touch-tone commands in the order the system would normally prompt for them.

dial string
A series of numbers used to initiate a call to a remote AMIS machine. A dial string tells the switch what type of call is coming (local or long distance) and gives the switch time to obtain an outgoing port, if applicable

dialed number identification service (*DNIS_SVC)
An available channel service assignment on the Lucent INTUITY system. Assigning this service to a channel permits the Lucent INTUITY system to interpret information from the switch and operate the appropriate application for the incoming telephone call.

DID
See *direct inward dialing*.

digital communications protocol (DCP)
A 64-Kbps digital data transmission code with a 160-Kbps bipolar bit stream divided into two information (I) channels and one signaling (S) channel.

digital networking
A method of transferring messages between messaging systems in a digital format. See also *INTUITY AUDIX Digital Networking*.

digital signal processor (DSP)
A specialized digital microprocessor that performs calculations on digitized signals that were originally analog and then sends the results on.

DIP switch
See *dual in-line package switch*.

direct inward dialing (DID)
The ability for an outside caller to call an internal extension without having to pass through an operator or attendant.

direct memory access (DMA)
A quick method of moving data from a storage device directly to RAM, which speeds processing.

directory
1. A Lucent INTUITY AUDIX feature that allows you to hear a subscriber's name and extension after pressing ☐ ☐ N at the activity menu. 2. A group of related files accessed by a common name in software.

display terminal
A data terminal with a screen and keyboard used for displaying Lucent INTUITY screens and performing maintenance or administration activities.

distributed communications system (DCS)
A network of two or more switches that uses logical and physical data links to provide full or partial feature transparency. Voice links are made using tie trunks.

distribution list
See *mailing list*.

DMA
See *direct memory access*.

DNIS
See *dialed number identification service*.

domain
An area where data processing resources are under common control. The INTUITY AUDIX system is one domain and an e-mail system is another domain.

DSP
See *digital signal processor*.

DSU
See *data service unit*.

DTE
See *data terminal equipment*.

DTMF
See *dual tone multifrequency*.

dual in-line package (DIP) switch
A small switch, usually attached to a printed circuit card, in which there are only two settings: on or off (or 0 or 1). DIP switches are used to configure the card in a semipermanent way.

dual language greetings
The capability of INTUITY AUDIX subscribers to create personal greetings in two different languages— one in a primary language and one in a secondary language. This capability exists when the multilingual feature is turned on, and the prompts for subscriber mailboxes can be in either of the two languages.

dual tone multifrequency (DTMF)
A way of signaling consisting of a pushbutton or touch-tone dial that sends out a sound consisting of two discrete tones that can be picked up and interpreted by telephone switches.

E

EIA interface
A set of standards developed by the Electrical Industries Association (EIA) that specifies various electrical and mechanical characteristics for interfaces between electronic devices such as computers, terminals, and modems. Also known as *RS-232*.

ELA
See Enhanced-List Application.

electronic mail
See *e-mail*.

electrostatic discharge (ESD)
The discharge of a static charge on a surface or body through a conductive path to ground, ESD can damage integrated circuits.

e-mail
The transfer of a wide variety of message types across a computer network (LAN or WAN). E-mail messages may be text messages containing only ASCII files or may be complex multimedia messages containing embedded voice messages, software files, and images.

enabled/disabled
The state of a hardware device that indicates whether it is available for use by the Lucent INTUITY system. Devices must be equipped before they can be enabled (made active). See also *equipped/unequipped*.

endpoint
See *fax endpoint*.

enhanced call transfer
An INTUITY AUDIX feature that allows compatible switches to transmit messages digitally over the BX.25 (data) link. This feature is used for quick call transfers and requires a fully integrated digital switch. Callers can only transfer to other extensions in the switch dial plan.

Enhanced-List Application (ELA)
An INTUITY AUDIX option that facilitates message delivery to large numbers of recipients. There can be up to 100 enhanced lists per system, each of which can contain up to 1500 addresses.

enhanced serial data interface (ESDI)
A software-controlled and hardware-controlled method used to store data on magnetic peripherals.

equipped/unequipped
The state of a networking channel that indicates whether Lucent INTUITY software has recognized it. Devices must be equipped before they can be enabled (made active). See also *enabled/disabled*.

error message
A message on the screen indicating that something is wrong within the system and possibly suggesting how to correct it.

errors
Problems detected by the system during operation and recorded in the maintenance log. Errors can produce an alarm if they exceed a threshold.

escape from reply
The ability to quickly return to getting messages for a subscriber who encounters a problem trying to respond to a message. To escape, the subscriber presses #.

escape to attendant
An INTUITY AUDIX feature that allows subscribers with the call answer feature to have a personal attendant or operator administered to pick up their unanswered calls. A system-wide extension could also be used to send callers to a live agent.

