

Lucent Technologies
Bell Labs Innovations



INTUITYTM Messaging Solutions

Release 4
System Description

585-310-235
Comcode 108096819
Issue 2
October 1997

Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

Lucent Corporate Security

Whether or not immediate support is required, all toll fraud incidents involving Lucent products or services should be reported to Lucent Corporate Security at 1 800 821-8235. In addition to recording the incident, Lucent Corporate Security is available for consultation on security issues, investigation support, referral to law enforcement agencies, and educational programs.

Lucent Technologies Fraud Intervention

If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call Technical Service Center Toll Fraud Intervention Hotline at 1 800 643-2353.

Federal Communications Commission Statement

Part 15: Class B Statement. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving television or radio antenna where this may be done safely.
- To the extent possible, relocate the receiver with respect to the telephone equipment.
- Where the telephone equipment requires AC power, plug the telephone into a different AC outlet so that the telephone equipment and receiver are on different branch circuits.

Part 15: Personal Computer Statement. This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computing input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with noncertified peripherals is likely to result in interference to radio and television reception.

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by an FCC registration number.

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 Rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Canadian Department of Communications (DOC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Trademarks

See the section titled "About This Book."

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Warranty

Lucent Technologies provides a limited warranty on this product. Refer to the "Limited Use Software License Agreement" card provided with your package.

European Union Declaration of Conformity

Lucent Technologies Business Communications Systems declares that the equipment specified in this document conforms to the referenced European Union (EU) Directives and Harmonized Standards listed below:

EMC Directive 89/336/EEC
Low-Voltage Directive 73/23/EEC



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

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by the Product Documentation, Lucent Technologies, Columbus, OH.

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About This Book

Purpose

The *INTUITY Messaging Solutions Release 4 System Description*, 585-310-235, is an overview of the INTUITY™ AUDIX® Release 4 (R4) system. It includes detailed information on system hardware, software, configurations, site requirements, sizing, components, features, and connectivity.

This book serves as a reference to:

- Answer questions about what a Lucent INTUITY R4 system can do
- Describe Lucent INTUITY R4 standard and optional features
- Compare and contrast the different platforms available with Lucent INTUITY R4
- Provide basic information regarding how a Lucent INTUITY R4 system interacts with peripheral devices and systems, such as switches and electronic mail (e-mail) servers
- Provide an overview of administrative features and tasks, including how to maintain the Lucent INTUITY R4 system
- Describe security features
- Provide an overview of the installation process, including planning considerations for customers upgrading from previous INTUITY AUDIX releases and for customers migrating from non-INTUITY AUDIX systems

Intended Audiences

This book is intended primarily for the customer using a Lucent INTUITY system, specifically the telecommunications manager and system administrator. Secondary audiences include the following from Lucent Technologies:

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

Release History

This is the second release of this book.

How to Use This Book

The *INTUITY Messaging Solutions Release 4 System Description*, 585-310-235, is organized into the following sections:

- [About This Book](#)

This section describes the purpose of the book, intended audiences, organization, conventions, trademarks and service marks, and related resources. It also explains how to make comments about the book.
- [Chapter 1, “Introduction to Lucent Technologies Intuity Messaging Solutions Release 4 System”](#)

This chapter contains a high-level description of the Lucent INTUITY system and describes the Lucent INTUITY R4 product offer.
- [Chapter 2, “System Components and Capacities”](#)

This chapter describes the hardware and software components that make up a Lucent INTUITY R4 system. Additionally, this chapter describes component and capacity differences among the platforms that run INTUITY AUDIX R4 software.
- [Chapter 3, “System Features Description”](#)

This chapter describes the messaging feature applications of the Lucent INTUITY system. It also includes client hardware requirements, where applicable, and high-level system planning considerations.

- [Chapter 4, “Networking”](#)

This chapter describes the three types of networking supported by Lucent INTUITY R4.

- [Chapter 5, “Switch Integration”](#)

This chapter describes some types of switches and requirements for these switches in order to integrate with the Lucent INTUITY system.

- [Chapter 6, “Administration and Maintenance”](#)

This chapter describes in detail the AUDIX and platform administration and maintenance features of the Lucent INTUITY R4 system.

- [Chapter 7, “New Installations, Upgrades, and Migrations”](#)

This chapter describes planning considerations and site preparations necessary for the:

- Successful installation of a new Lucent INTUITY R4 system
- Successful upgrade of an existing system to the R4 software and hardware
- Successful migration from another Lucent INTUITY family of products to a Lucent INTUITY R4 system

- [Appendix A, “Release History”](#)

This appendix lists past releases of the Lucent INTUITY product, along with a brief description of the release features and contents.

- [Appendix B, “Security”](#)

This appendix describes the application tools and administrative options available to help secure an INTUITY AUDIX R4 system against unauthorized usage from external and internal sources.

- [Glossary](#)

These sections provides a list of abbreviations and acronyms used in Lucent INTUITY system documentation and provides definitions of terms used within Lucent INTUITY system documentation, respectively.

- [Index](#)

The Index provides an alphabetical listing of principal subjects covered in this book.

Conventions Used in This Book

The following conventions are used in Lucent INTUITY documentation:

- The words “subscriber” and “user” are interchangeable terms that describe a person administered on the INTUITY system. The word “user” is the preferred term in the text; however, “subscriber” appears on most of the screens.
- The system displays *windows*, *screens*, and *menus*. “Windows” show system information (Figure 1). “Screens” request user input. This input is either a value or other specific information you must type into a field (Figure 2) or a command you must enter from the `enter` command: prompt (Figure 3).

“Menus” (Figure 4) present options from which you can choose to view another menu, screen, or window.

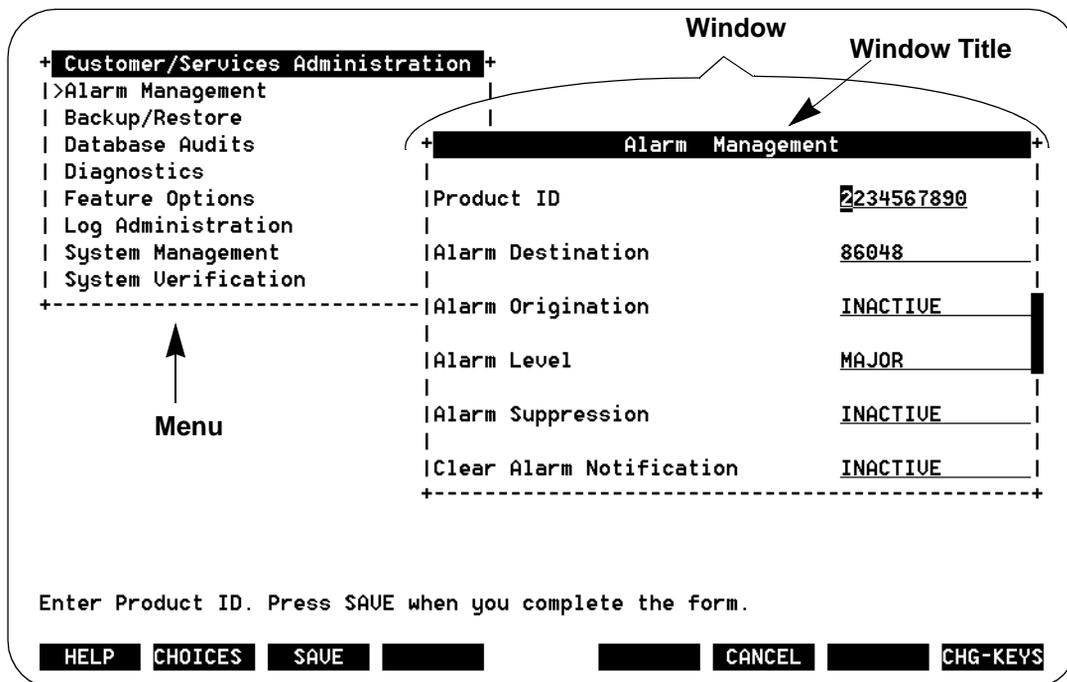


Figure 1. Example of an INTUITY Window

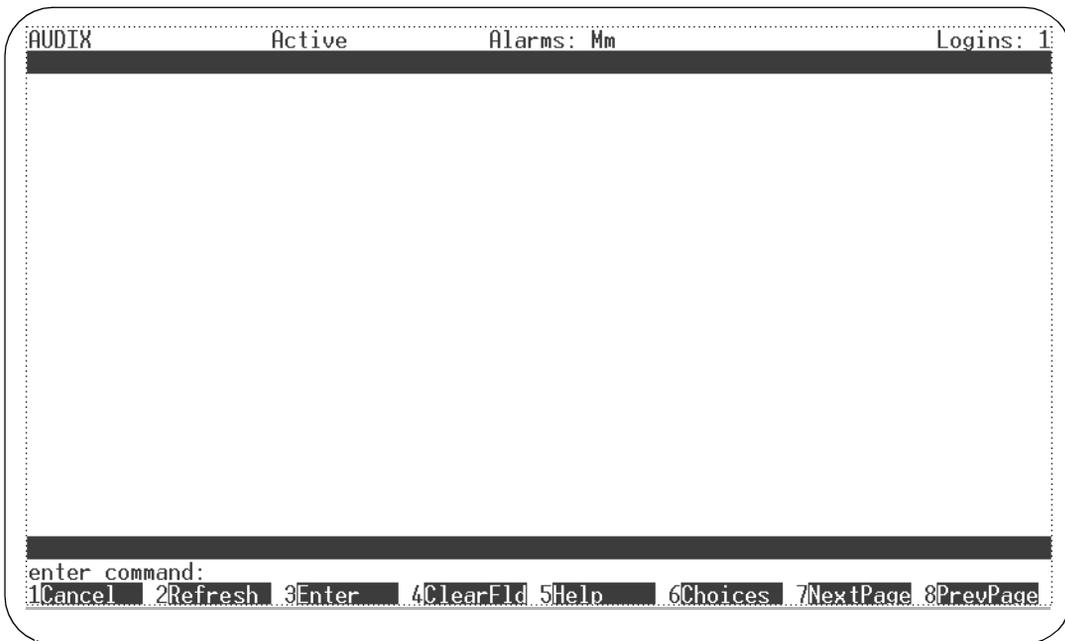


Figure 2. Example of an INTUITY Screen

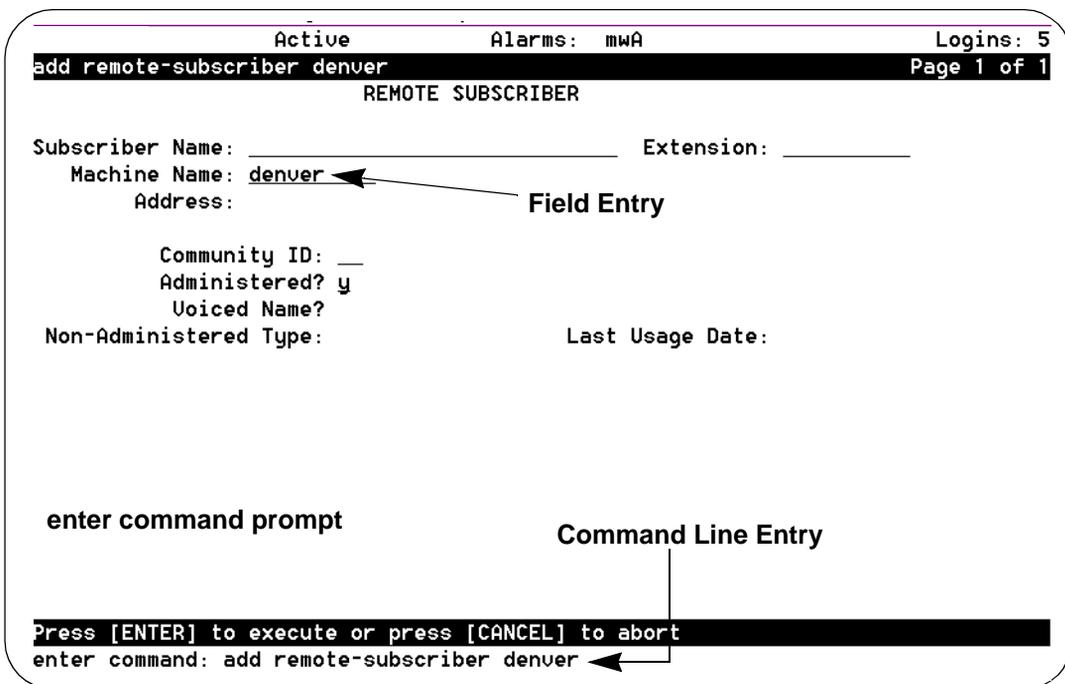


Figure 3. Example of an INTUITY Screen with an Entry in a Field and in the Command Line

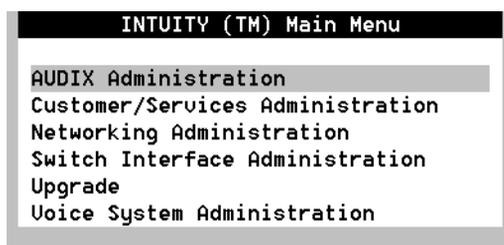


Figure 4. Example of a Lucent INTUITY Menu

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 .

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

Press .

- A combination keystroke is a series of keystrokes that combines 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 while typing the letter “d” and then typing the number “1” is shown as

Press + .

- 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 function key 3 is shown as

Press (Save).

- 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 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 the number of ports to be dedicated to outbound traffic in the
Maximum Simultaneous Ports: field.
```

Example 2:

The system displays the message:

```
Alarm Form Update was successful.
```

- 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