ESD
See *electrostatic discharge*.

ESDI
See *enhanced serial data interface*.

event
An informational messages about the system's activities. For example, an event is logged when the system is rebooted. Events may or may not be related to errors and alarms.

F

facilities restriction level (FRL)
A value that determines which types of calls the subscribers of a switch are allowed to make.

facility out-of-service (FOOS)
State of operation during which the current channel is not receiving a dial tone and is not functioning.

facsimile
1. A digitized version of written, typed, or drawn material transmitted over telephone lines and printed out elsewhere. 2. Computer-generated text or graphics transmitted over computer networks. A computer-generated fax is typically printed to a fax machine, but can remain stored electronically.

fax
See *facsimile*.

fax addressing prefix
Uniquely identifies a particular fax nodepoint to the Lucent INTUITY system. Used by the system as a "template" to differentiate all call-delivery machines on the network from each other.

fax endpoint
Any device capable of receiving fax calls. Fax endpoints include fax machines, individual PC fax modems, fax ports on LAN fax servers, and ports on fax-enabled messaging systems.

fax print destination prefix
A dial string that the Lucent INTUITY system adds to the fax telephone number the subscriber enters to print a fax. The system takes the full number (fax print destination prefix + fax telephone extension) and hunts through the machine translation numbers until it finds the specific fax endpoint.

field
An area on a screen, menu, or report where information can be typed or displayed.

FIFO
See *first-in/first-out*.

file
A collection of data treated as a basic unit of storage.

filename
Alphanumeric characters used to identify a particular file.

file redundancy
See *mirroring*.

file system
A collection of related files (programs or data) stored on disk that are required to initialize a Lucent INTUITY system.

first-in/first-out (FIFO)
A method of processing telephone calls or data in which the first call or data to be received is the first call or data to be processed.

F key
See *function key.*

FNPAC
See *foreign numbering-plan area code*.

FOOS
See *facility out-of-service*.

foreign exchange (FX)
A central office (CO) other than the one providing local access to the public telephone network.

foreign numbering-plan area code (FNPAC)
An area code other than the local area code that must be dialed to call outside the local geographical area.

format
To set up a disk, floppy diskette, or tape with a predetermined arrangement of characters so that the system can read the information on it.

FRL
See *facilities restriction level*.

function
Individual steps or procedures within a mailbox activity.

function key (F key)
A key on a computer keyboard programmed to perform a defined function when pressed. The user interface for the Lucent INTUITY system defines keys F1 through F8.

FX
See *foreign exchange*.

G

Generic 1, 2, or 3
Lucent switch system software releases, designed for serving large communities of System 75 and System 85 subscribers.

generic tape
A copy of the standard software and stand-alone tape utilities that is shipped with a new Lucent INTUITY system.

GOS
See *grade of service*.

grade of service (GOS)
A parameter that describes the delays in accessing a port on the Lucent INTUITY system. For example, if the GOS is P05, 95% of the callers hear the system answer and 5% hear ringing until a port becomes available to answer the call.

guaranteed fax
A feature of Lucent INTUITY FAX Messaging that temporarily stores faxes sent to a fax machine. In cases where the fax machine is busy or does not answer a call, the call is sent to an INTUITY AUDIX mailbox.

guest password
A feature that allows callers who are not INTUITY AUDIX subscribers to leave messages on the system by dialing a subscriber's extension and entering a system-wide guest password.

H

hard disk drive
A high-capacity data-storage and data-retrieval device that is located inside a computer. A hard disk drive stores data on nonremovable high-density magnetic media based on a predetermined format for retrieval by the system at a later date.

hardware
The physical components of a computer system. The central processing unit, disks, tape, and floppy drives are all hardware.

header
Information that the system creates to identify a message. A message header includes the originator or recipient, type of message, creation time, and delivery time.

help
A command run by pressing HELP or CTRL ? on a Lucent INTUITY display terminal to show the options available at your current screen position. In the INTUITY AUDIX system, press ▢ H on the telephone keypad to get a list of options. See also *on-line help*.

host switch
The switch directly connected to the Lucent INTUITY system over the data link. Also, the physical link connecting a Lucent INTUITY system to a distributed communications system (DCS) network.

hunt group
A group of analog ports on a switch usually administered to search for available ports in a circular pattern.