```
> Customer/Services Administration
```

```
> Alarm Management
```

In this example, you would access the Lucent INTUITY main menu and select the line item `Customer/Service Administration`. From the `Customer/Service Administration` menu that then displays, you would select the line item `Alarm Management`.

- Screens shown in this book are examples only. The screens you see on your machine will be similar, but not exactly the same in all cases.

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:

Type **high** or **low** in the `Speed:` field.

- Command variables are shown in **bold** 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

This book uses the following symbols to call your attention to potential problems that could cause personal injury, damage to equipment, loss of data, service interruptions, instances of toll fraud, or breaches of 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.

Trademarks and Service Marks

The following trademarked products are mentioned in books in the Lucent INTUITY document set:

- AT is a trademark of Hayes Microcomputer Products, Inc.
- AUDIX is a registered trademark of Lucent Technologies.
- cc:Mail is a trademark of cc:Mail, a subsidiary of Lotus Development Corporation.
- COMSPHERE is a registered trademark of Paradyne Corp.
- CONVERSANT Voice Information System is a registered trademark of Lucent Technologies.
- DEFINITY is a registered trademark of Lucent Technologies.
- DMS-100 is a trademark of Northern Telecom Limited.
- Dterm is a trademark of NEC Telephones, Inc.
- Equinox is a trademark of Equinox Systems, Inc.
- Eudora is a trademark of Qualcomm, Inc.

- 5ESS is a registered trademark of Lucent Technologies.
- INTUITY is a trademark of Lucent Technologies.
- Lotus is a registered trademark of Lotus Development Corporation.
- Lotus Notes is a registered trademark of Lotus Development Corporation.
- Lotus Mail is a registered trademark of Lotus Development Corporation.
- MEGAPORT is a trademark of Equinox Systems, Inc.
- MEGAPLEX is a trademark of Equinox Systems, Inc.
- Meridian is a trademark of Northern Telecom Limited.
- MERLIN LEGEND is a registered trademark of Lucent Technologies.
- Microcom Networking Protocol is a registered trademark of Microcom, Inc.
- Microsoft is a registered trademark of Microsoft Corporation.
- MS is a registered trademark of Microsoft Corporation.
- MS-DOS is a registered trademark of Microsoft Corporation.
- Mitel is a trademark of Mitel Corporation.
- NEAX is a trademark of NEC Telephone, Inc.
- NEC is a registered trademark of NEC Telephone, Inc.
- Netscape is a trademark of Netscape Communications Corporation.
- Netscape is a trademark of Netscape Communications Corporation.
- Netware is a registered trademark of Novell, Inc.
- Netware Loadable Module is a registered trademark of Novell, Inc.
- Northern Telecom is a registered trademark of Northern Telecom Limited.
- Novell is a registered trademark of Novell, Inc.
- Paradyne is a registered trademark of AT&T.
- Phillips is a registered trademark of Phillips Screw Company.
- PowerMac is a trademark of Apple, Inc.
- Rolm is a registered trademark of International Business Machines.
- SL-1 is a trademark of Northern Telecom Limited.
- softFAX is a registered trademark of VOXEM, Inc.
- Solaris is a registered trademark of Sun Microsystems, Inc.
- SUPERSET is a trademark of Mitel Corporation.
- SX-100 is a trademark of Mitel Corporation.
- SX-200 is a trademark of Mitel Corporation.
- SX-2000 is a trademark of Mitel Corporation.

- TMI is a trademark of Texas Micro Systems, Inc.
- UNIX is a registered trademark of UNIX Systems Laboratories, Inc.
- Voice Bridge is a registered trademark of Voice Technologies Group, Inc.
- VOXEM is a registered trademark of VOXEM, Inc.
- VT100 is a trademark of Digital Equipment Corporation.
- Windows is a trademark of Microsoft Corporation.

Related Resources

This section describes additional documentation and training available for you to learn more about the Lucent INTUITY product.

Documentation

Table 1 is an abbreviated list of the documentation related to an INTUITY R4 system. See the inside front cover for information on how to order Lucent INTUITY documentation.

Table 1. Lucent INTUITY R4 Documentation Set

Title and Document Number	Comcode	Issue No.
General Information		
<i>INTUITY Messaging Solutions Release 4 System Description, 585-310-235</i>	108096819	2
<i>BCS Product Security Handbook, 555-025-600</i>	107852469	5
CD-ROM Offers		
<i>INTUITY Messaging Solutions Release 4 Administration, 585-310-803</i>	108096777	2
<i>INTUITY Messaging Solutions Release 4 Administration, 585-310-803</i>	108153693	3
<i>INTUITY Messaging Solutions Release 4 Reference, 585-310-804</i>	108096751	2
<i>INTUITY Messaging Solutions Release 4 Reference, 585-310-804</i>	108153685	3

Continued on next page

Table 1. Lucent INTUITY R4 Documentation Set — Continued

Title and Document Number	Comcode	Issue No.
Planning		
<i>INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606</i>	107889230	2
<i>INTUITY Messaging Solutions Release 4 Change Description and Upgrade Planning, 585-310-607</i>	108096884	3
<i>INTUITY Messaging Solutions Release 4 System Installation Worksheets</i>	WEB delivery only	
Installation		
<i>INTUITY Messaging Solutions Release 4 Migration Procedures, 585-310-167</i>	108152612	3
<i>INTUITY Messaging Solutions Release 4 Upgrade Procedures, 585-310-168</i>	108096843	4
<i>INTUITY Messaging Solutions Release 4 MAP/5P System Installation, 585-310-185 (INTUITY R4.3 release only)</i>	108123944	3
<i>INTUITY Messaging Solutions Release 4 MAP/5P System Installation, 585-310-185 (PROLOGIX release only)</i>	108097429	2
<i>INTUITY Messaging Solutions Release 4 MAP/40P System Installation, 585-310-196</i>	108074733	1
<i>INTUITY Messaging Solutions Release 4 MAP/100 System Installation, 585-310-173</i>	108097403	3
<i>INTUITY Messaging Solutions Release 4 Update (addendum)</i>	108158080	1
Maintenance		
<i>INTUITY Messaging Solutions Release 4 MAP/5P Maintenance, 585-310-186 (INTUITY R4.3 release only)</i>	108123951	3
<i>INTUITY Messaging Solutions Release 4 MAP/5P Maintenance, 585-310-186 (PROLOGIX release only)</i>	108097395	2
<i>INTUITY Messaging Solutions Release 4 MAP/40 Maintenance, 585-310-171</i>	108097379	3
<i>INTUITY Messaging Solutions Release 4 MAP/40P Maintenance, 585-310-197</i>	108074741	1
<i>INTUITY Messaging Solutions Release 4 MAP/100 Maintenance, 585-310-174</i>	108097320	3

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Table 1. Lucent INTUITY R4 Documentation Set — Continued

Title and Document Number	Comcode	Issue No.
Switch Integration		
<i>INTUITY Messaging Solutions Integration with System 75, DEFINITY Generics 1 and 3 and R5/6, 585-310-257 (PROLIGIX release only)</i>	108097213	1
<i>INTUITY Messaging Solutions Integration with System 75, DEFINITY Generics 1 and 3 and R5/6, 585-310-257 (INTUITY R4.3 release only)</i>	108123936	2
<i>INTUITY Messaging Solutions Integration with System 85 and DEFINITY Communications System Generic 2, 585-310-256</i>	108099615	1
<i>INTUITY Messaging Solutions Integration with MERLIN LEGEND Communications System, 585-310-255</i>	108097205	1
<i>INTUITY Messaging Solutions Release 4 Switch Integration with Digital Station Interface, 585-310-251</i>	108097148	1
<i>INTUITY Messaging Solutions Release 4 Centrex Switch Integration, 585-310-253</i>	108099607	1
System Administration		
<i>INTUITY Messaging Solutions Release 4 Administration, 585-310-564</i>	108096983	2
<i>INTUITY Messaging Solutions Release 4 Alarm and Log Messages, 585-310-566</i>	108096942	2
<i>AUDIX Administration and Data Acquisition Package, 585-302-502</i>	107764938	13
<i>INTUITY Digital Networking, 585-310-567</i>	108008715	3
<i>AMIS Analog Networking, 585-300-512</i>	107643330	6
<i>INTUITY Call Accounting System User Guide, 585-310-728</i>	107380610	1
<i>INTUITY Call Accounting System Quick Reference, 585-310-729</i>	107380628	1
<i>INTUITY Lodging Administration, 585-310-577</i>	108099599	1
<i>INTUITY Lodging Property Management Specifications, 585-310-234</i>	108097049	4

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Table 1. Lucent INTUITY R4 Documentation Set — Continued

Title and Document Number	Comcode	Issue No.
System Use/Subscriber		
<i>INTUITY Multimedia Solutions User's Guide, 585-310-748</i>	107889354	2
<i>INTUITY Messaging Solutions User's Quick Reference, 585-310-772 (150 per package)</i>	108099623	1
<i>INTUITY Voice/FAX Messaging User's Guide, 585-310-733</i>	107731481	1
<i>INTUITY Voice/FAX Messaging Quick Reference, 585-310-734 (150 per package)</i>	107501561	1
<i>INTUITY Voice/FAX Messaging Quick Reference-British English, 585-310-734ENB (50 per package)</i>	107635641	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Canadian French, 585-310-734FRC (50 per package)</i>	107635633	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Latin Spanish, 585-310-734SPL (50 per package)</i>	107635658	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Greek, 585-310-734GK (50 per package)</i>	107635666	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Mandarin, 585-310-734CHM (50 per package)</i>	107635674	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Cantonese, 585-310-734CHC (50 per package)</i>	107711632 (not currently stocked)	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Brazilian Portuguese, 585-310-734PTB (50 per package)</i>	107872673	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Spanish, 585-310-734SP (50 per package)</i>	107872624	1
<i>INTUITY Voice/FAX Messaging Quick Reference-German, 585-310-734DE (50 per package)</i>	107872632	1
<i>INTUITY Voice/FAX Messaging Quick Reference-French, 585-310-734FR (50 per package)</i>	107872640	1
<i>INTUITY Voice/FAX Messaging Quick Reference-Dutch, 585-310-734NL (50 per package)</i>	107872657	1
<i>Multiple Personal Greetings Quick Reference, 585-300-705 (150 per package)</i>	107419251	5

Continued on next page

Table 1. Lucent INTUITY R4 Documentation Set — Continued

Title and Document Number	Comcode	Issue No.
<i>Voice Messaging Outcalling Quick Reference, 585-300-706 (150 per package)</i>	107307365	1
<i>Voice Messaging Wallet Card, 585-300-704 (150 per package)</i>	106710163	2
<i>Voice Messaging business Card Stickers, 585-304-705 (140 per package)</i>	106362809	2
<i>A Portable Guide to Voice Messaging, 585-300-701</i>	107395352	3
<i>Voice Messaging Quick Reference, 585-300-702 (150 per package)</i>	106710148	3
<i>Guidebuilder for AUDIX Systems, 585-310-745</i>	107731812	1
<i>INTUITY Lodging Artwork Package, 585-310-739</i>	108099581	3
<i>INTUITY Lodging Artwork Package-British English, 585-310-739ENB</i>	108089368	2
<i>INTUITY Lodging Artwork Package-Canadian French, 585-310-739FRC</i>	108089301	2
<i>INTUITY Lodging Artwork Package-Latin Spanish, 585-310-739SPL</i>	108089327	2
<i>INTUITY Lodging Artwork Package-Greek, 585-310-739GK</i>	108089350	2
<i>INTUITY Lodging Artwork Package-Mandarin, 585-310-739CHM</i>	108089343	2
<i>INTUITY Lodging Artwork Package-Japanese, 585-310-739JA</i>	108089335	2
<i>INTUITY Lodging Artwork Package-Brazilian Portuguese, 585-310-739PTB</i>	108089319	2

Training

BCS Education and Training center offers a wide variety of courses to enable customers to make full use of the INTUITY system and features. For more information on INTUITY training, call the BCS Education and Training Center at one of the following numbers:

- Organizations within Lucent Technologies: (904) 636-3261
- All other customers: (800) 255-8988

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Lucent INTUITY Writing Team
(303) 538-1741

Please be sure to mention the name and document number of this book.

Lucent INTUITY Messaging Solutions Release 4 System Description,
585-310-235.

Introduction to Lucent Technologies INTUITY Messaging Solutions Release 4 System

1

Overview

This chapter describes the functionality, architecture, and system features of the Lucent INTUITY™ Messaging Solutions Release 4 (R4) system.

Purpose

This chapter provides a high-level overview of the Lucent INTUITY R4 system to orient the reader to the capabilities and functionality such a system can provide.

Introducing Lucent Technologies' INTUITY Messaging Solutions Release 4

The Lucent Technologies INTUITY Messaging Solutions Release 4 (Lucent INTUITY R4) system offers customers enhanced flexibility to manage their voice, fax, and electronic mail (e-mail) messages from their telephones or personal computers — anytime, anywhere. E-mail messages can include file attachments, such as a spreadsheet or word processing files.

The Lucent INTUITY R4 system can be configured to fit the customer's needs on a system level as well as a user level. This "scalability" allows the Lucent INTUITY system to serve a 30-member firm located in a single office as well as a 500,000 employee multi-location corporation. The networking feature of the Lucent INTUITY system connects everyone in a corporation, whether they are in the same office or across the country.

The Lucent INTUITY R4 system offers a single hardware platform running multiple software applications that provides advanced multimedia messaging capabilities to the end user. Software applications that reside on the single platform share computer resources such as hard disk space and maintenance utilities. Software integration allows applications to interact and share information in different databases. Primary software applications include voice and fax messaging as well as software that enables INTUITY AUDIX to integrate with external e-mail applications. These applications can be networked across multiple Lucent INTUITY systems. These applications and others are described in detail in [Chapter 3, "System Features Description"](#).

Voice Messaging

The INTUITY AUDIX R4 Voice Messaging software application makes it possible to record and exchange voice messages with telephone or e-mail recipients. The application contains stored voice prompts that guide users in creating, sending, retrieving, answering, saving, or forwarding spoken messages. It also answers calls for users who are busy or unavailable. In addition to a personal answering service, INTUITY AUDIX can also be used as a messenger to individuals or groups, an information service, an office receptionist, and as an automated attendant.

FAX Messaging

The Lucent INTUITY R4 FAX Messaging application combines the send and receive capabilities of a stand-alone fax machine or fax modem on a PC with the many capabilities of Lucent INTUITY messaging. Besides sending, receiving, and printing a fax over the telephone, a user can also forward a fax, annotate a fax with a voice message, send a fax, and broadcast a fax to multiple telephone users, and otherwise handle a fax message just as they would a voice message.

E-Mail Messaging

Lucent INTUITY R4 gives the ability to handle e-mail text messages and e-mail messages containing attached files (such as a spreadsheet or word processing file) using Lucent INTUITY messaging capabilities. Users can receive and send an e-mail message over the telephone, forward it, annotate it with a voice message, and otherwise handle it as they would a voice message.

Additionally, Lucent INTUITY R4 offers *Text-to-Speech* and *Text-to-Fax*. These features enable the translation of e-mail messages into spoken renderings that customers can listen to, or into textual/graphical renderings that customers can print, from the telephone interface.

E-mail messages can be sent throughout the AUDIX network, and to domains outside of AUDIX, such as a trusted server running a supported e-mail application. This is discussed in more detail in [Chapter 3, "System Features Description"](#).

NOTE:

Text messages can also be sent and received within an AUDIX network using the optional feature Lucent INTUITY Message Manager. See [Chapter 3, "System Features Description"](#) for more information.

Networking Messages

Messaging is not limited to a single location. Using INTUITY AUDIX Digital Networking and Audio Messaging Interchange Specification (AMIS) Analog Networking software applications, up to 485 different locations can be networked. With Lucent INTUITY R4, customers can network using Transmission Control Protocol/Internet Protocol (TCP/IP) for connecting systems over a Local Area Network (LAN) with much higher throughput than Digital Communications Protocol (DCP) or RS-232. TCP/IP also can be used to connect two machines directly, although RS-232 is generally used for this type of connection.

With Internet Messaging, users can create, send, and receive messages to and from a recipient's Internet address. This expands the user's ability to communicate with non-networked users, including the millions of Internet users around the world.

Lucent INTUITY System Architecture

A specialized, modular architecture of hardware and software is required to allow applications to remain largely independent yet share computer resources and exchange data. [Figure 1-1](#) shows the hierarchy of system components used to build the INTUITY system.

Lucent INTUITY Platform Layers

The Lucent INTUITY platform consists of three layers that work together:

- *Basic processing layer*

This layer contains the:

- Hardware components such as the chassis, the Pentium Central Processing Unit (CPU), and disk drives
- UNIXware Operating System (OS)
- Small Computer Systems Interface (SCSI) terminator and interface

- *Service layer*

Three software server modules – networking, message processing, and switch interface – plus administration and maintenance make up this layer.

- *Applications layer*

Multiple software applications are available. A customer can select any or all of the following:

- INTUITY AUDIX Voice Messaging
- Lucent INTUITY FAX Messaging
- Text-to-Speech
- Text-to-Fax
- Internet Messaging
- Lotus Telephony OneStop
- TCP/IP Networking
- Enhanced-List Application (ELA)
- Lucent INTUITY Message Manager
- Call Answering Software (CAS)
- HackerTracker
- Switch Integrations
- Lucent INTUITY Lodging

Lucent INTUITY Layer Interaction

The elements of the Lucent INTUITY system's two base layers, processing and service, are accessible to any of the applications. By placing common elements such as switch integration and digital networking outside the applications and into the platform, they can be used by all current and future software applications. This, therefore, increases application operating efficiency, optimizes computer resources, and establishes uniformity across applications.

The Processing Layer

The *processing layer* contains utilities and tools which the two layers above it can use. These utilities include alarming, backup and restore utilities, logs, and the operation, administration, and maintenance interface.

The processing platform layer includes the Lucent INTUITY system's base hardware and software components, as follows:

- Multi-Application Platform (MAP) chassis
- CPU
- Random Access Memory (RAM)
- Disk drives
- Removable media ("floppy" diskettes and tape)
- UNIXware OS

The Service Layer

The *service layer* is similar to the processing platform in that it provides tools and utilities for the software applications, although it is more specific in its offerings. The ability to record speech and play it back, create fax and e-mail messages, transfer messages via a digital network, and communicate with Lucent and non-Lucent switches are just a few of the items in this layer that the applications can use.

The service layer includes hardware and software components integral to the tools offered, including the:

- Voice card for processing speech
- Speech and signal processing (SSP) circuit card for support of various speech technologies
- INTUITY AUDIX Communications Controller card (ACCX card) for digital networking interfaces
- LAN circuit card for connecting to a local area network
- Digital station interface circuit card for connecting to Lucent switches

- DCIU circuit card for communicating with Lucent Data Communications Interface Unit (DCIU) switches
- Multi-port serial circuit card for connecting to modems, terminals, or switch integration devices
- Switch Integration Device (SID) for communicating with switches not maintained by Lucent
- System administration software for elements that span the platform, such as voice port administration

The Application Layer