I

I/O
Input/output.

IDI
See *isolating data interface*.

IMAPI
See *INTUITY messaging application programming interface*.

INADS
See *initialization and administration system*.

information service
See *bulletin board*.

initialization
The process of bringing a system to a predetermined operational state. The start-up procedure tests hardware; loads the boot filesystem programs; locates, mounts, and opens other required filesystems; and starts normal service.

initialization and administration system (INADS)
A computer-aided maintenance system used by remote technicians to track alarms.

initialize
To start up the system for the first time.

input
A signal fed into a circuit or channel.

integrated services digital network (ISDN)
A network that provides end-to-end digital connectivity to support a wide range of voice and data services.

integrated voice processing CELP (IVC6) card
A computer circuit card that supports both fax processing and voice processing capabilities. It provides two analog ports to support six analog channels. All telephone calls to and from the Lucent INTUITY system are processed through the IVC6 card.

interface
The device or software that forms the boundary between two devices or parts of a system, allowing them to work together. See also *user interface*.

internal e-mail
Software on a PC that provides messaging capability between subscribers on the same AUDIX system, or to administered remote AUDIX systems and subscribers. Subscribers can create, send, and receive a message that contains multiple media types; specifically, voice, fax, text, or file attachments (software files, such as a word processing or spreadsheet file).

interrupt request (IRQ)
Within a PC, a signal sent from a device to the CPU to temporarily suspend normal processing and transfer control to an interrupt handling routine.

INTUITY AUDIX Digital Networking
A Lucent INTUITY feature that allows customers to link together up to 500 remote Lucent INTUITY machines for a total of up to 500,000 remote subscribers. See also *digital networking*.

INTUITY Message Manager
A Windows-based software product that allows INTUITY AUDIX subscribers to receive, store, and send their voice/FAX messages from a PC. The software also enables subscribers to create and send multimedia messages that include voice, fax, file attachments, and text.

INTUITY messaging application programming interface (IMAPI)
A software function-call interface that allows INTUITY AUDIX to interact with Lucent INTUITY Message Manager.

IRQ
See *interrupt request*.

ISDN
See *integrated services digital network*.

isolating data interface (IDI)
A synchronous, full duplex data device used for cable connections between a Lucent INTUITY GPSC-AT/E card and the switch data communications interface unit (DCIU).

IVC6
See *integrated voice processing CELP (IVC6) card.*

J

jumper
Pairs or sets of small prongs or pins on circuit cards and mother boards the placement of which determines the particular operation the computer selects. When two pins are covered, an electrical circuit is completed. When the jumper is uncovered, the connection is not made. The computer interprets these electrical connections as configuration information.

K

L

label
The name assigned to a disk device (either a removable tape cartridge or permanent drive) through software. Cartridge labels may have a generic name (such as “3.3”) to show the software release, or a descriptive name if for back-up copies (such as “back01”). Disk drive labels usually indicate the disk position (such as “disk00” or “disk02”).

LAN
See *local area network*.

last-in/first-out (LIFO)
A method of processing telephone calls or data in which the last call (or data) received is the first call (or data) to be processed.

LCD
See *liquid crystal display*.

leave word calling (LWC)
A switch feature that allows the calling party to leave a standard (nonvoice) message for the called party using a feature button or dial access code.

LED
See *light emitting diode*.

LIFO
See *last-in/first-out*.

light emitting diode (LED)
A light on the hardware platform that shows the status of operations.

liquid crystal display (LCD)
The 10-character alphanumeric display that shows the status of the system, including alarms.

load
The process of reading software from external storage (such as disk) and placing a copy in system memory.

local area network (LAN)
A network of PCs that communicate with each other and that normally share the resources of one or more servers. Operation of Lucent INTUITY Message Manager requires that the INTUITY AUDIX system and the subscribers’ PCs be on a LAN.

local AUDIX machine
The Lucent INTUITY system where a subscriber's INTUITY AUDIX mailbox is located. All subscribers on this home machine are called *local subscribers*.

local installation
A switch, adjunct, or peripheral device installed physically near the host switch or system. See also *collocated*.

local network
An INTUITY AUDIX Digital Network in which all Lucent INTUITY systems are connected to the same switch.

login
A unique code a subscriber must enter to gain approved access to the Lucent INTUITY system. See also *password*.

login announcement
A feature enabling the system administrator and other designated subscribers to create a mail message that is automatically played to all INTUITY AUDIX subscribers every time they log in to the system.

Lotus Notes
Information management software for work groups that allows individuals to share and manipulate information over a local or wide area network

LWC
See *leave word calling*.

M

magnetic peripherals
Data storage devices that use magnetic media to store information. Such devices include hard disk drives, floppy disk drives, and cartridge tape drives.

mailbox
A portion of disk memory allotted to each Lucent INTUITY system subscriber for creating and storing outgoing and incoming messages.

mailing list
A group of subscriber addresses assigned a list ID# and public or private status. A mailing list may be used to simplify the sending of messages to several subscribers.

maintenance
The process of identifying system errors and correcting them, or taking steps to prevent problems from occurring.

major alarm
An alarm detected by Lucent INTUITY software that affects at least one fourth of the Lucent INTUITY ports in service. Often a major alarm indicates that service is affected.

MANOOS
See *manually out-of-service*.

manually out-of-service
State of operation during which a unit has been intentionally taken out of service.

MAP
See *multi-application platform*.

mean time between failures
The average time a manufacturer estimates will elapse before a failure occurs in a component or system.

media type
The form a message takes. The media types supported by the Lucent INTUITY system are voice, text, file attachments, and fax.

memory
A device that stores logic states such that data can be accessed and retrieved. Memory may be temporary (such as system RAM) or permanent (such as disk).

menu
A list of options displayed on a computer terminal screen or spoken by a voice processing system. Subscribers choose the option that reflects what action they want the system to take.

menu tree
The way in which nested automated attendants are set up.

message categories
Groups of messages in INTUITY AUDIX subscribers' mailboxes. Categories include *new*, *unopened*, and *old* for the incoming mailbox and *delivered*, *accessed*, *undelivered*, *undeliverable* (not deliverable), and *file cabinet* for the outgoing mailbox.

message component
A media type included in a multimedia message. These types include voice, text, file attachments, and fax messages.

message delivery
An optional Lucent INTUITY feature that permits subscribers to send messages to any touch-tone telephone, as long as the telephone number is in the range of allowable numbers. This feature is an extension of the AMIS analog networking feature and is automatically available when the AMIS feature is activated.

Message Manager
See *INTUITY Message Manager*.

message waiting indicator (MWI)
An indicator that alerts Lucent INTUITY subscribers that they have received new mail messages. An MWI can be an LED or neon lamp, or an audio tone (stutter dial tone).

message waiting lamp (MWL)
See *message-waiting indicator*.

migration
An installation that moves data to the Lucent INTUITY system from another type of Lucent messaging system, for example, from AUDIX R1, DEFINITY AUDIX, or AUDIX Voice Power.

minor alarm
An alarm detected by maintenance software that affects less than one fourth of the Lucent INTUITY ports in service, but has exceeded error thresholds or may impact service.

mirroring
A Lucent INTUITY system feature that allows data from crucial filesystems to be continuously copied to back-up (mirror) filesystems while the system is running. If the system has some problem where an original filesystem cannot be used, the backup filesystem is placed in service automatically.

ML
MERLIN LEGEND application identifier. See *application identifier*.

mode code
A string of touch-tones from aa switch in an inband integration. A mode code may send the INTUITY AUDIX system information such as call type, calling party, called party, and on/off signals for message waiting indicators.

modem
A device that converts data from a form that is compatible with data processing equipment (digital) to a form compatible with transmission facilities (analog), and vice-vera.

modular
A term that describes equipment made of plug-in units that can be added together to make the system larger, improve its capabilities, or expand its size.

modular processor data module (MPDM)
A data device that converts RS-232C or RS-449 protocol signals to digital communications protocol (DCP) used by System 75/85, Generic1, and Generic 3 switches. MPDMs can connect the Lucent INTUITY system to a switch DCIU or SCI link or connect terminals to a switch port card.

MPDM
See *modular processor data module*.

MT
Maintenance application identifier. See *application identifier*.

MTBF
See *mean time between failures*.

multi-application platform (MAP)
The computer hardware platform used by the Lucent INTUITY system.

multilingual feature
A feature that allows announcement sets to be active simultaneously in more than one language on the system. Mailboxes can be administered so that subscribers can hear prompts in the language of their choice.

MWI
See *message waiting indicator*.