The *application layer* contains independent programs that meet a particular business need. These software applications, such as INTUITY AUDIX Voice Messaging, Internet Messaging, and Lucent INTUITY FAX Messaging, rely heavily on the foundation established by the first two layers.

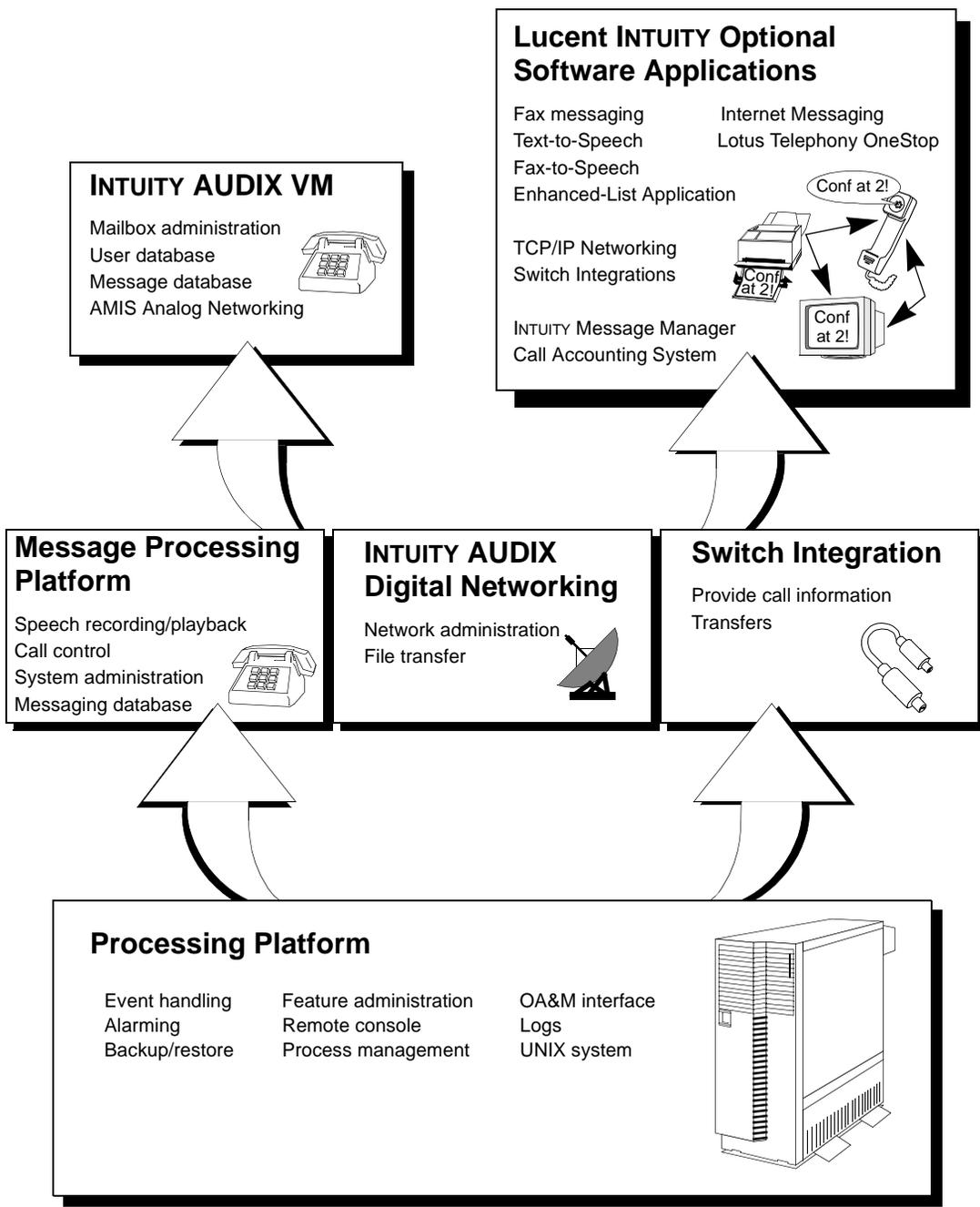


Figure 1-1. Lucent INTUITY Messaging Solutions System Architecture

Hardware Platforms

The Lucent INTUITY R4 system runs on computer hardware referred to as a Multi-Application Platform (MAP). Lucent INTUITY R4 is configured on four different platforms. All four platforms support the same messaging applications, but differ in the amount of caller traffic they can handle.

These platforms are briefly described below and are fully detailed under [“Platform Descriptions”](#) in [Chapter 2, “System Components and Capacities”](#).

For detailed information on the INTUITY software applications that run on these platforms, see [Chapter 3, “System Features Description”](#).

MAP/5P

The MAP/5P supports call traffic generated by 500 to 200,000 messaging users and a maximum of 1500 Lodging users. It supports up to 18 analog voice/fax channels and up to 8 networking channels. A combination of 12 analog voice/fax ports and 4 networking ports can be supported. Up to 32 trusted servers can be administered with a maximum of four simultaneous sessions.

The MAP/5P can be mirrored or non-mirrored with 155 hours of storage. The MAP/5P can support up to 1000 INTUITY Message Manager clients with a maximum of 32 simultaneous sessions. Text-to-speech sessions are limited to four on the CPU. The MAP/5P does not support the SSP circuit card. The MAP/5P contains three PCI slots, five ISA slots, and seven peripheral bays in a tower configuration.

MAP/40s

The MAP/40s supports call traffic generated by 500 to 200,000 messaging users and 1500 Lodging users. It supports 18 analog voice/fax channels and 4 networking channels. Up to 32 trusted servers can be administered with a maximum of four simultaneous sessions. A maximum of 425 hours of unmirrored messaging storage or 155 mirrored hours is available. The MAP/40s can support up to 1000 INTUITY Message Manager clients with a maximum of 32 simultaneous sessions. Text-to-speech sessions are limited to two on the CPU.

The MAP/40s is a 12-slot, 4-bay system in a tower configuration. The MAP/40s is supported for upgrades only. It is not available for purchase in this release.

MAP/40

The MAP/40 supports call traffic generated by 1,000 to 200,000 messaging users and 4000 Lodging users. It accommodates up to 42 voice channels and 8 networking channels in the following combinations: 30 voice channels and 8 networking channels, 36 voice channels and 4 networking channels, and 42 voice channels with no networking. The MAP/40 supports 425 hours of unmirrored messaging storage and 155 mirrored hours. Up to 64 trusted servers can be administered with four simultaneous sessions. The MAP/40 can support up to 2000 INTUITY Message Manager clients with a maximum of 64 simultaneous sessions. The MAP/40 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card.

The MAP/40 is a 12-slot, four-bay system in a tower configuration. The MAP/40 is supported for upgrades only. It is not available for purchase in this release.

MAP/40P

The MAP/40P supports call traffic generated by 1,000 to 200,000 messaging users and 4000 Lodging users. It accommodates up to 42 voice channels and 8 networking channels in the following combinations: 30 voice channels and 8 networking channels, 36 voice channels and 4 networking channels, and 42 voice channels with no networking. The MAP/40 supports 425 hours of unmirrored messaging storage and 155 mirrored hours. Up to 64 trusted servers can be administered with four simultaneous sessions. The MAP/40P can support up to 2000 INTUITY Message Manager clients with a maximum of 64 simultaneous sessions. The MAP/40 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card.

The MAP/40P contains 10 ISA slots and 3 PCI slots. In addition, there is a faceplate location that supports an external SCSI connector. The MAP/40P is a tower configuration and contains five peripheral bays.

MAP/100

The MAP/100 supports call traffic generated by 6,000 to 500,000 messaging users and 4000 Lodging users. It accommodates up to 64 voice channels and 12 networking channels. The MAP/100 supports 1,255 hours of unmirrored messaging storage and 445 mirrored hours. Up to 96 trusted servers can be administered with six simultaneous sessions.

The MAP/100 can support up to 4000 INTUITY Message Manager clients with a maximum of 96 simultaneous sessions. The MAP/100 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card. The MAP/100 is a 25-slot, eight-bay system in a tower configuration.

The Lucent INTUITY Messaging Solutions R4 Offer

Lucent INTUITY R4 contains several new features and is priced according to the hardware and software components purchased. This section includes the following:

- What's new in R4? (compared to R3)
- What's new in this release?
- Year 2000 compliance
- Pricing and right-to-use fees
- Investment protection

What's New in R4?

Compared to an INTUITY AUDIX R3 system, the Lucent INTUITY R4 system offers some new user and system administration features.

End User Features (Compared to an AUDIX 3.2 System)

Turn off AUDIX Call Answering	Users can turn off the call answer feature of the AUDIX system so that AUDIX answers their telephones for them. If the system greeting is active, AUDIX tells the caller that the user is not accepting messages. This capability helps prevent mailboxes from filling up with messages and saves disk space on the system.
Lucent INTUITY Fax Messaging	Fax messaging is fully integrated with AUDIX voice messaging. Users can receive, send, and store faxes, and attach faxes to voice messages. They can also scan, delete, skip, forward (including forward to a mailing list), and respond to faxes. They can also designate such messages as <i>priority</i> or <i>private</i> . As with voice messages, the category by which a fax is designated will change to reflect its status, that is, from <i>new</i> to <i>unopened</i> to <i>old</i> .

NOTE:

For a complete description of the fax messaging capabilities, see *INTUITY Multimedia Solutions User's Guide*, 585-310-748, or *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Addressing Messages before Recording Them	Users have the option of addressing a message before recording it. After the message is recorded and approved, users have the option to review the addresses already entered and add more addressees. If users are sending a fax only, they must automatically address the fax before sending it from the fax machine.
Fax/Text Messaging on Lucent INTUITY Message Manager	Users who have INTUITY Message Manager R4.0 can manipulate fax, file attachments, and text messages just as they do voice messages. See <i>Lucent INTUITY Message Manager Release 4 User Guide</i> , 585-310-743, for more information.
Send and Receive Messages from E-mail Users	<p>An INTUITY R4 system allows users to exchange messages containing voice, fax, e-mail, and attached binary files.</p> <p>If Internet Messaging is included on the system, users can exchange messages of all media types to any internet address.</p> <p>With Lotus Notes Telephone OneStop, users can exchange voice and fax messages with other Lotus Notes or cc:mail users. Addressing can be done by adding the recipient's name if the system administrator has defined the recipient in the system.</p>
Integration of AUDIX and E-mail Mailboxes	<p>If the Integrated Messaging feature is included in the system, users can access and manage all incoming messages (voice, fax, e-mail, and file attachments) from their PC e-mail mailbox, AUDIX mailbox, or both. Thus, a message in a user's AUDIX mailbox will also appear in the user's e-mail mailbox, and vice versa.</p> <p>Users can also set options on their PCs such that only the message headers are copied from one mailbox system to the other or that the entire message will reside in both systems.</p> <p>A user cannot create an e-mail text message with a telephone, but can create a voice or fax message and send it to an e-mail recipient. Additionally, as noted above, AUDIX users can use their telephones to forward an e-mail message in their AUDIX mailboxes to an e-mail recipient.</p>
Listen to Text Messages	If the Text-to-Speech option is included on the system, users can listen to a voiced rendering of text messages sent from Message Manager or a supported integrated e-mail system such as Lotus Notes.

Print Text Messages	Users can print text messages sent from a supported integrated e-mail system (such as Lotus Notes) and/or Message Manager. Users print text messages in the same way they print faxes.
Address Messages to Enhanced Lists	<p>Users can address and send a message to a large mailing list that can contain up to 1500 users. Users previously could send messages to a single list of up to 250 users.</p> <p>The system administrator can create up to 100 enhanced lists. Each list has its own extension. Users can then address a message to the list by simply entering the list's extension as they would any other user's extension.</p>
Compliance with Password Guidelines	<p>The system prevents a user from using the following types of passwords:</p> <ul style="list-style-type: none">■ The same number as the user's extension (for example, extension 34555 and password 34555)■ Repeated digits (for example, 77777)■ Consecutive digits (for example, 12345)
Restrictions on Allowed <input type="checkbox"/> * <input type="checkbox"/> T Transfers	The system administrator can administer the system so users cannot transfer from the AUDIX system to certain specific extensions or ranges of extensions.

End User Features (Compared to an AUDIX 3.3 System)

Send and Receive Messages from E-mail Users	<p>Users can create voice and fax messages and address them to supported integrated e-mail users (such as Lotus Notes users). The user does this simply by addressing by the e-mail user's name. However, the system administrator must define the e-mail users in the system.</p> <p>Users can also receive messages containing voice, fax, e-mail text, and attached binary (software) files.</p>
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Integration of AUDIX and E-mail Mailboxes	<p>If the Integrated Messaging feature is included on the system, users can access and manage all incoming messages (voice, fax, e-mail, and file attachments) from their PC e-mail mailbox, AUDIX mailbox, or both. Thus, a message in a user's AUDIX mailbox will also appear in the user's e-mail mailbox, and vice versa.</p> <p>Users can also set options on their PCs such that only the message headers are copied from one mailbox system to the other or that the entire message will reside in both systems.</p> <p>Users cannot create an e-mail text message with a telephone, but can create a voice or fax message and send it to an e-mail recipient. Additionally, as noted above, AUDIX users can use their telephones to forward an e-mail message in their AUDIX mailboxes to an e-mail recipient.</p>
Listen to Text Messages	<p>If the Text-to-Speech option is included on the system, users can listen to a voiced rendering of text messages sent from Message Manager or a supported integrated e-mail system such as Lotus Notes.</p>
Print Text Messages	<p>Users can print text messages sent from Message Manager or a supported integrated e-mail system such as Lotus Notes. Users print text messages in the same way they print faxes.</p>
Address Messages to Enhanced Lists	<p>Users can address and send a message to a large mailing list that can contain up to 1500 users. Users previously could send messages to a single list of up to 250 users.</p> <p>The system administrator can create up to 100 enhanced lists. Each list has its own extension. Users can then address a message to the list by simply entering the list's extension as they would any other user's extension.</p>
Compliance with Password Guidelines	<p>The system prevents a user from using the following types of passwords:</p> <ul style="list-style-type: none">■ The same number as the user's extension (for example, extension 34555 and password 34555)■ Repeated digits (for example, 77777)■ Consecutive digits (for example, 12345)
Restrictions on Allowed <input type="checkbox"/> <input type="checkbox"/> Transfers	<p>The system administrator can administer the system so users cannot transfer from the AUDIX system to certain specific extensions or ranges of extensions.</p>

Administrative and System Features

The system administrator can use the advanced administrative features of a Lucent INTUITY R4 system to expand user function and capability and to enhance system security.

Address Before Record	Users can address messages before recording them. The system administrator can turn this capability on or off for the whole system. If this capability is turned on, users can then individually set their mailboxes so they can address messages before recording them.
Call Answer Disable	Users can set their mailboxes so that they do not receive call answer messages. Thus, when they are gone for a period of time and do not want callers to leave call answer messages, they can turn off this feature for their mailboxes. The system administrator can turn this capability on or off for groups of users or for the entire system via Class of Service.
Outgoing Print Job Queue	The system administrator can monitor fax print jobs via the Outgoing Print Job Queue window. This window is available under the Voice System Administration main menu option.
Print Screens	The system administrator can print screens and reports by pressing F9 . (A system printer must be available and enabled.)
Change Extensions	The system administrator can change user extensions in blocks of extensions rather than individually. For example, the system administrator can change extensions 87000 through 87999 to 6000 to 6999. In this case, a user with the extension 87234 would have new extension 6234. This feature is especially useful if a customer must change user extension length or dial plans.
User Password Aging	The system administrator can set a length of time after which a user's password expires. The user is then obliged to change the password.
Administrator Password Aging	The system administrator can and should set up an interval for administrator password expirations. This password aging ensures that all administrators change passwords on the system periodically. Password aging applies to both sa and vm passwords.
Compliance with Password Guidelines	The system prevents the following types of passwords: <ul style="list-style-type: none">■ The same number as the administrator's extension (for example, extension 34555 and password 34555)■ Repeated digits (for example, 77777)■ Consecutive digits (for example, 12345)

Advance/Rewind Increment	The system administrator can set the advance and rewind increment (the number of seconds the system jumps ahead or backward in a message when you press 6 or 5 respectively). The increment can be 4 or 10 seconds.
TCP/IP LAN Access	Several optional applications, including ELA, e-mail, and Message Manager require LAN access to the INTUITY AUDIX system. The system administrator must administer LAN access via INTUITY TCP/IP networking windows.
Restrictions on Call Transfers Allowed	The system administrator can use the Add Allowed Transfer Numbers and Add Denied Transfer Numbers windows to define specific extensions or ranges of extensions to which users may transfer from an AUDIX mailbox.
Voice Equipment Administration	The windows used to administer channels have changed. The new windows affect the way extensions, groups, and services are assigned to channels, and the way channels are renumbered and busied out.
Fax Capability ¹	<p>If Fax Capability is included on the system, the system administrator can use Class of Service to assign the ability of users to send, receive, and store faxes in their mailboxes. At least one call delivery machine (fax machine) must be created that consists of one or a range of possible fax machine extensions. INTUITY AUDIX uses the "dummy" call delivery machine for printing to fax machines.</p> <p>Guaranteed fax capability can also be supported by assigning an AUDIX mailbox to each local fax machine. Customers can also set up secondary fax extensions for some users so that call answer faxes go directly to their mailboxes instead of ringing their telephones. See <i>INTUITY Messaging Solutions Release 4 Administration</i>, 585-310-564, for more information.</p>
TCP/IP Networking ¹	If TCP/IP networking is included on the system, a TCP/IP LAN can be used for sending messages between INTUITY AUDIX systems. The system administrator must administer the local machine and any networked machines and remote users using TCP/IP Networking windows and AUDIX administration.

Integration with Electronic Mail Systems ¹	<p>The system administrator can assign to users integrated e-mail and AUDIX mailbox capabilities as follows:</p> <ul style="list-style-type: none"> ■ Defining the number of e-mail systems that can simultaneously log in to the AUDIX system (on the System Parameters IMAPI Options screen) ■ Defining the integration software of each e-mail system as a trusted server (on the Trusted Server Profile screen) ■ Setting up remote networked INTUITY AUDIX R4 systems to receive e-mail (in the Digital Network Machine Administration window) ■ Define local and remote e-mail users (on the Subscriber, Class of Service, and Remote Subscriber screens)
Text-to-Speech ¹	<p>If Text-to-Speech is included on the system, the system administrator can define, via the System Parameters Features screen, whether the system should convert text and e-mail messages and/or message headers to speech. Text-to-speech conversion allows users to listen to a voiced rendering of an e-mail message.</p>
Enhanced List Administration ¹	<p>If Enhanced List Administration is included on the system, the system administrator can define lists of up to 1500 recipients by selecting the Edit Lists and Member List options under the Enhanced-List Administration choice on the Main Menu. The system administrator can create up to 100 ELA lists, for a total distribution capability of nearly 150,000 message recipients.</p>

1. This is an optional feature that incurs an additional Right-to-Use (RTU) fee.

What's New in R4.3?

The following related features may be used in conjunction with R4.3:

Lodging	Supports voice call answer and voice message retrieval for use in lodging and hospitality industries
Lodging FAX Messaging	Provides fax call answer and retrieval as an option with the Lodging feature
Internet Messaging	Provides the ability to send and receive mail through the Internet
Enhanced switch integration	Provides the ability to integrate the system with additional Lucent and non-Lucent telecommunications systems, including DEFINITY R6csi and digital station interfaces

HiCap	Provides the ability to increase the number of analog voice and fax ports on the system
Interchange	Provides the ability to easily configure and maintain a system network by creating a central store and forward hub

Year 2000 Compliance

Approaching the year 2000 and during the year 2000, the INTUITY system will comply with most of the Year 2000 specifications that relate to the handling of calendar dates. However, some features (for example, reports and call data records) may function differently when date data spans both the years 19XX and 20XX.

Customers are responsible for ensuring that their applications are Year 2000 compliant. In most cases, the most time-consuming part of Year 2000 compliance work is reviewing or testing applications. If you find outages, usually only minor changes are necessary for compliance. For example, you may need to replace a hard-coded "19XX" with a more appropriate entry. If your application was not developed by Lucent Technologies, contact the vendor with whom you contracted to discuss Year 2000 compliance for the application.

Pricing and Right-to-Use Fees

There are two components to Lucent INTUITY R4 system pricing: *hardware* and *software*.

Hardware Component

Hardware refers to the physical components of the Lucent INTUITY R4 system, such as the computer, hard disk drives, and voice cards. The prices of these items are based upon the retail market prices.

Software Component — Right-to-Use

It is the Lucent INTUITY R4 system software that knows what to do when a call comes in over a voice port and that knows how to store a message on a hard disk drive. Several of the software components of the Lucent INTUITY R4 system are optional features that customers select to suit their needs.

Therefore, the second component of Lucent INTUITY R4 system pricing involves software *right-to-use* (RTU) fees. RTU fees guarantee that individual customers only purchase the software that is needed at their particular site. For example, voice cards have six ports, but a customer only needs four ports. A customer pays the RTU fee for four ports. The entire voice card (containing six ports) is installed in the customer's INTUITY system and four ports are activated. Should customers need to add more voice ports, they simply pay the RTU fee for the

additional number of ports. In this example, the remaining two ports can be activated and additional cards can be installed.

RTU fees apply in four main areas:

- Voice ports

Each voice card has six voice ports. Additional voice ports beyond the standard configuration of four ports are sold in pairs.

- Digital networking and TCP/IP ports

These ports are sold in terms of high-speed and low-speed in single-port increments. Each ACCX networking card has four ports available. High-speed is considered to be DCP Mode 1 or DCP Mode 3. Low-speed is considered to be RS-232 asynchronous (9.6 and 19.2 Kbps) and RS-232 synchronous (9.6 and 19.2 Kbps). For digital networking configuration options, see [Chapter 4, "Networking"](#).

- Hours of speech storage space

Hard disk storage space for messaging is sold in terms of *hours*. Additional speech storage, beyond the standard configuration, is sold in a minimum of 5-hour blocks.

- Incremental features

AMIS Analog Networking, Mirroring, and Multi-User feature packages are some examples of incremental features.

Investment Protection when Migrating or Upgrading to Lucent INTUITY R4

Clear migration and upgrade paths and investment protection incentives have been established to help customers during the transition from other Lucent messaging systems to a Lucent INTUITY R4 system.

Migration to Lucent INTUITY R4

The [Table 1-1](#) details the current strategy for maintaining hardware, software, and data across products.

Table 1-1. Investment-Protection Strategies

Product	Release	Data Maintained
DEFINITY AUDIX	R1.0 – R3.2	All data and voice messages
AUDIX R1	R1V5 and later	User data, messages, names, and greetings
AUDIX Voice Power	R2.0 and later	User data
INTUITY AUDIX	R2.0 and later	User data, messages, names, greetings, and announcements
INTUITY AUDIX	R1.0	N/A – An INTUITY AUDIX R1 system must be upgraded to a R2.0 or later to be capable of upgrade to INTUITY AUDIX R4

See *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, for more information on migrating from a Lucent product release prior to the ones listed above.

**NOTE:**

Migrations from CONVERSANT Intro Voice Response (IVR) to a Lucent INTUITY system are not supported.

If customers are migrating from another Lucent voice messaging system, they may be eligible for credits toward the price of a new INTUITY system based on their current hardware and software investment. This includes any RTU agreements in effect between the customer and Lucent technologies, which can be transferred from the old to the new system. Lucent account representatives have more information.

Upgrades to Lucent INTUITY R4

Three types of upgrades are available:

- System upgrade

A system upgrade replaces a Lucent INTUITY Release 2 or Release 3 system with a Release 4. This involves replacing the R2 or R3 computer with a new computer and transferring all customer data to the new computer.

**NOTE:**

Lucent INTUITY Release 1 systems must be upgraded to Release 2 before making the transition to Release 4.

- Software upgrade

A software upgrade increments an existing Lucent INTUITY R4 system to the current version of the software, for example, from Release 4.0 to Release 4.1.

- Platform upgrade

A platform upgrade advances an existing Lucent INTUITY R4 platform model to a larger-capacity model, for example, from a MAP/40s to a MAP/40.

For more information on migrations and upgrades, see [Chapter 7, “New Installations, Upgrades, and Migrations”](#).

Feature List

[Table 1-2](#) lists the INTUITY AUDIX® R4 features in alphabetical order. For each feature, it contains a brief feature summary.

Table 1-2. INTUITY AUDIX R4 Feature List

Feature	Summary
Activity Log	Permits system administrators to investigate problems reported with message-waiting notification and the delivery of messages.
Address-By-Name	Permits users to address voice mail messages by name as well as by extension.
Administration and Data Acquisition Package (ADAP)	Provides direct access to the system database through a PC interface, from which traffic and usage reports can be generated.
AMIS Analog Networking	Enables users to exchange voice mail messages with any other voice mail system that has Audio Messaging Interchange Specification (AMIS) analog capabilities.
Announcement Sets	Allows the system administrator to record, change, or listen to announcement fragments (fragments are short sections of AUDIX voice prompts).
Automated Attendant	Offers callers a voiced menu of options, then routes calls to various destinations according to the touch-tone keys the caller presses. Menus vary according to schedule.
Automatic Message Scan	Allows users to scan all message headers and/or messages at the touch of two buttons.

Continued on next page

Table 1-2. INTUITY AUDIX R4 Feature List — *Continued*

Feature	Summary
Broadcast Message	Enables administrators and users with broadcast privileges to send special messages to all local users simultaneously.
Bulletin Board	Allows the system administrator to set up a special number that plays a recorded message to callers. It is often used with the Automated Attendant feature.
Call Answer	The basic function of the system answering calls and recording messages for unavailable or busy users.
Delivery Scheduling	Allows users to schedule delivery of messages for specific days and times.
Dial Ahead/Through	Allows users to forward through the system's voice prompts, and queue up a series of commands.
Dial-By-Name	Allows users to choose another user by name rather than extension number.
Enhanced-List Application (ELA)	Allows you to distribute messages to up to 1500 recipients, or more if you nest lists, to call one number and receive messages from multiple locations, and to send messages to a public mailbox.
Directory	Provides a system directory so users can access other user's names and numbers quickly.
E-Mail	Allows the transfer of a wide variety of message types across a computer network and the Internet.
Escape to Attendant	Allows callers to redirect their call from the INTUITY AUDIX system (in call answer mode) to an administered personal attendant or operator.
Exit AUDIX	Allows callers to disconnect from the system without hanging up; particularly convenient when a caller is using a calling card.
FAX Messaging	Allows a user to create, send, receive, store, and print a FAX message.
Full Mailbox Answer Mode	Provides a caller with options for completing a call when the recipient's mailbox is full.
Guest Password	Allows people who are not INTUITY AUDIX subscribers to access the system and leave messages for users.
Leave Word Calling	Allows a caller on the same switch to leave or send a standard-format message, usually by the touch of a button, requesting that the called party return the call.

Continued on next page

Table 1-2. INTUITY AUDIX R4 Feature List — *Continued*

Feature	Summary
Login Announcement	Enables administrators and users with broadcast privileges to create a special announcement that all users hear when they log on to the system. The message cannot be deleted by the users and is repeated each time a user logs on until it is removed.
Mailing List	Allows users to create lists for delivering messages to a group of users at once.
Message Delivery	Enables users to send voice mail messages to any touch tone telephone anywhere in the world.
Message Manager (MM)	MM provides INTUITY AUDIX voice processing features at personal computers (PCs) that have MM client software and local area network (LAN) access to an INTUITY AUDIX server.
Message Sending Restrictions	Allows the system administrator to avoid abuse or misuse of voice mail by restricting who certain users can send messages to. It can be administered by user or class of service. It does not restrict users from leaving call answer messages.
Message-Waiting Indicator	A lamp on the telephone or a stutter dial tone that informs users of new messages.
Multiple Personal Greetings	Allows users to record and store up to nine personal greetings, up to three of which can be active at once. Each greeting can be set to answer either all calls, or one of three call types: internal/external, busy/no answer, or out-of-hours.
Name Record by Subscriber	Allows users to record their own names, which are voiced during greetings, addressing and in message headers.
Online Help	Provides easily obtained information about how to use the system.
Outcalling	Allows the system to call users at a specified number to notify them of new messages. Can be activated for specific time periods.
Personal Directory	Permits each user to create a private list of customized names (aliases) that correspond to other users or extensions. As with the system directory, the personal directory can be queried by name, used for addressing messages, transferring calls, and creating mailing lists.
Playback and Recording Control	Allows users to listen to call answer and voice mail messages that they create or receive, then replay the entire message or step backwards or forwards in 4-second intervals.

Continued on next page

Table 1-2. INTUITY AUDIX R4 Feature List — *Continued*

Feature	Summary
Priority Message	Allows users who have permission to send priority messages, which are specially marked and preferentially presented to recipients.
Priority Outcalling	An option of the Outcalling feature that allows user to be notified by a call from the system only when they have new <i>priority</i> messages.
Private Message	Allows users or callers to designate a message they create as <i>private</i> , which prevents it from being forwarded.
Security Password	Allows users to protect their mailboxes by restricting access.
Shared Extension	Allows each of several users who share one extension to have a private voice mailbox.
System Clock	A system clock that has back-up power for maintaining accurate time records for message headers and delivery scheduling.
Telephony OneStop	Exchanges messages between Lotus Notes systems and INTUITY messaging systems.
Text-to-Speech (TTS)	Converts text messages into speech.
Traffic Reports	Allows the system administrator to generate statistics about the number and timing of calls that go through the system.
Transfer Into AUDIX/Mailbox	Allows an attendant to transfer a forwarded or otherwise redirected call into the system, enabling the caller to record a message for the user he or she was trying to reach.
Transfer Out of AUDIX	Allows any caller who has called or been redirected to the INTUITY AUDIX system to leave the system and transfer to any extension in the switch's dial plan.
Untouched Message	Allows users to listen to messages or message headers in the incoming section of their voice mailbox without changing the status of the messages from <i>new</i> or <i>unopened</i> to <i>old</i> .
Verify Automated-Attendant menu tree	Traces menu tree and prints error messages and/or menu tree entries.

Continued on next page

Table 1-2. INTUITY AUDIX R4 Feature List — *Continued*

Feature	Summary
Voice Mail	Allows user to record a verbal message that can be sent to one or more users on the INTUITY AUDIX system.
Voice Mailbox	A storage area (voice mailbox) on disk for each user. The mailbox is divided into separate sections for incoming and outgoing messages. The incoming section stores call answer and voice mail messages left by others. The outgoing section stores voice mail messages and personal greetings created by the user.

System Components and Capacities

2

Overview

Five Multi-Application Platforms (MAPs), the MAP/5P, MAP/40s and MAP/40, MAP/40P, and the MAP/100, support the low-end, middle-range, and high-end hardware solutions for the Lucent INTUITY R4 system. Differences among the platforms are defined in this chapter.

**NOTE:**

The MAP/40s and MAP/40 are not available for purchase, but are supported for upgrades to Release4 of the Lucent INTUITY system.

Brief descriptions of the Lucent INTUITY R4 system software applications are also discussed in this chapter. [Chapter 3, "System Features Description"](#), describes each Lucent INTUITY software application in detail.

Purpose

This chapter provides a comparative analysis of the available platforms and the interactions between the various Lucent INTUITY R4 feature applications.

Platform Descriptions

This section describes features of the hardware platforms.

General Descriptions

The INTUITY system is offered on five different hardware platforms. While all platforms support the same system, they differ in the amount of caller traffic they can handle effectively.

MAP/5P

The MAP/5P ([Figure 2-1](#)) supports call traffic generated by 500 to 200,000 messaging users and a maximum of 1500 Lodging users. It supports up to 18 analog voice/fax channels and up to 8 networking channels. A combination of 12 analog voice/fax ports and 4 networking ports can be supported. Up to 32 trusted servers can be administered with a maximum of four simultaneous sessions.

The MAP/5P can be mirrored or nonmirrored with 155 hours of storage. The MAP/5P can support up to 1000 INTUITY Message Manager clients with a maximum of 32 simultaneous sessions. Text-to-speech sessions are limited to four on the CPU.

The video controller for the MAP/5P resides on the mother board. The MAP/5P contains 3 PCI slots, 5 ISA slots, and 7 peripheral bays in a tower configuration.

The chassis is equipped with a cooling fan. The following base circuit cards of the MAP/5P occupy three of the eight slots:

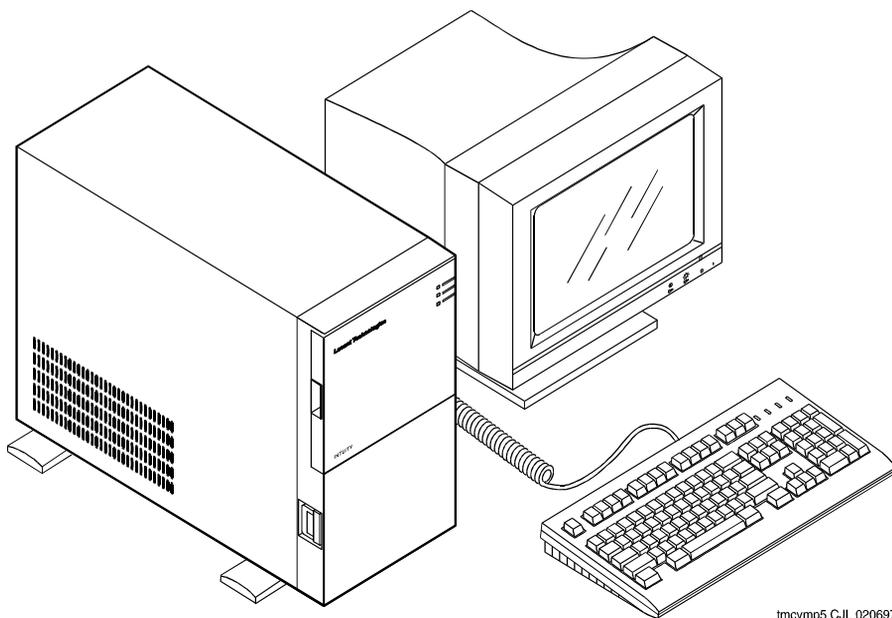
- Small Computer Systems Interface (SCSI) controller circuit card
- Remote maintenance circuit card¹
- One Tip/Ring voice circuit card

The following standard components occupy three of the seven bays:

- Diskette drive
- Cartridge tape drive
- Hard disk drive

Three remaining bays are empty. The fifth bay is available for an optional second disk for the exclusive use of disk mirroring. For more information on speech storage and mirroring, see [“Hard Disk Drives and Speech Storage”](#) below.

1. The Remote Maintenance circuit card may not be available. Check with your account representative for information on availability.



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Figure 2-1. The MAP/5P

MAP/40s

NOTE:

The MAP/40s is supported for upgrades to R4 only and is not available for purchase in this release.

The MAP/40s ([Figure 2-2](#)) supports call traffic generated by 500 to 200,000 messaging users and 1500 Lodging users. It supports 18 analog voice/fax channels and 4 networking channels. Up to 32 trusted servers can be administered with a maximum of four simultaneous sessions. A maximum of 425 hours of unmirrored messaging storage or 155 mirrored hours is available. The MAP/40s can support up to 1000 INTUITY Message Manager clients with a maximum of 32 simultaneous sessions. Text-to-speech sessions are limited to two on the CPU.

The MAP/40s is a 12-slot, four-bay system in a tower configuration. The chassis is equipped with standard cooling fans. The following base circuit cards of the MAP/40s occupy 5 of the 12 slots:

- P5 75 MHz Central Processing Unit (CPU) circuit card
- External SCSI connector circuit card
- Video controller circuit card

- One Tip/Ring circuit card
- Remote maintenance circuit card (RMB)²

The following standard components occupy three of the four bays:

- Diskette drive
- Cartridge tape drive
- Hard disk drive

The fourth bay is available for an optional second disk which can be used exclusively for speech storage or mirroring. For more information on speech storage and mirroring, see [“Hard Disk Drives and Speech Storage”](#) below.

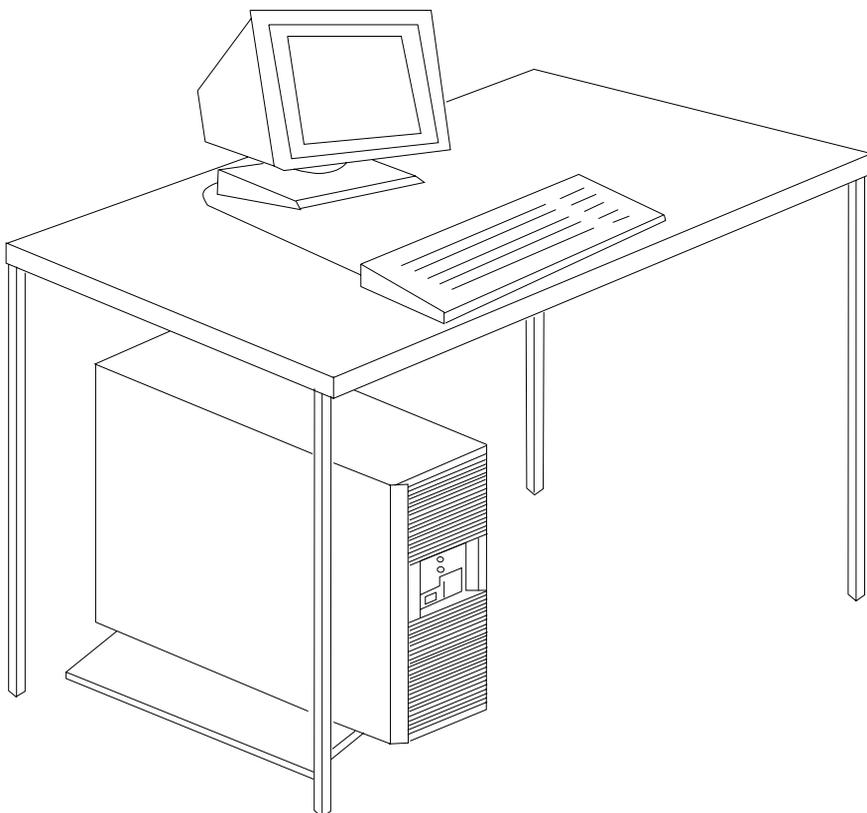


Figure 2-2. The MAP/40s and MAP/40

2. The Remote Maintenance circuit card may not be available. Check with your account representative for information about availability.

The upper bezel cover goes over the peripheral bay — disk drives. The lower bezel cover goes over the air intake fan and holds the air filter. The center control panel contains the keyboard receptacle, power/reset switch, power-on indicator, and disk activity indicator.

MAP/40

The MAP/40 ([Figure 2-2](#)) supports call traffic generated by 1,000 to 200,000 messaging users and 4,000 Lodging users. It accommodates up to 42 voice channels and 8 networking channels in the following combinations: 30 voice channels and 8 networking channels, 36 voice channels and 4 networking channels, and 42 voice channels with no networking. The MAP/40 supports 425 hours of unmirrored messaging storage and 155 mirrored hours. Up to 64 trusted servers can be administered with four simultaneous sessions. The MAP/40 supports up to 2000 INTUITY Message Manager clients with a maximum of 64 simultaneous sessions. The MAP/40 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card.

The MAP/40 is a 12-slot, four-bay system in a tower configuration. The MAP/40 is supported with upgrades only and is not available for purchase in this release. The MAP/40 can be upgraded to the current release.

The chassis is equipped with standard cooling fans. The following base circuit cards of the MAP/40 occupy 5 of the 12 slots:

- P5 75 MHz CPU circuit card
- External SCSI connector circuit card
- Video controller circuit card
- One Tip/Ring circuit card
- Remote Maintenance circuit card³

The following standard components occupy three of the four bays:

- Diskette drive
- Cartridge tape drive
- Hard disk drive

The fourth bay is available for an optional second disk which can be used exclusively for speech storage or mirroring. For more information on speech storage and mirroring, see [“Hard Disk Drives and Speech Storage”](#) below.

The upper bezel cover goes over the peripheral bay — disk drives. The lower bezel cover goes over the air intake fan and holds the air filter. The center control

3. The Remote Maintenance circuit card may not be available. Check with your account representative for information about availability.

panel contains the keyboard receptacle, power/reset switch, power-on indicator, and drive activity indicator.

MAP/40P

The MAP/40P ([Figure 2-3](#)) supports call traffic generated by 1,000 to 200,000 messaging users and 4000 Lodging users. It accommodates up to [42](#) voice channels and [8](#) networking channels in the following combinations: 30 voice channels and 8 networking channels, 36 voice channels and 4 networking channels, and 42 voice channels with no networking. The MAP/40 supports 425 hours of unmirrored messaging storage and 155 mirrored hours. Up to 64 trusted servers can be administered with four simultaneous sessions. The MAP/40P can support up to 2,000 INTUITY Message Manager clients with a maximum of 64 simultaneous sessions. The MAP/40 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card.

The MAP/40P contains 10 ISA slots and 3 PCI slots. In addition, there is a faceplate location that supports an external SCSI connector. The MAP/40P is a tower configuration and contains five peripheral bays.

The chassis is equipped with standard cooling fans. The following base circuit cards of the MAP/40P occupy 5 of the 13 slots:

- P5 120 MHz CPU circuit card
- External SCSI connector circuit card
- Video controller circuit card
- One Tip/Ring circuit card
- Remote Maintenance circuit card⁴

The following standard components occupy three of the five bays:

- Diskette drive
- Cartridge tape drive
- Hard disk drive

The first bay is empty. The fifth bay is available for an optional second disk for the exclusive use of disk mirroring. For more information on speech storage and mirroring, see [“Hard Disk Drives and Speech Storage”](#) below.

4. The Remote Maintenance circuit card may not be available. Check with your account representative for information about availability.