N

networking
See *INTUITY AUDIX Digital Networking*.

networking prefix
A set of digits that identifies a Lucent INTUITY machine.

night attendant
The automated attendant created on a MERLIN LEGEND switch that automatically becomes active during off-hours. The night attendant substitutes for one or more daytime attendants.

not deliverable message
A message that could not be delivered after a specified number of attempts. This usually means that the subscriber's mailbox is full.

NPA
See *numbering plan area*.

NT
Networking application identifier. See *application identifier*.

MWL
See *message waiting lamp*.

numbering plan area
Formal name for 3-digit telephone area codes in North America. Within an area code, no two telephone lines may have the same 7-digit phone number. The code is often designated as *NXX*, to indicate the three digits.

O

off-hook
See *switch hook*.

on-hook
See *switch hook*.

on-line help
A Lucent INTUITY system feature that provides information about user interface windows, screens, and menus by pressing a predetermined key. See also *help*.

open systems interconnection (OSI)
An internationally accepted framework of standards for communication between systems made by different vendors.

operating system (OS)
The set of software programs that runs the hardware and interprets software commands.

option
A choice selected from a menu, or an argument used in a command line to specify program output by modifying the execution of a command. When you do not specify any options, the command executes according to its default options.

OS
See *operating system*.

OSI
See *open systems interconnection*.

outcalling
A Lucent INTUITY system feature that allows the system to dial subscribers' numbers to inform them they have new messages.

outgoing mailbox
A storage area on the Lucent INTUITY system where subscribers can keep copies of messages for future reference or action.

P

parallel transmission
The transmission of several bits of data at the same time over different wires. Parallel transmission of data is usually faster than serial transmission.

password
1. A word or character string recognized automatically by the Lucent INTUITY system that allows a subscriber access to his/her mailbox or a system administrator access to the system data base. 2. An alphanumeric string assigned to local and remote networked machines to identify the machines or the network. See also *login.*

password aging
An INTUITY AUDIX feature that allows administrators to set a length of time after which a subscriber's AUDIX password or the administrator's system password expires. The subscriber or administrator must then change the password.

PBX
See *private branch exchange*.

PC
See *power converter.*

PDM (processor data module)
See *modular processor data module (MPDM)*.

peripheral device
Equipment such as a printer or terminal that is external to the Lucent INTUITY cabinet, but necessary for full operation and maintenance of the system. Also called a *peripheral*.

personal directory
An INTUITY AUDIX feature that allows each subscriber to create a private list of customized names.

personal fax extension
See *secondary extension*.

PI
See *processor interface*.

PIB
See *processor interface*.

pinouts
The signal description per pin number for a particular connector.

PMS
See *property management system*.

port
A connection or link between two devices that allows information to travel to a desired location. For example, a switch port connects to a Lucent INTUITY voice port to allow a caller to leave a message.

POST
See *power-on self test*.

power on self test (POST)
A set of diagnostics stored in ROM that tests components such as disk drives, keyboard, and memory each time the system is booted. If problems are identified, a message is sent to the screen.

priority call answer
An INTUITY AUDIX feature that allows subscribers to designate a call answer message as a priority message. To make a message a priority message, the caller presses 2 after recording.

priority messaging
An INTUITY AUDIX feature that allows some subscribers to send messages that are specially marked and preferentially presented to recipients. See also *priority outcalling*.

priority outcalling
An INTUITY AUDIX feature that works with the priority messaging feature by allowing the message recipient to elect to be notified by outcalling only when a priority message has been received. See also *priority messaging*.

private branch exchange (PBX)
An analog, digital, or electronic telephone switching system where data and voice transmissions are not confined to fixed communications paths, but are routed among available ports or channels. See also *switch*.

private mailing list
A list of addresses that only the Lucent INTUITY system subscriber who owns it can access.

private messaging
A feature of INTUITY AUDIX that allows a subscriber to send a message that cannot be forwarded by the recipient.

processor data module (PDM)
See *modular processor data module (MPDM)*.

processor interface (PI)
A System 75, Generic 1, Generic 3i, Generic 3s, and Generic 3vs switch data link. Also called *processor interface board (PIB)*.

programmed function key
See *function key*.

property management system (PMS)
A product used by lodging establishments to automate the management of guest records, reservations, room assignments, and billing. In an integrated PMS environment, special software links the PMS to the Lucent INTUITY Lodging system so that both systems share a common set of messages and commands.

protocol
A set of conventions or rules governing the format and timing of message exchanges (signals) to control data movement and the detection and possible correction of errors.

public mailing list
A list of addresses that any INTUITY AUDIX subscriber can use if that subscriber knows the owner's list ID number and extension number. Only the owner can modify a public mailing list.

pulse-to-tone converter
A device connected to the switch that converts signals from a rotary pulses to touch tone signals. This device allows callers to use rotary telephones to access options in a Lucent INTUITY subscriber's mailbox or in an automated attendant.

R

RAM
See *random access memory*.

random access memory (RAM)
The memory used in most computers to store the results of ongoing work and to provide space to store the operating system and applications that are actually running at any given moment.

read-only memory (ROM)
A form of computer memory that allows values to be stored only once; after the data is initially recorded, the computer can only read the contents. ROM is used to supply constant code elements such as bootstrap loaders, network addresses, and other more or less unvarying programs or instructions.

reboot
See *boot*.

remote access
Sending and receiving data to and from a computer or controlling a computer with terminals or PCs connected through communication (that is, telephone) links.

remote installation
A system, site, or piece of peripheral equipment that is installed in a different location from the host switch or system.

remote maintenance
The ability of Lucent personnel to interact with a remote computer through a telephone line or LAN connection to perform diagnostics and some system repairs. See also *remote service center*.

remote network
A network in which the systems are integrated with more than one switch.

remote service center
A Lucent or Lucent-certified organization that provides remote support to Lucent INTUITY customers. Depending upon the terms of the maintenance contract, your remote service center may be notified of all major and minor alarms and have the ability to remotely log in to your system and remedy problems. See also *remote maintenance.*

remote terminal
A terminal connected to a computer over a telephone line.

remote subscribers
INTUITY AUDIX subscribers whose mailboxes reside on a remote INTUITY AUDIX Digital Networking machine.

REN
See *ringer equivalence number*.

reply loop escape
An INTUITY AUDIX feature that allows a subscriber the option of continuing to respond to a message after trying to reply to a nonsubscriber message.

reply to sender
An INTUITY AUDIX feature that allows subscribers to immediately place a call to the originator of an incoming message if that person is in the switch's dial plan.

request to send (RTS)
One of the control signals on an EIA-232 connector that places the modem in the originate mode so that it can begin to send.

restart
1. A Lucent INTUITY feature that allows INTUITY AUDIX subscribers who have reached the system through the call answer feature to access their own mailboxes by entering the ☐ R (Restart) command. This feature is especially useful for long-distance calls or for subscribers who want to access the Lucent INTUITY system when all the ports are busy. 2. The reinitialization of certain software, for example, *restarting* the messaging system.

restore
The process of recovering lost or damaged files by retrieving them from available back-up tapes, floppy diskette, or another disk device.

retention time
The amount of time messages are saved on disk before being automatically deleted from a subscriber's mailbox.

reusable upgrade kit (RUK)
A package shipped to the customer's site prior to an upgrade that contains materials the technician needs to complete the installation. This package includes an A/B switch box, a keyboard, a 25-foot coaxial cable, two T adapters, and terminations to a LAN circuit card. It remains the property of Lucent once the installation is finished.

right-to-use (RTU) fee
A charge to the customer to access certain functions or capacities that are otherwise restricted, for example, additional voice or networking ports or hours of speech storage. Lucent Technologies personnel can update RTU parameters either at the customer's site or remotely via a modem.

ringer equivalence number (REN)
A number required in the United States for registering your telephone equipment with a service provider.

ROM
See *read-only memory*.

RS-232
See *EIA interface.*

RTS
See *request to send*.

RUK
See *reusable upgrade kit*.

S

scan
To automatically play mail messages, headers, or both.

scheduled delivery time
A time and/or date that an INTUITY AUDIX subscriber can assign to a message that tells the system when to deliver it. If a delivery time is omitted, the system sends the message immediately.

screen
That portion of the Lucent INTUITY user interface through which most administrative tasks are performed. Lucent INTUITY screens request subscriber input in the form of a command from the `enter command:` prompt.

SCSI
See *small computer system interface*.

secondary extension
A second, fax-dedicated extension that directs incoming faxes directly into a subscriber's mailbox without ringing the telephone. The secondary extension shares the same mailbox as the voice extension, but acts like a fax machine. Also called *personal fax extension*.

serial transmission
The transmission of one bit at a time over a single wire.

server
A computer that processes and stores data that is used by other smaller computers. For Lucent INTUITY Message Manager, INTUITY AUDIX is the server. See also *client*.

shielded cables
Cables that are protected from interference with metallic braid or foil.