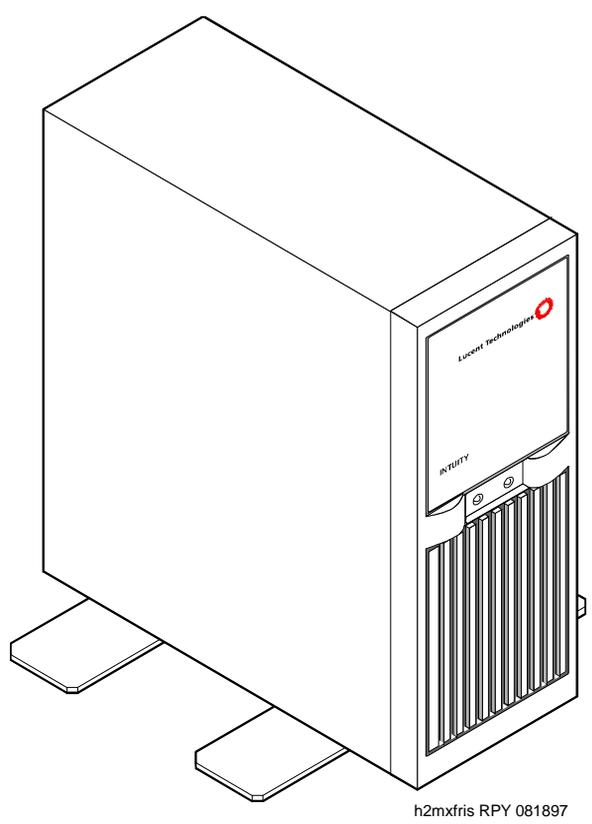


Figure 2-3. The MAP/40P

MAP/100

The MAP/100 ([Figure 2-4](#)) supports up to 4000 INTUITY Message Manager clients with a maximum of 96 simultaneous sessions. The MAP/100 can support 4 text-to-speech sessions on the CPU and 30 sessions with an SSP circuit card.

The MAP/100 is a 25-slot, eight-bay system in a tower configuration.

The chassis is equipped with a cooling fan. An additional four fans are located in front of the circuit card cage area. The following base circuit cards of the MAP/100 occupy 5 of the 25 slots:

- P5 120 MHz CPU circuit card
- External SCSI connector circuit card
- Video controller circuit card
- One Tip/Ring circuit card
- Remote maintenance circuit card⁵

The following standard components occupy four of the eight bays:

- Diskette drive
- Cartridge tape drive
- Two hard disk drives

The second standard disk drive is reserved exclusively for user data accessed by the messaging software applications. The remaining four bays are available for optional hard disks. These additional disks do not incur the non-speech-data overhead of the first and second disk and are available exclusively for speech storage or mirroring. For more information on speech storage and mirroring, see [“Hard Disk Drives and Speech Storage”](#) below.

5. The Remote Maintenance circuit card may not be available. Check with your account representative for information about availability.

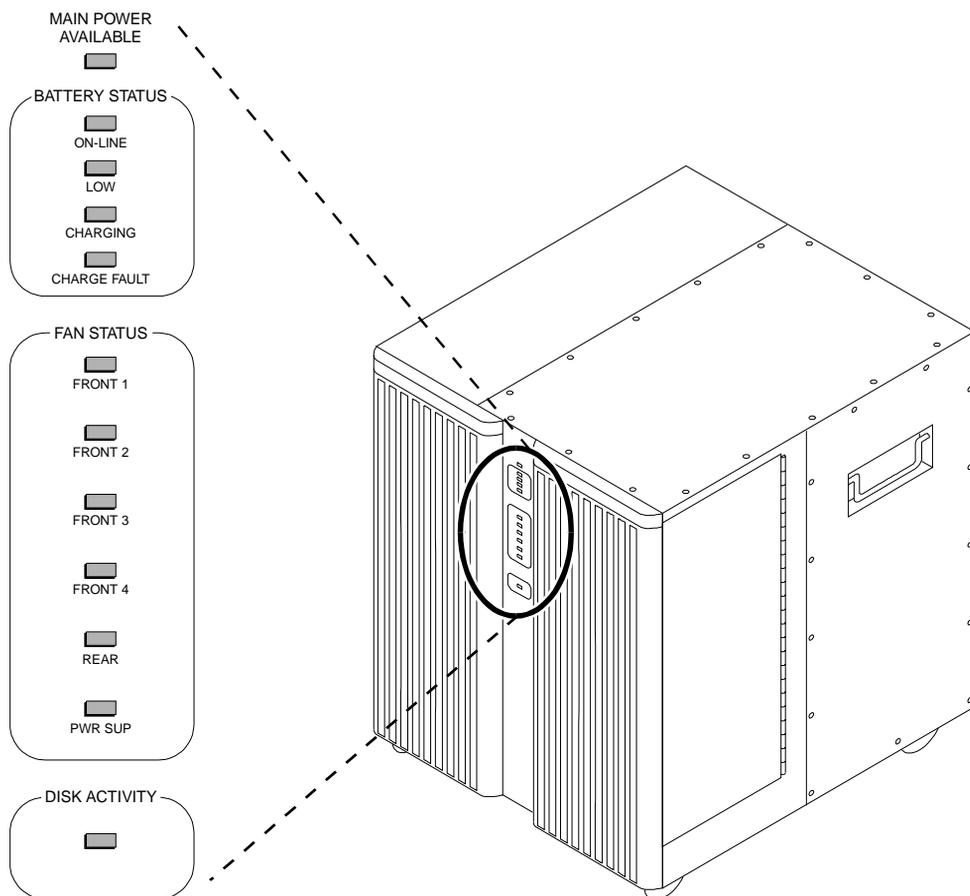


Figure 2-4. The MAP/100

The MAP/100 has hinged doors on the front which cover the peripheral bay — disk drives and cooling fans. A 5-pin circular DIN female keyboard receptacle is located on the lower right side behind the door along with the video receptacle, power switch, and reset button. LED indicators for power, disk activity, and fan and power status are located in the center of the unit between the two doors.

Backplanes

The MAP/40s, the MAP/40, the MAP/40P, and the MAP/100 are passive backplane computers. One characteristic of a passive backplane computer is that the CPU is on a removable circuit card. The MAP/5P has a system or mother board that contains the CPU and the video controller.

Serial Ports and Parallel Port

On the MAP/40s, the MAP/40, the MAP/40P, and the MAP/100, the CPU card has a single parallel port (most commonly used for the printer) and two RS-232 serial ports. Common configurations will use the first serial port (COM1) for remote access or for connecting to switches through a switch integration device (SID). The second serial port (COM2) is usually reserved for remote maintenance. The MAP/5P system board also has a single parallel port and two RS-232 serial ports. The same common configurations apply.

Hard Disk Drives and Speech Storage

A portion of the first hard disk on each platform is reserved for non-speech data storage, such as data for the UNIX operating system, the Lucent INTUITY system platform executables and data, and the Lucent INTUITY system software application executables. This disk area is very important for proper INTUITY system operations and cannot be changed or used for other purposes.

The rest of the first hard disk can be used for storing messaging components such as voice messages, users' personal greetings, and automated attendant voiced menus. On the MAP/100, additional hard disks can also provide more storage space. Disk storage space for messaging is sold in terms of hours. Additional messaging storage, beyond the standard configuration shown in [Table 2-1](#), is sold in a minimum of 5-hour blocks. To store the maximum hours of speech for a platform, the maximum number of hard disks and messaging storage must be purchased.

[Table 2-1](#) shows standard disk sizes, standard hours of speech storage, and the maximum hours of speech storage for each platform.

Table 2-1. Hard Disk Capacity and Hours of Speech Storage

Platform	Standard Number of 2 Gbyte Disks (Maximum)	Maximum Hours of Speech Storage (Mirrored Hours)
MAP/5P	1 (2)	155 (155)
MAP/40s	1 (2)	425 (155)
MAP/40	1 (2)	425 (155)
MAP/40P	1 (2)	425 (155)
MAP/100	2 (6)	1255 (445)

Mirroring

Mirroring is an optional package on the Lucent INTUITY R4 system that enables customers to store a copy of messaging information in another section of a hard disk or on another hard disk. In the case of some type of failure that renders one copy of the information unavailable, the second copy will be used as the source. Mirroring requires twice the disk capacity of a standard unmirrored configuration. In most cases, this means adding one or more hard disks to the Lucent INTUITY R4 system.

NOTE:

Mirrored disks provide no additional speech storage space as two copies of the exact same data are kept on the Lucent INTUITY R4 system.

Customers' hard disk configurations are determined by the hours of speech storage needed and their preference for mirroring. (Guidelines for determining the amount of speech storage needed are provided in *INTUITY Messaging Solutions Release 4 Change Description and Upgrade Planning*, 585-310-607.)

Cartridge Tape Drive and Diskette Drive

The MAP/5P, MAP/40s, MAP/40, MAP/40P, and MAP/100 are equipped with a 2-Gbyte cartridge tape drive and a 3.5-inch, 1.44-Mbyte diskette drive. These peripherals are used for initial installation of software, ongoing backups of the system, and for storage of customer data.

Keyboard

For local INTUITY AUDIX R4 system computer access, a standard 101-key keyboard is included in the base configuration for the hardware platforms.

Modems

Lucent INTUITY R4 configurations with INTUITY AUDIX Digital Networking and remote access may require a modem. The Lucent INTUITY R4 system includes as its primary modem the Paradyne Comsphere 3820, a high-speed, 9600-baud, full-duplex modem.

In addition to the primary modem, other modems have been tested and certified for use with Lucent INTUITY R4. [Table 2-2](#) specifies all primary and certified modems for both platforms.

Table 2-2. Modems Supported by the Lucent INTUITY R4 System

Modem	When Needed	Support Status
Paradyne Comsphere 3820	Required for <ul style="list-style-type: none"> ■ Low-speed RS-232C ■ Asynchronous digital networking ■ Remote terminal access 	Primary
MPDM	May be required for Data Communications Equipment (DCIU) switches	Primary
202T modem	Required for Centrex (SMSI) connectivity to DMS-100	Primary
7400A data module	Required for remote terminal access	Certified

Printer

An optional printer is available with the Lucent INTUITY R4 system for printing reports and screens. All platforms support the dot-matrix, 80-column, parallel printers shown in [Table 2-3](#).

Table 2-3. Printers Supported by the Lucent INTUITY R4 System

Printer	Support Status
NCR 6417	Primary
AT&T 570	Certified

Terminals

The Lucent 386 color SVGA monitor is recommended. The Lucent INTUITY R4 system can also be administered remotely through the use of a modem and one of the terminals shown in [Table 2-4](#).

Table 2-4. Terminal Supported by the INTUITY AUDIX R4 System

Terminal	Support Status
Lucent 386	Primary
Lucent 4410 (for PROCOMM PLUS 4410 or Terranova emulation)	Certified
Lucent 513 (for Terranova emulation)	Certified
Lucent 715	Certified
Lucent 4425	Certified
vt100	Certified

Circuit Cards

This section describes circuit cards and their functions. All of these circuit cards are available for each platform, with the exception of the SSP card, which is not supported on the MAP/5P. The number of voice and networking cards allowed per platform varies.

**NOTE:**

The number of voice channels a Lucent INTUITY R4 system supports depends on the type of switch it is integrated with. See [Chapter 5, "Switch Integration"](#) for more information.

Tip/Ring Circuit Card

A Tip/Ring circuit card is required in all Lucent INTUITY R4 system configurations. The following cards are supported:

- IVC6 (AYC10)
- IVC6A (AYC29)—supported for Australia
- Next Generation Tip/Ring (AYC30)

The Tip/Ring circuit card uses two 6-pin-conductor modular cords. These cords provide three lines for telephone hook-up.

Tip/Ring Circuit Card Quantity

The number of Tip/Ring cards a customer needs depends upon expected messaging traffic and the Lucent INTUITY R4 system configuration. All of the following software applications use this card:

- INTUITY AUDIX Voice Messaging
- Lucent INTUITY FAX Messaging
- Text-to-Speech
- Lodging

**NOTE:**

Tip/Ring circuit cards have six channels, but customers can purchase fewer voice channels on a right-to-use basis.

Standard Configurations

Standard configurations are as follows:

- The standard configuration for the MAP/5P, MAP/40s, and MAP/40 includes one Tip/Ring card with four ports enabled.
- The standard configuration for the MAP/100 includes two Tip/Ring cards with eight ports enabled.

Maximum Configurations

[Table 2-5](#) summarizes the maximum voice channel and Tip/Ring card information. Note that it may not be possible to install the maximum number of Tip/Ring circuit cards, depending on the presence of certain other cards in the system. For a complete listing of circuit card dependencies and slot assignments, see Appendix A, "System Configuration," in the maintenance book for the appropriate platform.

Table 2-5. Maximum Voice Channels and Tip/Ring Cards per Platform

Platform	Voice Channels	Tip/Ring Cards
MAP/5P	18	3
MAP/40s	18	3
MAP/40P	42	7
MAP/40	42	7
MAP/100	64	11

Video Controller Circuit Card

Each of the platforms contains a video controller circuit card as part of the standard configuration. The video controller circuit card allows the system to interface with a monitor.

**NOTE:**

The MAP/5P video controller is located on the system or mother board.

SCSI Circuit Cards

In the MAP/40s, MAP/40, MAP/40P, and MAP/100 platform configurations, the external SCSI connector circuit card provides for external SCSI device connection. The SCSI controller, which manages the hard disk drives and tape drive on these platforms, is built into the CPU.

In the MAP/5P the SCSI controller is located on the SCSI controller circuit card.

Remote Maintenance Circuit Card

The Remote Maintenance circuit card⁶ (RMB) provides remote diagnostics of basic system components. The system supports the following Remote Maintenance circuit cards:

- AYC54 (with an internal modem)
- AYC55 (without an internal modem)

Digital Networking Circuit Card

The INTUITY AUDIX Digital Networking feature requires the AUDIX Communications Controller (ACCX) circuit card. The Lucent INTUITY R4 system supports four networking channels on the card and allows combinations of DCP and RS-232 in two-channel increments through the ACCX card.

Think of the ACCX card as having two halves; each half containing two ports. When configuring the board, the customer must make parallel channel assignments to each half. In other words, each half can have one DCP port (two I-channels each) or two RS-232 channels. Customers cannot assign three DCP ports and one RS-232 port or three RS-232 ports and one DCP port.

6. The Remote Maintenance circuit card may not be available in all locations. See your account representative for availability.

Channel Termination

Each ACCX card terminates four data channels in one of the following combinations:

- Two DCP ports, each providing two processor interface channels (I-channels) for data. Depending on the type of switch at the customer site, only one of the two I-channels of each DCP circuit may be available for use.
 - System 75 R1V3, DEFINITY G1 R1V4, and DEFINITY G3i, G3s, or G3vs Version 1 support only one I-channel.
 - DEFINITY G3i, G3s, and G3vs Version 2 can use both of the I-channels. The option must be installed and administered on the switch before INTUITY system administration is performed. Contact a sales representative for more information on the I-channel option for the Digital Networking feature package.

**NOTE:**

DEFINITY G3r does not have a processor interface. The G3r relies on a packet gateway to route information.

- Four RS-232 ports
- One DCP line (two I-channels) and two RS-232 ports

Customers create various arrangements of DCP and RS-232 ports on the ACCX cards. For example, with the MAP/40, four ports can be configured as DCP and four as RS-232. Alternatively, six ports can set to DCP and two to RS-232. The Sales and Design Support Center (SDSC) or the International Technical Assistance Center (ITAC), as appropriate, can help determine the best configuration for each customer.

Circuit Card Capacities

[Table 2-6](#) summarizes the DCP and RS-232 capacities.

Table 2-6. MAP/40s, MAP/40, and MAP/100 Networking Capacities

Network Maximums	MAP/40s	MAP/40	MAP/100
ACCX networking cards	1	2	3
High-speed DCP ports	<u>4</u>	<u>8</u>	<u>12</u>
Low-speed RS-232 ports	<u>4</u>	<u>8</u>	<u>12</u>
Number of remote machines	485	485	485
Number of remote users	200,000 (with 1,000 local users)	<u>200,000</u> (with 1,000 local users)	<u>500,000</u> (regardless of the number of local users)

Multi-Port Serial Circuit Card

This multi-port serial circuit card provides eight RS-232 modular-pin serial ports. Common configurations will use the multi-port serial circuit card for connecting to:

- A Property Management System (PMS)
- A Call Accounting System (CAS)
- A remote administration terminal
- The following switches:
 - NEC NEAX 2400
 - Ericsson MD110
 - Intecom S/10, S/40, and S/80
 - Nortel DMS-100/SL-100
 - Lucent 5ESS

Switch Interface Circuit Cards

In addition to connecting through the multi-port serial circuit card, the system can be connected to a switch using a:

- DCIU circuit card
- Digital station interface circuit card

DCIU Circuit Card

The DCIU circuit card allows connection to the following switches:

- System 75
- System 85

Digital Station Interface Circuit Card

The digital station interface circuit card allows connection to the NORTEL MERIDIAN 1 and MERIDIAN SL-1 switches.

Ethernet LAN Circuit Card

The Ethernet Local Area Network (LAN) is a 10-Mbyte/second circuit card that supports TCP/IP for use with the customer's LAN, Text-to-Speech, Enhanced-List Application (ELA), Lucent INTUITY Message Manager, and INTUITY AUDIX Internet Messaging. For more information, see [Chapter 3, "System Features Description"](#).

SSP Circuit Card

The speech and signal processor (SSP) circuit card provides for up to 30 text-to-speech channels. The SSP circuit card is available on the MAP/40s and MAP/40, MAP40P, and MAP/100 configurations. For more information, see [Chapter 3, "System Features Description"](#).

Differences Among Platforms

The MAP/5P, MAP/40s, MAP/40, MAP/40P, and MAP/100 differ primarily in the following areas:

- Capacity
- Amount of RAM
- Number of circuit cards supported
- Number of voice channels supported
- Networking capacities
- Power requirements and heat dissipation

This section describes these differences.

Space Requirements

[Table 2-7](#) lists the approximate weight, size, and depth of the MAP/5P, MAP/40s or MAP/40, and MAP/100 computers. Note that if additional hardware, such as hard disk drives or circuit cards, is added to the system, the actual weight of a platform can increase 10–20%.

[Table 2-8](#) lists the approximate weight, size, and depth of the monitor and keyboard that are standard with any MAP.

Table 2-7. Space Requirements for the MAP/5P, MAP/40s or MAP/40, MAP/40P, and MAP/100

Platform	Weight	Height	Width	Depth
MAP/5P	13 kg (29 lbs)	41 cm (16 in.) with stabilizing feet	28 cm (11 in.) with stabilizing feet	46 cm (18 in.)
MAP/40s or MAP/40	23.5 kg (52 lbs)	45 cm (17.7 in.)	32 cm (12.6 in.) with base	53.4 cm (21 in.)
MAP/40P	20 kg (45 lbs)	44.5 cm (17.5 in.)	33 cm (13 in.) with stabilizing feet	53.4 cm (21 in.)
MAP/100				
<ul style="list-style-type: none"> ■ Desksid e ■ Rack- mounted 	63 kg (140 lbs)	61 cm (24 in.)	50 cm (19.5 in.)	56 cm (22 in.)
	58.5 kg (130 lbs)	55 cm (21.5 in.)	44.5cm (17.5 in.)	56 cm (22 in.)

Table 2-8. Space Requirements for the MAP Monitor and Keyboard

Equipment	Weight	Height	Width	Depth
Monitor	6.7 kg (15 lbs)	34 cm (13.5 in.)	33 cm (13 in.)	37 cm (14.5 in.)
Keyboard	2.3 kg (5 lbs)	6.4 cm (2.5 in.)	48 cm (19 in.)	20.5 cm (8 in.)

Power Consumption and Dissipation

[Table 2-9](#) compares power consumption and dissipation.

Table 2-9. Comparison of Power Consumption and Dissipation

Platform	Volts AC (VAC)	Power Dissipation (W)	Heat Output (BTU)
MAP/5P	<ul style="list-style-type: none"> ■ 100 domestic ■ 220 global 	350	1200
MAP/40s or MAP/40	<ul style="list-style-type: none"> ■ 90–130 domestic ■ 200–250 global 	325	1100
MAP/40P	<ul style="list-style-type: none"> ■ 115–230 	350	1200
MAP/100	<ul style="list-style-type: none"> ■ 90 –130 domestic ■ 200 –250 global 	325	2700

Comparison of Platform Components

[Table 2-10](#) shows the differences between the hardware components of the Lucent INTUITY R4 platforms.

Table 2-10. Comparison of Release 4 Platform Components

Component	MAP/40s (two configurations)		MAP/40	MAP/100
CPU	75-MHz Pentium	75-MHz Pentium	75-MHz Pentium	120-MHz Pentium
RAM (new systems)	40 Mbytes <ul style="list-style-type: none"> ■ 2 x 16 Mbyte ■ 2 x 4 Mbyte 	64 Mbytes <ul style="list-style-type: none"> ■ 2 x 32 Mbyte 	64 Mbytes <ul style="list-style-type: none"> ■ 2 x 32 Mbyte 	96 Mbyte <ul style="list-style-type: none"> ■ 2 x 32 Mbyte ■ 2 x 16 Mbyte
RAM expansion	To 64 Mbyte (replace the 2 x 4 with 2 x 16)	To 128 Mbyte (two expansion slots available)	To 128 Mbyte (two expansion slots available)	To 128 Mbyte (replace the 2 x 16 with 2 x 32)

Continued on next page

Table 2-10. Comparison of Release 4 Platform Components — *Continued*

Component	MAP/40s (two configurations)		MAP/40	MAP/100
2-Gbyte hard disks (maximum)	1 (2)	1 (2)	1 (2)	2 (6)
Maximum number of bays available for optional hard disks	1	1	1	4
Mirroring	Yes	Yes	Yes	Yes
Hours of message storage	Disk 1 = 155 Disk 2 = 270	Disk 1 = 155 Disk 2 = 270	Disk 1 = 155 Disk 2 = 270	Disk 1 = 175 Disk 2 = 0 Disks 3–6 = 270
Maximum hours (mirrored hours)	425 (155)	425 (155)	425 (155)	1255 (445)
IMAPI sessions ■ Requires LAN card ■ Used by Message Manager, ELA, and trusted servers	32	32	64	96
Trusted Servers supported	32	32	64	96
Text-to-Speech sessions	2	2	4	4
Slots available for optional circuit cards	5	5	8	21

Continued on next page

Table 2-10. Comparison of Release 4 Platform Components — Continued

Component	MAP/40s (two configurations)		MAP/40	MAP/100
System serial ports	COM1– Available COM2– Dedicated unless MERLIN LEGEND integration			
Maximum number of optional multi-port cards	1	1	1	1
Available system serial port totals with optional multi-port card	9	9	9	9
Maximum number of networking cards (non-TCP/IP)	1	1	2	3
Maximum number of optional TCP/IP networking channels	4	4	4	4
Maximum number of networked systems	485	485	485	485
Maximum number of IVC6 voice cards (no optional circuit cards present)	3	3	7	11

Continued on next page

Table 2-10. Comparison of Release 4 Platform Components — *Continued*

Component	MAP/40s (two configurations)		MAP/40	MAP/100
Maximum number of GPSynch cards ¹	1	1	1	1
Upgrade platform?	N/A	To upgrade the R4 MAP/40s platform: <ul style="list-style-type: none"> ■ Add IVC6 board and RAM (no charge for add'l. RAM) 	To upgrade from an R4 MAP/40s to an R4 MAP/40 platform: <ul style="list-style-type: none"> ■ Add RAM ■ Run software upgrade 	Cannot upgrade from an R4 MAP/40s or MAP/40 to an R4 MAP/100

Continued on next page

1. Lucent Technologies switch devices (SIDs) or translator card. If the customer's system uses more than one SID or a SID and a remote terminal, a multi-port serial card is required.

Capacity Differences

[Table 2-11](#) shows system maximum comparisons among the hardware platforms. No platform can be equipped to the maximum with all features. For example, a MAP/40 that is equipped with networking supports a maximum of only 12 voice channels, not 18.

Maximum channel capacities vary with non-Lucent switches. For more information, see [Chapter 5, "Switch Integration"](#).

Table 2-11. Comparison of Release 4 Platform Capacities

Maximum Number of Channels or Users	MAP/40s (two configurations)		MAP/40	MAP/100
Voice channels (ports) ¹	12	18	42	64
INTUITY AUDIX users	15,000	15,000	15,000	20,000
Automated attendants	No maximum; however, each Auto-attendant counts as one user	No maximum; however, each Auto-attendant counts as one user	No maximum; however, each Auto-attendant counts as one user	No maximum; however, each Auto-attendant counts as one user