SID
See *switch integration device*.

SIMM
See *single in-line memory module*.

simplified message service interface (SMSI)
Type of data link connection to an integrated 1A ESS or 5ESS switch in the Lucent INTUITY system.

simplified message desk interface (SMDI)
Also known as station message desk interface. Type of data link from the central office that contains information and instructions for the Lucent INTUITY system. With SMDI, the caller need not re-enter the called number once the call terminates to the Lucent INTUITY system. See also *simplified message service interface*.

single in-line memory module (SIMM)
A method of containing random access memory (RAM) chips on narrow strips that attach directly to sockets on the CPU circuit card. Multiple SIMMs are sometimes installed on a single CPU circuit card.

small computer systems interface (SCSI)
An interface standard defining the physical, logical, and electrical connections to computer system peripherals such as tape and disk drives.

SMDI
See *station message desk interface*.

SMDR
See *station message detail recording*.

SMSI
See *simplified message service interface*.

SP
signal processor

SSP
scaleable signal processor

station message desk interface (SMDI)
See *simplified message desk interface*.

station message detail recording
See *call detail recording (CDR)*.

subscriber
A person who has been assigned the ability to access the INTUITY AUDIX Voice Messaging system.

surge
A sudden rise and fall of voltage in an electrical circuit.

surge protector
A device that plugs into the telephone system and the commercial AC power outlet to protect the telephone system from damaging high-voltage surges.

SW
Switch integration application identifier. See *application identifier*.

switch
An automatic telephone exchange that allows the transmission of calls to and from the public telephone network. See also *private branch exchange (PBX)*.

switched access
A connection made from one endpoint to another through switch port cards. This allows the endpoint (such as a terminal) to be used for several applications.

switch hook
The device at the top of most telephones that is depressed when the handset is resting in the cradle (that is, when the telephone is *on hook*). This device is raised when the handset is picked up (that is, when the telephone is *off hook*).

switch-hook flash
A signaling technique in which the signal is originated by momentarily depressing the switch hook.

switch integration
Sharing of information between a messaging system and a switch to provide a seamless interface to callers and system subscribers. A fully integrated INTUITY AUDIX system, for example, answers each incoming telephone call with information taken directly from the switch. Such information includes the number being called and the circumstances under which the call was sent to it, for example, covered from a busy or unanswered extension.

switch integration device (SID)
A combination of hardware and software that passes information from the switch to the Lucent INTUITY system thus allowing it to share information with non-Lucent switches. The operation of a SID is unique to the particular switch with which it interfaces.

switch network
Two or more interconnected switching systems.

synchronized mailbox
A mailbox that is paired with a corresponding mailbox in another domain and linked via software that keeps track of changes to either mailbox. When the contents of one mailbox change, the software replicates that change in the other mailbox.

synchronizer
The name given to the trusted server by the e-mail vendor, Lotus Notes.

synchronous communication
A method of data transmission in which bits or characters are sent at regular time intervals, rather than being spaced by start and stop bits. See also *asynchronous communication*.

synchronous transmission
A type of data transmission where the data characters and bits are exchanged at a fixed rate with the transmitter and receiver synchronized. This allows greater efficiency and supports more powerful protocols.

System 75
An advanced digital switch manufactured by Lucent Technologies that supports up to 800 lines for voice and data communications.

System 85
An advanced digital switch manufactured by Lucent Technologies that supports up to 3000 lines for voice and data communications.

system configuration
See *configuration*.

T

T.30
The standard for Group III fax machines that covers the protocol used to manage a fax session and negotiate the capabilities supported by each fax endpoint.

tape cartridge
One or more spare removable cartridges required to back up system information.

tape drive
The physical unit that holds, reads, and writes to magnetic tape.

TCP/IP
See *transmission control protocol/internet protocol*.

TDD
See *telecommunications device for the deaf*.