Bulletin boards	No maximum; however, each bulletin board counts as one user	No maximum; however, each bulletin board counts as one user	No maximum; however, each bulletin board counts as one user	No maximum; however, each bulletin board counts as one user

Continued on next page

Table 2-11. Comparison of Release 4 Platform Capacities — Continued

Maximum Number of Channels or Users	MAP/40s (two configurations)		MAP/40	MAP/100
Digital networking channels ²	4	4	8	12
<ul style="list-style-type: none"> ■ Maximum number of high-speed (DCP) networking channels 	4	4	8	12
<ul style="list-style-type: none"> ■ Maximum number of low-speed (RS232) networking channels 	4	4	8	12
Local users (with digital network)	Up to 15,000 depending upon the number of remote users	Up to 15,000 depending upon the number of remote users	Up to 15,000 depending upon the number of remote users	20,000
Remote users (with digital network)	Up to 213,000 remote users with 1,000 local users	Up to 213,000 remote users with 1,000 local users	Up to 213,000 remote users with 1,000 local users	500,000 regardless of the number of local users
AMIS analog networking channels	All voice ports on the system can be used	All voice ports on the system can be used	All voice ports on the system can be used	All voice ports on the system can be used
Local users (with AMIS analog network)	Up to 15,000 depending upon the number of remote users	Up to 15,000 depending upon the number of remote users	Up to 15,000 depending upon the number of remote users	20,000
Remote users (with AMIS analog network)	Up to 200,000 remote users with 1,000 local users	Up to 200,000 remote users with 1,000 local users	Up to 200,000 remote users with 1,000 local users	500,000

Continued on next page

Table 2-11. Comparison of Release 4 Platform Capacities — Continued

Maximum Number of Channels or Users	MAP/40s (two configurations)		MAP/40	MAP/100
Local users (with both AMIS analog and digital networking) ³	Up to 200,000 depending upon the number of remote users	Up to 200,000 depending upon the number of remote users	Up to 200,000 depending upon the number of remote users	500,000
Remote users (with both AMIS analog and digital networking) ³	200,000	200,000	200,000	500,000
INTUITY Message Manager clients	1,000	1,000	2,000	4,000
IMAPI sessions	32	32	64	96
Switches using DCS networking	20	20	20	20

Continued on next page

1. Lucent INTUITY of voice port: system can accommodate.
2. If Digital Networking is used, it reduces the number of available voice ports by 6 for each networking card used (to a maximum of two cards, resulting in a maximum reduction of 12 voice ports.)
3. The number of local and remote users that the INTUITY AUDIX system can accommodate depends on the length and number of messages sent per hour, the number of messages stored in a mailbox, and the average number of networked messages sent locally.

Software Components

The INTUITY AUDIX R4 system has both standard and optional software applications. Adding some optional software applications may involve installing the software from a floppy diskette or tape, and the installation of additional hardware, such as a hard disk drive. Other optional features come “bundled” as part of the standard software application and can simply be “turned on” or enabled by a remote support center once a feature is purchased.

This section briefly discusses the INTUITY AUDIX R4 system standard and optional software applications. For more information on the functionality of each software feature, see [Chapter 3, “System Features Description”](#).

Standard Software Applications

All standard software is loaded on to the INTUITY AUDIX R4 system by streaming tape and floppy diskette. [Table 2-12](#) lists all of the primary software application names as they should appear in the View Installed Software Results window.

Table 2-12. View Installed Software – Primary Software Packages

PKGINST	Primary Software Package Name	Listed in View Installed Software Window
AUDIXtune	INTUITY Platform AUDIX Tuning	Always
cdhstub	INTUITY CDH Stub Package	Always
chantran	INTUITY Channel And Transfer Test Tool	Always
cvismenu	INTUITY Administration Screens Package	Always
fax	INTUITY FAX Integration Package	Always
field	Field Data Collection Software	Always
language set	<i>language set name</i>	1 of the 9 available language sets should always appear
machlog	INTUITY AUDIX Logger Package	Always
maint	INTUITY Maintenance Module	Always
mtce	INTUITY Utilities Package	Always
pltupg	INTUITY Platform Upgrade Assistance Package	Always
prismlog	INTUITY Logger/Alerter Package	Always

Continued on next page

Table 2-12. View Installed Software – Primary Software Packages — *Continued*

PKGINST	Primary Software Package Name	Listed in View Installed Software Window
rmbinteg	INTUITY RMB Integration Software Version <i>n.n</i>	When the Remote Maintenance circuit card (RMB) is installed
swinbase, swutil, usswtch, etc	switch integration package	Some type of switch integration package should always appear
swtff	INTUITY Software Text To Speech Package	Always
tipring	INTUITY Tip/Ring Board Driver	Always
TSM	INTUITY Transaction State Machine Package	Always
upgrade	INTUITY Upgrade Utility	Always
VM-dfltdb	AUDIX(R) Default db	Always
VM-files	AUDIX(R) Files	Always
VM-m4upg	INTUITY AUDIX(R) [<i>load number</i>] -> upgrade	Always
VM-sw	AUDIX(R) Software	Always
vmscreens	INTUITY Voice Mail Administration Screens Package	Always
vs	Voice Processing Platform	Always

UNIXware Applications

The following UNIX base system software is standard:

- Networking Set
 - Remote Procedure Calls
 - Internet Utilities
 - Ethernet Hardware Support
 - Commands Networking Extension

- Basic Development Set
 - Software Packaging Tools
 - Optimizing C Compilation System
- Multi-User Set (required for the Multi-User feature in releases prior to Release 4, Phase 2)
 - User Upgrade

Optional Software Applications

The INTUITY AUDIX R4 system accommodates a number of optional components beyond the base configuration software.

Some optional software components are loaded on the system by streaming tape or floppy disk. Others are remotely enabled by Lucent technicians.

The following optional software packages are available for Lucent INTUITY R4 systems:

- INTUITY FAX Messaging
- Internet Messaging
- Lotus Telephony OneStop
- Internet Messaging for INTUITY AUDIX (R4.2-5 and R4.3)
- INTUITY Software Text-to-Speech
- Enhanced-List Application (ELA)
- INTUITY Lodging
- INTUITY Lodging FAX Messaging
- INTUITY AUDIX Digital Networking
- INTUITY RMB Integration Software
- One of the following switch integration packages:
 - Switch Integration Package for Lucent DCIU Switches
 - Switch Integration Package for Integrations with a Digital Station Interface Circuit Card (VB-PC)
 - Switch Integration Package for Inband and Serial Switches

System Features Description

3

Overview

The customer can select from various software applications and hardware components to build a Lucent INTUITY R4 system. Some components are optional units, usually made up of hardware and software, which can be added to the base system. The primary software applications reside on the same platform. This allows them to share resources, such as hard disk space, the Remote Maintenance Board, and database information.

This chapter provides a detailed description of the primary software applications and end-user features available in Lucent INTUITY R4.

Lucent INTUITY R4 system features related to administration, maintenance, and reliability are discussed in [Chapter 6, "Administration and Maintenance"](#).

Purpose

This chapter provides information to understand the many advantages a new Lucent INTUITY R4 Messaging system can offer.

An Overview of Lucent INTUITY R4 Messaging

Lucent INTUITY Release 4 (R4) Messaging offers users enhanced flexibility to manage multimedia messages from their telephones or personal computers (PCs).

With R4, the Lucent INTUITY system now features electronic mail (e-mail) messaging and integration with other e-mail systems. Lucent INTUITY R4 is a true multimedia messaging platform, integrating voice, fax, and e-mail messages into a single system.

Also with R4, digital networking has been expanded to include the ability to network INTUITY machines using a TCP/IP LAN.

The Lucent INTUITY R4 features can be scaled to meet customer needs on a system level, as well as a user level, enabling the Lucent INTUITY system to serve a 30-member firm as well as a 500,000-member, multi-location corporation.

What is a Message in a Lucent INTUITY R4 System?

With Lucent INTUITY R4, a message is not limited to voice or fax media type components. A message can now contain up to four *media type* components, specifically:

- Voice
- Fax
- Text (created via a supported e-mail application or Lucent INTUITY Message Manager)
- File attachment (a software file, such as a spreadsheet or word processing file)

A message can consist of a total of four components; one component of each media type. For example, a sales manager may want to inform the distributed sales force of a new compensation plan. The details of the compensation plan are in the form of a text message created in Lucent INTUITY Message Manager. Using Lucent INTUITY R4, the sales manager can send a message that consists of both voice and text components. The voice component of the message might be, "This message is going to all members of the Northeast Sales region. Congratulations on your excellent results last year. As of January 1st, the compensation plan for new product sales will be changed. Please print the attached text message for detailed information." The text component of the message would then be used to specify the details.

When a message is sent, the AUDIX system adds some descriptive information to the message. The message then consists of the following information:

- Header* The header consists of the time and date of delivery, the type of message, and a listing of all message components, specifically:
- Call Answer
 - AMIS Analog
 - Voice Mail
 - Fax Mail
 - E-Mail
 - File Attachment
 - Private
 - Priority
 - Broadcast

The system automatically creates a header for each message sent. If a message is addressed to more than one recipient, the system creates a header for each recipient.

- Message Body* The message body consists of the caller's spoken message or a voiced rendering of a text message, if using Text-to-Speech. In the case of a nondeliverable message, the message body consists of a standard system message. For example, if a message containing a file attachment is sent to a pre-R4 system, the message is returned, and the system message indicates that the recipient's system cannot accept messages with file attachments.

In the case of the receipt of an incomplete message, any spoken message will be preceded with a standard system message indicating that not all message components were received.

What is a Mailbox?

A mailbox is a storage area on a computer disk for messages, personal greetings, and mailing lists. All Lucent INTUITY R4 users automatically receive a mailbox when they are administered on the system.

Each user accesses his or her mailbox through a private password. (Other users or callers leave messages in a user's mailbox, but cannot perform any other function related to that user's mailbox.) After a user logs in, the system voices the name of the user (if recorded) and reports the number of new messages (if any) received. Each message consists of the message header and message body as described above.

Mailboxes are divided into two sections, the incoming mailbox, and the outgoing mailbox. [Figure 3-1](#) shows this concept.

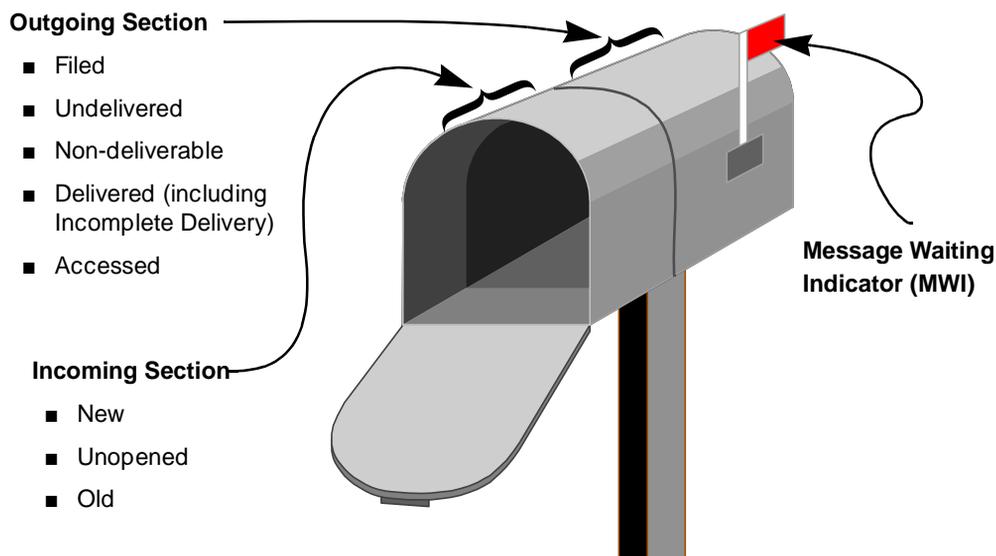


Figure 3-1. Voice Mailbox Sections

Incoming Mailbox

The incoming section of a mailbox receives messages from other users, the AUDIX system, and callers redirected to the mailbox because no one answered the telephone. The user can save, delete, reply to, forward, and in other ways manipulate these messages.

A user's incoming messages fall into three categories:

- | | |
|----------|--|
| New | A message and header the user has not yet listened to. The Message Waiting Indicator (MWI) on the user's telephone turns on when a new message is present and turns off after the user has listened to it. |
| Unopened | A message whose header has been listened to, but not the message itself. The MWI does not stay on for this type of message. |
| Old | A message the user has listened to, but has not deleted. |

The system administrator can set the order in which these categories are played to the user.

Outgoing Mailbox

The outgoing section of a mailbox stores messages a user creates, sends, or forwards. In most cases, these messages remain in the outgoing section until they are delivered. Outgoing messages are of the following types (listed in the default order in which users review outgoing messages). The system administrator can change this order, if desired.

Filed Messages that users create and save in the outgoing section of a mailbox. Users can later access these messages to modify, address and send again, or delete.

Undelivered Messages that have not yet been sent (for example, those scheduled for delivery at a future time or date). Users can review, change, or cancel messages and their addresses at any time before delivery.

Nondeliverable Messages that the system could not deliver. The system attempts to deliver a message up to 10 times (or the administered number of times), then places the message in this category. Usually this indicates that the intended recipient's incoming mailbox is full, that the recipient's system cannot recognize or accept a message component (for example, is not fax-enabled), or that there were transmission problems (for example, with an AMIS analog line).

Messages defined as "nondeliverable" can be rescheduled for delivery with a new address, or altered to allow forwarding, if needed.

Delivered Message headers that identify messages delivered but not yet listened to or that identify messages containing components that could not be delivered. The latter type of message header is an *Incomplete Delivery* header. For example, if a message contains more than the four components allowable (that is, a voice, fax, text, and file attachment), the additional components are not delivered, and the message header indicates that a component was not delivered.

Accessed Message headers that identify messages that have been listened to. A message is considered accessed even if only the header has been listened to.

Telephone Access

All message components can be manipulated from the telephone. The basic nature of the telephone interface remains the same, regardless of the component media type. Normally, messages are created, addressed, delivered, received, and replied to or forwarded. [Table 3-1](#) shows how these actions are implemented when messages are accessed through the telephone.

Table 3-1. Message Manipulation from the Telephone Interface

Action	Component			
	Voice	Fax	Text (created via Message Manager or an E-Mail application)	File Attachment
Create?	Yes	Yes ¹	No	No
Address?	Yes	Yes	N/A	N/A
Receive?	<ul style="list-style-type: none"> ■ Hear message header ■ Hear voice 	<ul style="list-style-type: none"> ■ Hear message header ■ Print to fax machine 	<ul style="list-style-type: none"> ■ Hear message header ■ Hear voiced rendering of message² ■ Print to fax machine³ 	<ul style="list-style-type: none"> ■ Hear message header
Reply/ Forward?	Yes (may also include a fax annotation)	Yes (may also include a voice annotation)	Yes (may also include a voice annotation)	Yes (may also include a voice annotation)

1. The customer must purchase the FAX Messaging feature to be able to create a fax.
2. The customer must purchase the Text-to-Speech feature to hear text messages.
3. The customer must purchase the Text-to-Fax feature to hear text messages.

So, voice and/or fax messages can be created using a telephone, but text messages and file attachments cannot. When retrieving messages, voice and text messages can be heard, and the text message can be printed to a fax machine.

Creating and Sending a Voice Message

Using the telephone, users can record a voice message and then do any or all of the following:

- Mark the message *private*, that is, the recipient cannot forward the message
- Mark the message *priority*, that is, the message is stored ahead of other messages in the recipient's mailbox
- *Schedule delivery* of the message for a future time and date
- *File a copy* of message in their own mailbox "file cabinet"
- *Include other component media types* in the message, specifically, fax, file attachments, and text

The message is then ready to be addressed and sent to an individual AUDIX recipient, to multiple AUDIX recipients, to a Lucent INTUITY Message Manager user, or to administered e-mail recipients. The user can address messages individually, or can broadcast the message to multiple recipients using a mailing list.

For more details regarding the extensive INTUITY AUDIX voice messaging functionality available with the telephone keypad, see *INTUITY Multimedia Solutions User's Guide*, 585-310-748.

PC Access

Lucent INTUITY R4 provides two methods for managing messages from a PC:

- Lucent INTUITY Message Manager
- Lucent INTUITY Electronic Mail Integration

Lucent INTUITY Message Manager

Lucent INTUITY Message Manager is a software application that runs on a Windows PC and connects with the INTUITY AUDIX messaging system through a TCP/IP LAN. The program uses a graphical interface to enable users to view a list of their messages on their PCs. Users can choose messages in any order and, by selecting icons with a mouse, perform all messaging tasks — everything that can be done with the telephone keypad and more.

There is a difference between Lucent INTUITY Message Manager and an e-mail system, however. Message Manager can be used to send messages to users on the same AUDIX system or to networked and administered remote AUDIX systems. A supported e-mail system, however, can be used to send messages to systems external to AUDIX, for example, the Internet or other e-mail systems. See "[Internet Messaging](#)" below for more information.

Lucent INTUITY Electronic Mail Integration

In many situations, a customer site may have a voice mail system and a separate e-mail messaging system. To retrieve all messages, users must access each system individually. Lucent INTUITY R4 alleviates this problem with an optional feature known as Electronic Mail Integration. This optional feature:

- Synchronizes a user's PC-based e-mail mailbox and AUDIX mailbox such that a message received in one system is replicated in the other.
- Provides a gateway through which the Lucent INTUITY system can send and receive messages across an e-mail network.

As with Lucent INTUITY Message Manager, users can choose messages in any order and, by selecting icons with a mouse, perform all messaging tasks – everything that can be done with the telephone keypad. See [“Lucent Intuity Electronic Mail Messaging”](#) below for more information.

INTUITY AUDIX Voice Messaging

In Lucent INTUITY R4, voice messaging is provided by AUDIX software on the Lucent INTUITY system. Users can record a spoken message, address it, and then send it to other INTUITY AUDIX Voice Messaging users, or to e-mail users who have been defined to the AUDIX system (if INTUITY Electronic Mail integration has been purchased for the system.) These users can receive the message on their local machine or on networked Lucent INTUITY systems.

Users and callers instruct the INTUITY AUDIX R4 Voice Messaging system by pressing the keys on their touch-tone telephones in response to detailed voice prompts from the system.

The AUDIX R4 software uses a high-quality voice-encoding algorithm known as Code-Excited Linear Prediction (CELP). CELP captures the nuances and subtle inflections of the human voice, which is an integral part of person-to-person communication.

Users who have access to Lucent INTUITY Message Manager can accomplish the same messaging functions from their PCs as described in [“Internet Messaging”](#) below.

Lucent INTUITY R4 Voice Messaging Features

Lucent INTUITY R4 Voice Messaging provides the customer with four primary features:

- Voice Messaging
- Call Answer
- Automated Attendant
- Bulletin Board

Voice Messaging