TDM
See *time division multiplexing*.

telecommunications device for the deaf (TDD)
A device with a keyboard and display unit that connects to or substitutes for a telephone. The TDD allows a deaf or hearing-impaired person to communicate over the telephone lines with other people who have TDDs. It also allows a deaf person to communicate with the INTUITY AUDIX system.

terminal
See *display terminal*.

terminal type
A number indicating the type of terminal from which a subscriber is logging in to the Lucent INTUITY system. Terminal type is the last required entry before gaining access to the Lucent INTUITY display screens.

terminating resistor
A grounding resistor placed at the end of a bus, line, or cable to prevent signals from being reflected or echoed.

time division multiplexing (TDM)
A method of serving multiple channels simultaneously over a common transmission path by assigning the transmission path sequentially to the channels, with each assignment being for a discrete time interval.

tip/ring
A term used to denote the analog telecommunications interface.

tone generator
A device acoustically coupled to a rotary telephone used to produce touch-tone signals.

traffic
The flow of attempts, calls, and messages across a telecommunications network.

translations
Software assignments that tell a system what to expect on a certain voice port or the data link, or how to handle incoming data. Translations customize the Lucent INTUITY system and switch features for subscribers.

transmission control protocol/internet protocol (TCP/IP)
A suite of protocols that allow disparate hosts to connect over a network. Transmission control protocol (TCP) organizes data on both ends of a connection and ensures that the data that arrives matches that which was sent. Internet protocol (IP) ensures that a message passes through all the necessary routers to the proper destination.

T/R
See *tip/ring*.

troubleshooting
The process of locating and correcting errors in computer programs (also called *debugging)* or systems.

trusted server
A server that uses IMAPI to access an INTUITY AUDIX mailbox on behalf of a subscriber and is empowered to do everything to a subscriber message that INTUITY AUDIX can do.

TTS
Text-to-Speech

U

UCD
See *uniform call distribution*.

Undelete
An INTUITY AUDIX feature that allows subscribers to restore the last message deleted by pressing ☐ U.

undelivered message
A message that has not yet been sent to an INTUITY AUDIX subscriber's incoming mailbox. The message resides in the sender's outgoing mailbox and may be modified or redirected by the sender.

unequipped
See *equipped/unequipped*.

unfinished message
A message that was recorded but not approved or addressed, usually as the result of an interrupted INTUITY AUDIX session. Also called *working message*.

uniform call distribution (UCD)
The type of call-distribution group (or hunt group) of analog port cards on some switches that connects subscribers to the INTUITY AUDIX system. System 75, Generic 1, Generic 3, and some central office switches use UCD groups. See also *call-distribution group*.

uninterruptable power supply (UPS)
An auxiliary power unit that provides continuous power in cases where commercial power is lost.

UNIX operating system
A multi-user, multi-tasking computer operating system.

upgrade
An installation that moves a Lucent INTUITY system to a newer release.

untouched message
An INTUITY AUDIX feature that allows a subscriber to keep a message in its current category by using the ☐ ☐ H (Hold) command. If the message is in the new category, message-waiting indication remains active (for example, the message-waiting lamp remains lit).

UPS
See *uninterruptable power supply*.

U. S. 123
An alternate announcement set in U. S. English whose prompts use numbers, not letters, to identify telephone keypad presses. For example, a prompt might say, "*Press star three,"* instead of, *"Press star D*."

user interface
The devices by which subscribers access their mailboxes, manage mailing lists, administer personal greetings, and use other messaging capabilities. Types of user interfaces include a touch-tone telephone keypad and a PC equipped with Lucent INTUITY Message Manager.

subscriber population
A combination of different types of subscribers on which Lucent INTUITY configuration guidelines are based.

V

vector
A customized program in the switch for processing incoming calls.

VM
Voice messaging application identifier. See *application identifier*.

voice link
The Lucent INTUITY analog connection(s) to a call-distribution group (or hunt group) of analog ports on the switch.

voice mail
See *voice message*.

voice mailbox
See *mailbox*.

voice message
Digitized information stored by the Lucent INTUITY system on disk memory. Also called *voice mail*.

voice port
The IVC6 port that provides the interface between the Lucent INTUITY system and the analog ports on the switch.

voice terminal
A telephone used for spoken communications with the Lucent INTUITY system. A touch-tone telephone with a message-waiting indicator is recommended for INTUITY AUDIX subscribers.

voicing
1. Speaking a message into the Lucent INTUITY system during recording. 2. Having the system play back a message or prompt to a subscriber.

VP
Voice platform application identifier. See *application identifier*.

VR
Voice response application identifier. See *application identifier*.

W

WAN
See *wide area network*.

wide area network (WAN)
A data network typically extending a local area network (LAN) over telephone lines to link with LANS in other buildings and/or geographic locations.

window
That portion of the Lucent INTUITY user interface through which you can view system information or status.

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