Voice Messaging is similar to an electronic mail system in that messages can be sent to others without calling the recipient directly. The message is then stored in the recipient's voice mailbox or PC (e-mail or Lucent INTUITY Message Manager) mailbox, if applicable. Recipients can access stored messages at their convenience.

Voice Messaging enables the user to:

- Send messages to other AUDIX and e-mail or Message Manager users
- Listen to messages received from other AUDIX and e-mail or Message Manager users
- Forward messages received with comments attached
- Reply to messages received from other AUDIX and e-mail or Message Manager users
- Create mailing lists containing up to 250 recipients

In addition to these basic capabilities, the Voice Messaging feature also enables the user to:

- Automatically place a call from INTUITY AUDIX to the user when there are messages waiting
- Specify the telephone number to be called by INTUITY AUDIX when messages are waiting (may be an office, home, car, or pager)

Call Answer

Call Answer enables users to:

- Have the AUDIX system answer incoming telephone calls
- Create personal greetings that INTUITY AUDIX Voice Messaging uses to answer incoming calls

In addition to these basic capabilities, the Call Answer feature also enables the user to:

- Disable call answer so that a caller hears a greeting, but cannot leave a message
- Customize a set of standard greetings
- Record up to nine different personal greetings using the Multiple Personal Greeting feature
- Play a single greeting for all calls, or assign various personal greetings to play in response to different types of calls, for example, internal and external, busy and no answer, or out-of-hours

Automated Attendant

An automated attendant (auto-attendant) is an interactive telephone answering system. It answers incoming calls with a prerecorded announcement and routes them based on the caller's response to menus and prompts.

The system administrator sets up an auto-attendant so that callers hear a menu of options. Callers then press the button on their telephone keypad that corresponds to the menu option they want and the auto-attendant executes the selected option. Those calling from rotary telephones are typically told that they can hold or call another number to speak with a live attendant.

An auto-attendant menu system, or *menu tree*, can be designed to contain subordinate layers of menus or bulletin boards. These sub-menus, or *nested menus*, play additional options that can include a choice leading to another nested menu.

The voiced menu options that callers hear are actually personal greetings that the user records for the auto-attendant's extension. The text of the message can easily change just as any personal greeting can. The Multiple Personal Greetings feature can be used to provide different menus and options for different types of callers.

If the Lucent INTUITY system has multiple language sets available, the menu options can include a choice that routes callers to a sub-menu voiced entirely in another language. The Multiple Personal Greetings feature can also be used to record menus in various languages. For more information, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Bulletin Board

A bulletin board is an electronic message system that callers can access to hear messages. Callers dial the bulletin board telephone number and the system answers and presents a recorded message. The major difference between a bulletin board and an auto-attendant is that a bulletin board does not have an option to route to a live attendant. For more information, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Voice Messaging Requirements

INTUITY AUDIX Voice Messaging is part of the base configuration of the Lucent INTUITY system. Therefore, with at least one voice card and switch integration, its requirements have already been met. The INTUITY AUDIX Voice Messaging software application can accommodate more users and messaging traffic through the addition of speech storage hours on the hard disk drives and through pairs of voice ports on voice cards. See [Chapter 2, "System Components and Capacities"](#) for additional options.

Voice Messaging Feature Operation

The four voice messaging features — Voice Mail, Call Answer, Automated Attendant, and Bulletin Board — use similar base functions to perform messaging operations. This section describes those operations.

NOTE:

The discussions of Voice Mail and Call Answer in this section assume that the person being called and the person retrieving messages are administered on the system as users and are administered on the switch with primary call coverage to the Lucent INTUITY system.

Voice Mail Feature Operation

The Voice Mail feature allows users to send and retrieve messages. The Voice Messaging feature operates in the following manner.

1. The user dials the Lucent INTUITY system hunt group extension.
2. The switch locates a free analog line.
3. The call is transferred to the identified analog line.
4. The user logs in using his or her password, listens to the messages in the mailbox, and hangs up.
5. The Lucent INTUITY system signals over the data link to turn off the MWI.
6. The analog line is made available for another call to the AUDIX Voice Messaging application.

Call-Answer Feature Operation

The Call Answer feature answers an incoming call when a dialed extension is busy or not answered.

Call Answer for Lucent DCIU Switches

For Lucent DCIU switches, the Call Answer feature operates in the following manner ([Figure 3-2](#)).

1. The user's call coverage assignment within the switch sends the call to the AUDIX hunt group. The switch and software locate a free analog line (voice channel) within the hunt group and connect the call to AUDIX.
2. At the same time, the switch sends information about the call, such as the extension number called, through the Lucent INTUITY system digital connection on the GPSC-AT/E switch integration card.
3. When the Lucent INTUITY system is contacted over the analog line, it opens the appropriate mailbox (based on data received over the digital link) and plays the user's greeting.
4. When the caller hangs up, the Lucent INTUITY system closes the mailbox and sends a signal via the data link to activate the MWI.
5. The analog line is then made available for another call to the AUDIX software application.

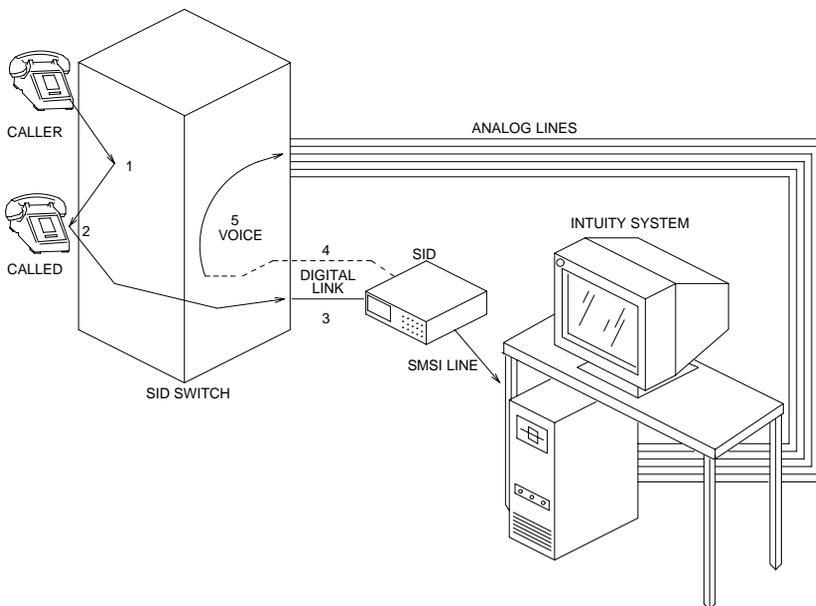


Figure 3-2. How Call Answer Works with a DCIU Integration

Call Answer with a SID

For switches that are used with a Switch Integration Device (SID), the Call Answer feature operates in the following manner ([Figure 3-3](#)).

1. The call coverage assignment within the switch sends the call information to the SID.
2. The SID assembles call information from the switch into the Simplified Message Desk Interface (SMDI) protocol.
3. The SID finds and seizes an available analog line and sends call information to the switch integration software inside the Lucent INTUITY system.
4. The switch then transfers the call to the identified analog line.

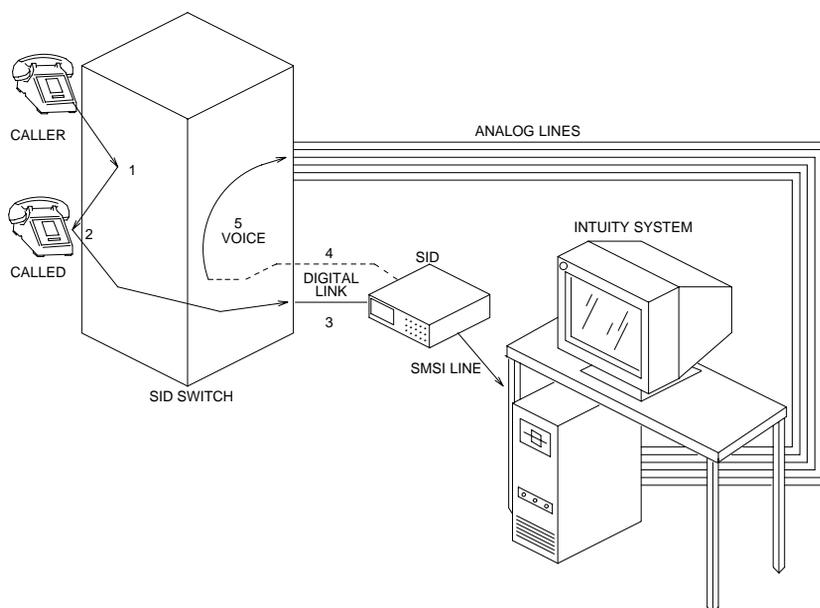


Figure 3-3. How Call Answer Works with a SID Integration

5. When the Lucent INTUITY system is contacted over the analog line, it opens the appropriate mailbox (based on data received over the digital link) and plays the user's greeting.
6. When the caller hangs up, the Lucent INTUITY system closes the mailbox and sends a signal via SID data to activate the MWI.
7. The analog line is then made available for another call to the AUDIX software application.

For more information on switch integration communications, see the switch document included with the Lucent INTUITY system documentation set.

Automated Attendant

The Automated Attendant (auto-attendant) feature answers incoming calls with a recorded announcement and routes calls based on a caller's response to menus and prompts. An auto-attendant is administered on the Lucent INTUITY system as a special kind of user. It is a mailbox with unique capabilities to route calls using nested menus (called attendants) and commands.

1. The caller dials the auto-attendant extension.
2. The auto-attendant's extension call coverage assignment on the switch is administered to be forwarded immediately to the Lucent INTUITY system.
3. When the Lucent INTUITY system is contacted, it opens the auto-attendant mailbox and plays the auto-attendant's menu. The menu that is voiced is actually the personal greeting for that mailbox.
4. The actions each auto-attendant performs when specific keys are pressed are administered by the system administrator. An auto-attendant can be administered to transfer the caller to another extension or voice mailbox, play an informational message, or go to a subordinate menu of options.
5. When the caller hangs up or transfers to another extension, the Lucent INTUITY system closes the mailbox.
6. The analog line is then made available for another call to the AUDIX software application.

Just as with a regular user's mailbox, multiple people can access the automated attendant at the same time.

Bulletin Board

The bulletin board feature answers incoming calls and plays recorded messages. Callers cannot leave messages or transfer to a live attendant.

1. The caller dials the bulletin board extension.
2. The bulletin board's extension call coverage assignment on the switch is administered to be forwarded immediately to the Lucent INTUITY system.

3. When the Lucent INTUITY system is contacted, it opens the bulletin board mailbox and plays the bulletin board's message. The message that is voiced is actually the personal greeting for that mailbox.
4. When the bulletin board is finished playing its message, it disconnects the caller and the analog line is made available for another call to the AUDIX feature package.

Voice Messaging Languages

The AUDIX Voice Messaging application is provided with a standard American English announcement set. This announcement set can be replaced or augmented with one of an ever-expanding number of options, including non-English languages and Telecommunications Device for the Deaf (TDD). Lucent account representatives have the most recent list.

Multilingual Support

With the optional multilingual feature, a user can install up to nine languages on the AUDIX system and operate them simultaneously. Callers can interact with the AUDIX system using different languages. For example, callers can follow voice prompts in languages that may or may not match the language of the people they are calling.

Users can record personal greetings in two different languages. Any prompts are also in the selected languages.

Customized Announcements

Announcements are composed of sets of spoken instructions or voice prompts in the AUDIX Voice Messaging application. Some examples of announcements are:

- "To access your mailbox, press star R."
- "To record messages, press 1. To get messages, press 2. To administer your personal greeting, press 3."

A system administrator can change any of the announcements and customize them to suit individual business needs. This ability applies regardless of the language being used.

Voice Messaging Planning Considerations

To operate the Voice Mail and Call Answer features, the system requires:

- Hours of speech — provided by the hard disk drives and sold in 5-hour increments.
- Voice ports — provided by the IVC6 card interface with the voice channels. Each IVC6 card provides two ports with three logical channels per port.
- Switch link (for integration with all switches other than the MERLIN LEGEND) — provides the called number information from the switch to AUDIX, allowing AUDIX to respond appropriately to an incoming call.

The Lucent account representative works with the customer to determine the optimal configuration of software and hardware to meet the customer's present needs and future plans. [Chapter 2, "System Components and Capacities"](#), contains information comparing system capacities and capabilities when various features are running on the platform.

Voice Messaging Security

Customers are responsible for configuring their Lucent INTUITY system to minimize unauthorized use. Three major areas of concern apply to voice messaging:

- The switch
- Logins and passwords
- Transfers and outcalling

The following list briefly describes some topics to consider and actions to take to secure the system. Each of these and other points are covered in depth in the *BCS Product Security Handbook*, 555-025-600. [Appendix B, "Security"](#) also discusses security for all Lucent INTUITY R4 features.

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INTUITY AUDIX Voice Messaging

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- **Switch administration**

In addition to restricting toll areas and creating lists of disallowed and allowed numbers, consider the following switch administration options when configuring a Lucent INTUITY system:

 - Restrict outward dialing. When outcalling is used only to alert on-premise users who do not have AUDIX MWIs on their telephones, assign an outward-restricted Class of Restriction (COR) to the AUDIX ports.
 - Block use of Trunk Access Codes (TACs). Station-to-trunk restrictions can be assigned to disallow stations from dialing specific outside trunks. Callers then cannot transfer out of AUDIX to an outside facility using TACs.
 - Assign low Facilities Restriction Levels (FRLs). The switch treats all the PBX ports used by voice mail systems as stations. Therefore, each voice mail port can be assigned a Class of Service (COS)/COR with an associated FRL. FRLs range from 0 to 7, with each number representing a different level of restriction. The higher the FRL number, the greater the calling privileges. For the purposes of AUDIX administration, all FRLs between AUDIX and the switch should be the same, low FRL.

- **Automated attendant**

When an automated attendant answers a call, the caller is generally given several options. On some PBXs, button 9 is used to access dial tone. If the system is not properly configured, a caller who presses 9 is passed back to the PBX. The PBX reacts to the "9" as a request for a dial tone. The caller then enters the digits of any local, long distance, or international telephone number and the call is completed. To reduce the risk of such a scenario, customers should administer their switch as suggested above in this list.

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- **Voice port administration**

Some measures that can minimize the security risk include:

 - Restricting outward dialing. A voice port with outward restriction cannot make any outside calls unless an allowed number list is administered for specific area codes and/or exchanges.
 - Restricting toll areas. Toll calls cannot be made from a voice port with toll restriction, but local calls can. However, toll restriction may prevent or limit outcalling and AMIS networking.
 - Creating lists of disallowed and allowed numbers. When a voice port is unrestricted or has no toll restriction, a disallowed number list can be used to prevent calls to specific numbers or exchanges within all area codes. When a voice port is outward or toll restricted, an allowed number list will allow calls to specific area codes or exchanges.
 - Restricting AMIS networking number ranges. To increase security for AMIS analog networking, including the fax message delivery service, restrict the number ranges that may be used to address messages.
 - Administering Transfer Security to restrict subscriber or digit ranges allowed for fax call delivery machines.

- **Logins/ passwords**

INTUITY AUDIX R4 features new levels of login and password security, including new user and system administrator login compliance guidelines, and trusted server login.

 - User login compliance guidelines. The system does not allow the use of the following types of passwords:
 - The same number as the extension (for example, extension 34555 cannot use password 34555)
 - Repeated digits (for example, 77777)
 - Consecutive digits (for example, 12345)

The system administrator can administer the Lucent INTUITY system to “age” user passwords, so that after the administered time has elapsed, users must select a new password.
 - System administrator compliance guidelines. All of the user compliance guidelines apply, including password aging for both the system administrator (sa) and voice mail (vm) logins.
 - Trusted server logins. The system administrator controls trusted server access to the Lucent INTUITY server by administering a password that must, in turn, also be administered on the trusted server by that server’s administrator. Additionally, there is a secondary level of trusted server access security called the IMAPI password. While administration of this secondary password is optional, it is strongly recommended to help ensure system security.

Lucent INTUITY FAX Messaging

Facsimile (fax) transmission is frequently used to communicate information. The FAX messaging feature is an extension of Lucent INTUITY messaging capabilities. It combines the send and receive capabilities of a stand-alone fax machine or fax modem on a PC with the many capabilities of AUDIX voice messaging on a networked system. By purchasing and enabling fax, customers can change a voice-only mailbox into a universal mailbox that is able to accept and store fax messages. Fax messages can then be sent, received, annotated, forwarded, broadcast, and otherwise handled just as voice messages.

Additionally, users can add a fax component to a message created via the voice mail feature and receive a fax component in their mailboxes via the Call Answering feature. Furthermore, a fax can be one of four components sent from, and received by, Lucent INTUITY Message Manager or a supported e-mail application. (The other three components are text, file attachments, and voice messages. See [“What is a Message in a Lucent Intuity R4 System?”](#) above for more information on message components.)

**NOTE:**

AMIS analog networking is necessary for the fax feature to work, and comes “bundled” with the fax feature when fax messaging is purchased.

Lucent INTUITY FAX Features

With the Lucent INTUITY FAX Messaging feature, a user can:

- Create and send a fax to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient in the same manner as a voice message is sent
- Create and send a fax to a nonuser using message delivery
- Receive faxes in his or her mailbox
- Print a fax from his or her mailbox to a fax machine, a PC with a fax modem, or a fax-enabled system such as another Lucent INTUITY system
- Administer his or her mailbox to “scan” incoming messages and automatically print a fax when it is received
- Administer his or her mailbox to automatically delete the fax message after it has been printed

Fax as a Secondary Extension

For users who receive a high volume of faxes, the system administrator can create a phantom extension on the switch to which fax calls are directed. The second extension forwards to AUDIX, so that the user has *two* extensions and *one* mailbox.

The primary extension is administered for Call Answer, Personal Greetings, and other messaging services. The secondary fax extension provides only a brief greeting that reveals the user's name and invites the caller to leave a fax. Voice messages cannot be recorded at this secondary extension, nor can other users address messages to it.

Guaranteed Fax

Guaranteed Fax provides coverage for busy or out-of-service fax machines, such as a stand-alone fax machine or a fax modem on a PC. If the fax machine is unavailable, Guaranteed Fax redirects the fax to a mailbox for temporary storage. This Guaranteed Fax mailbox is set with the Autoprint feature to automatically print faxes back to the fax machine that was called originally.

Guaranteed Fax is typically administered as a secondary extension, but can also be administered as an ordinary user. Each method has its advantages. In either case, the fax endpoint is set up on the switch for call coverage to AUDIX so that if the fax machine is busy, an incoming fax is directed into the AUDIX mailbox.

When administered as a secondary fax extension, the mailbox is treated as a printer. Voice, file attachments, and e-mail components of an incoming call are ignored. The fax data are recorded and the fax machine is tried repeatedly until the fax can be delivered. No other messaging features are available on a secondary fax extension.

When administered as an ordinary user, the fax machine is treated as an INTUITY AUDIX extension. INTUITY AUDIX messaging can be used with this number exactly as it can be for any INTUITY AUDIX user. For example, a fax can be sent directly to the fax machine's extension as a message to an INTUITY AUDIX extension. On the other hand, voice messages sent to this mailbox (perhaps as attachments to forwarded fax messages) remain in the mailbox and use a portion of the total mailbox size. The system administrator must manually delete such messages.

Lucent INTUITY FAX Messaging Requirements

Other than a fax machine (or printer, for users with Lucent INTUITY Message Manager or an integrated e-mail system), no additional hardware or software is required for fax to operate. The fax messaging application and AMIS analog networking comes “bundled” with the basic AUDIX Voice Messaging application and can be remotely enabled by Lucent technicians when the customer purchases the feature. The fax application can make use of the same voice card as the base voice messaging application.

However, if a customer is adding fax to an existing system, the number of voice ports and the hours of speech that the system requires to operate effectively will increase. The purchase of additional voice ports or additional speech storage may be required. The storage requirements of a fax page depends on the image content of the page as well as its resolution. A page containing large art-intensive graphics takes considerably more space in a user’s mailbox than does a page of text.

The following rule is generally useful when doing system planning for fax messaging:

- One standard-resolution textual fax page is equivalent to a 20-second to 30-second voice message. One fine-resolution fax page is equivalent to a 40-second to 60-second voice message.

To apply this to a real business setting, consider a company with 100 employees, all administered on the same Lucent INTUITY system. If 40 of those employees receive five two-page standard-resolution faxes per day, the system would have to be capable of storing an additional 130–200 hours per day. Also, while some users will delete the fax message after printing (indeed, users can administer their mailboxes to print and delete faxes automatically), others will forward the fax message, complete with voice annotation.

Lucent INTUITY FAX Feature Operation

The FAX feature of Lucent INTUITY R4 enables the individual user to control creating, sending, receiving, and printing faxes from the telephone. If the user has Lucent INTUITY Message Manager Release 2.0 or later or has purchased the Electronic Mail Integration feature to integrate AUDIX with an e-mail application, faxes can also be viewed on a PC.

Instead of physically checking the fax machine to see whether a fax has come in, users can dial their AUDIX mailboxes or click on an icon on their PC screens.

The fax feature uses the same type of port as does voice messaging. The IVC6 card supports both fax and voice messaging.

Fax Call Delivery

A fax message can be directed to any of the following fax destination endpoints:

- A stand-alone fax machine, such as a personal or office fax machine
- An individual PC fax modem
- A shared LAN multipoint fax server
- A fax port on a fax-enabled messaging system such as a fax-enabled Lucent INTUITY at another company

When users access their mailbox to forward or print a fax, they actually re-send that message from the mailbox to a fax destination endpoint. This fax endpoint could be a fax machine or printer in the same room or building or an AUDIX mailbox thousands of miles away. Lucent INTUITY R4 uses AMIS analog networking and basic messaging capabilities to deliver the fax call.

Fax call delivery lets users use the telephone number of a fax endpoint as a valid message delivery address. This further enables users to send a fax to either AUDIX users or non-AUDIX users as a single *fax broadcast* using the Lucent INTUITY mailing list capability. Alternatively, users can also address the message when they send it.

Networking

With the fax feature, Lucent INTUITY networking is extended to support networking of fax messages. Customers can achieve more efficient communications by combining the fax feature with networking. For example, a fax broadcast sent via networking is transmitted only once, but can be received by several people. Compare this to a traditional fax broadcast that requires an outbound telephone call for each recipient. Lucent INTUITY networking reduces outbound-fax port usage and also transmits messages at a higher speed.

Fax Feature Operation from the Telephone

From the telephone, users can:

- Create and send a fax to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient
- Receive a fax
- Retrieve and print a fax
- Forward the fax to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient

Creating and Sending a Fax

Creating and sending a fax is very much like creating and sending a voice message. Using the telephone keypad of a fax machine, users can create and send messages containing just a fax component or they can include a voice component as well.

Users can use the full mailing list and addressing capabilities of AUDIX messaging. That is, they can address the message to one or more internal extensions, one or more external telephone numbers, or both. By sending a fax to his or her AUDIX mailbox, a user can annotate the fax message with a voice message and broadcast the combined voice and fax message to a mailing list.

A fax message can be marked as priority and/or private, scheduled for later delivery, or stored in the user's AUDIX mailbox "file cabinet."

Following fax transmission, the AUDIX application ends the session by hanging up.

Lucent INTUITY FAX messaging provides the same capabilities as voice messaging. Users can:

- Forward a fax to either an AUDIX user or a non-AUDIX user
- Reply to the sender of a fax if the sender is an AUDIX user, has Lucent INTUITY Message Manager, or is an administered e-mail user
- Send a fax broadcast to multiple recipients
- Annotate the fax message with a voice message
- Include other message component media types with the fax, specifically, text or file attachments

Receiving a Fax

An incoming fax goes into an AUDIX mailbox much the same way as other calls, such as call answer calls and voice messages sent by other users. Fax tone interpretation is turned on as soon as the call is answered. If the AUDIX application detects a CNG (calling) tone, it directs the system to handshake (respond to the CNG tone) and record the incoming the fax component.

The system stores the fax in the user's AUDIX mailbox and notifies the user, via the MWI, that a fax has been received.

When a user accesses his or her mailbox, the user hears a system announcement of how many new messages have been received. This announcement also specifies the message type, that is, voice, fax, text, file attachment, or multimedia. For fax messages, each fax header contains the date and time received, number of pages, sender's name and extension if the sender is an AUDIX user.

Retrieving and Printing a Fax

Users can access and print faxes through the telephone or their PCs if they have Lucent INTUITY Message Manager Release 2.0 or later or have purchased the Electronic Mail Integration product to integrate AUDIX with an e-mail application.

From the telephone, users can print the fax to a default print destination or to another fax machine. Users can also set the *Autoprint* feature to automatically print new faxes to a default print destination when they are received. From their PCs, users can view the fax and print it as dictated by the e-mail application or Lucent INTUITY Message Manager.

Another AUDIX mailbox feature, *Autoscan*, prints all new faxes to the specified fax machine.

For more details regarding Lucent INTUITY fax messaging functionality available through the telephone keypad, see *INTUITY Multimedia Solutions User's Guide*, 585-310-748.

Fax Feature Operation from the PC

Users can perform all of the fax functions from their PCs if they have Lucent INTUITY Message Manager 2.0 or later or have purchased the Electronic Mail Integration Product available with Lucent INTUITY R4 and have integrated AUDIX with an e-mail system. Assuming the client PCs meet the hardware and software requirements of Lucent INTUITY Message Manager or the e-mail application, the user can:

- Create and send a fax to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient
- Receive a fax
- Retrieve and print a fax
- Forward the fax to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient

The specifics regarding PC feature operation with an e-mail application are described in the e-mail vendor's end-user documentation. Fax operation on a PC running Lucent INTUITY Message Manager is described in "[Lucent Intuity Message Manager](#)" below.

Fax Messaging Planning Considerations

Lucent INTUITY FAX Messaging uses the same voice ports and message storage that the INTUITY AUDIX application uses. FAX messaging increases the number of voice ports and the hours of speech that the system needs to operate effectively.

The Lucent account representative works with the customer to determine the optimal configuration of software and hardware to meet the customer's present needs and future plans. [Chapter 2, "System Components and Capacities"](#), contains information comparing system capacities and capabilities when various features are running on the platform.

Fax Messaging Security

There are no security issues that are unique to fax messaging. The same major areas of concern that were discussed under ["Voice Messaging Security"](#) above are generally valid for fax messaging.

Lucent INTUITY Electronic Mail Messaging

Electronic mail (e-mail) is the transfer of a wide variety of message types across a computer network. E-mail can be as simple as messages flowing over a local area network (LAN) from one workstation to another or as complex as messages flowing across the globe on the Internet or a wide area network (WAN). E-mail messages may be text messages containing only American Standard Code for Information Interchange (ASCII) text or they may be complex multimedia messages containing embedded voice messages, text, faxes, software files, and graphic or audio images.

The Lucent INTUITY R4 includes the capability to interact with three types of multimedia messaging systems that are purchased separately:

- Lucent INTUITY Message Manager is designed to let users on the same AUDIX system use their PCs to send multimedia messages that contain voice, text, file attachments, and fax messages to one another. Such PC-based messages can be accessed from the users' telephone mailboxes. From here they can listen to or request a fax of any text portion of a message, and can forward and reply to Lucent INTUITY Message Manager messages. However, from the telephone, users cannot create messages containing text or file attachments. For more information, see ["Internet Messaging"](#) below.
- Lotus Notes Telephony OneStop allows AUDIX and Notes e-mail messages to be accessed from the users's PC or telephone, and enables AUDIX users to exchange voice, text, file attachments, and fax messages with e-mail users outside of the AUDIX system.

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- Internet Messaging gives INTUITY Message Manager and Post Office Protocol 3 (POP3) client users full Internet e-mail capabilities through the INTUITY AUDIX. Message Manager users can send and receive all four component types to and from Internet e-mail users. Non-INTUITY AUDIX users that receive a voice component can play the message with the Lucent Voice Player, which is distributed without charge and uses the same voice compression algorithm as the Lucent INTUITY system itself. POP3 client users can also use a World-Wide-Web-compatible browser to access their INTUITY AUDIX mailboxes.

The section below covers Message Manager and Telephony OneStop. For more information about Internet Messaging, see [“Internet Messaging”](#) below.

Some of Lucent Technologies' first work in integrating multimedia messaging was done in partnership with Lotus Development Corporation. This effort enabled Lotus Notes mail to link with INTUITY AUDIX to create a multimedia messaging system similar to Lucent INTUITY Message Manager for users who are already familiar with Notes. When the mail systems are integrated, Notes and cc:Mail messages and AUDIX mail messages are available in both Notes/cc:Mail and AUDIX mail systems. AUDIX users can create and receive e-mail, forward and reply to e-mail messages, and otherwise handle e-mail as they do voice and fax mail.

E-Mail Features

Basic voice messaging features and functionality apply to the e-mail feature, such as recording messages, marking them private or priority, and so on. However, Lucent INTUITY R4 expands the customer's capability concerning what types of multimedia messages can be heard, what message components can be handled, how message components are handled, and who can receive messages that originate from the telephone or PC.

Voice, Fax, File Attachments, and E-Mail as Message Components

Lucent INTUITY R4 can send and receive messages that contain multiple component media types:

- Voice
- Fax
- E-mail text
- File attachment (a software file, such as a spreadsheet or word processing file)

A message is treated as a single entity when accessed via telephone. Thus, when users access their mailboxes to listen to a message, all components that can be voiced are played in serial fashion. When users play a message that contains a voice, a fax, a text, and a file attachment component, they will hear the voice component, followed by a voiced summary of the fax component, followed by the spoken translation of the text component (if enabled), followed by a voiced summary about the attached file.

A message can contain a total of four components; one component of each media type.

Telephone Access

From the telephone, users can:

- Create and send voice and/or fax messages to AUDIX and administered e-mail users, including messages with attached software files
- Forward e-mail messages in their AUDIX mailbox to other AUDIX users or to an administered e-mail recipient
- Add a voice, fax, or file attachment message component to an e-mail message
- Reply to e-mail messages
- Listen to e-mail text messages (if Text-to-Speech has been purchased)
- Print e-mail text messages to a fax machine or printer

PC Access

Lucent INTUITY R4 users can use their PC to access and manage all messages received in their AUDIX mailboxes. The specific procedures for PC access depend on the e-mail vendor, but the basic operation remains constant. The e-mail application sends a request to the AUDIX server, via a trusted server application, to retrieve messages from AUDIX. This process is transparent to the user sitting at a PC. See [“E-Mail Feature Operation”](#) below for details on how this process occurs.

Through the PC interface, users choose messages and — by selecting icons with a mouse — perform all messaging tasks that are otherwise done with the telephone keypad. See the e-mail vendor’s end-user documentation for more on application-specific access to features and functions.

Message-Handling Options

Lucent INTUITY offers users mechanisms, such as the message categories *new*, *unopened*, and *old*, for managing the order in which messages are presented. R4 offers an additional selection, called *media preference*. Users select the media type they want presented first from the four types available (voice, fax, text, and file attachments). When a selection is made, messages that have a component of the chosen type as their primary media component are presented prior to other messages in the mailbox category.

The *primary media component* designation is assigned by the system receiving the message. For example, an e-mail user receives a fax and decides to forward it to an AUDIX mailbox. The user types an e-mail text message, attaches the fax, and sends the message to the AUDIX mailbox. The primary component of the text/fax message is considered to be the text component. If e-mail is the AUDIX recipient's chosen media preference, the text/fax message is presented before other messages in the AUDIX mailbox.

**NOTE:**

AUDIX messages with Priority status are presented first, regardless of the user's chosen media preference.

**NOTE:**

The media preference selection is applied to all categories of messages in an AUDIX mailbox, such as new, old, saved, etc.

Optional E-Mail Features

Text-to-Speech (TTS) conversion is an optional feature that enables users to listen to a voiced rendering of e-mail and Lucent INTUITY Message Manager R4.0 messages received in their AUDIX mailboxes.

If a file attachment is included in the e-mail message, that component is not voiced. The user hears summary information regarding the size of the file. Fax components are also summarized regarding the number of pages contained in the fax.

E-Mail Requirements

Integration of AUDIX with an e-mail system requires certain hardware and software, networking and security considerations, and some awareness of the impact of a new message component on the Lucent INTUITY platform. This section discusses these requirements.

Software and Hardware Requirements

The multimedia messaging feature requires the following additional hardware and software to operate:

- AUDIX R4 server software — purchased as a separate feature with the Lucent INTUITY system
- E-mail synchronization server — refer to the e-mail vendor for the specifics regarding software and server configuration
- A TCP/IP connection to the AUDIX server

Client Hardware:

- Refer to the specific e-mail vendor for details on client hardware requirements

Optional AUDIX features include:

- Text-to-Speech — enables the subject and message body of an e-mail message to be voiced to a user logged in to his or her AUDIX mailbox
- Fax — enables e-mail text messages to be faxed to user mailboxes

NOTE:

One INTUITY AUDIX can support communication with multiple e-mail servers, and one e-mail server can link mailboxes on more than one INTUITY AUDIX.

Networking Requirements

A TCP/IP connection to the AUDIX server is required for the e-mail feature to operate properly.

TCP/IP is supported for use with an Ethernet LAN circuit card in order to connect to a customer's Ethernet LAN using IEEE 802.3 networking standards.

The four possible types of LAN connections are:

- 10Base2 BNC (RG-58 50-ohm thin wire coaxial cabling)
- 10Base 5 using an Auxiliary Unit Interface (AUI). The AUI is also called a transceiver or patch cable (RG-8 or RG-11 50-ohm thickwire coaxial cabling)

- 10BASE-T twisted-pair wiring
- Twisted-pair wiring without link integrity

E-Mail Feature Operation



NOTE:

E-mail feature operation varies depending on the e-mail vendor. This discussion is based on Lotus Telephony OneStop software.

The Lotus Notes e-mail system and the AUDIX mail system are linked using Lotus Telephony OneStop software that runs on a trusted server. Telephony OneStop periodically checks the user's AUDIX and e-mail mailboxes. When Telephony OneStop detects a change in one of the mailboxes, it makes a similar change to the other mailbox of the pair so that both remain synchronous ("in synch") and reflect the same message content and status. The process of maintaining synchronous mailbox pairs is called *synchronization*, and the software that handles this process is called the *synchronizer*.

What is a Trusted Server?

A *trusted server* is a computer or a software application in a domain outside of the Lucent INTUITY system. It uses its own login and password to launch an INTUITY Messaging Applications Programming Interface (IMAPI) LAN session and access AUDIX mailboxes. The synchronizer software, acting as a trusted server, can access and manipulate an AUDIX message just as the AUDIX application can.

Once in an AUDIX mailbox, the synchronizer software scans the mailbox for changes, puts new e-mail messages in, and updates the user's e-mail mailbox to reflect any changes that have occurred in the AUDIX mailbox (such as a message deletion, or a change of message status, for example, from new to saved.)

What is a Domain?

Multimedia messages can be sent and received from either a PC-based messaging system or from AUDIX via *cross-domain delivery*. AUDIX voice or fax mail messaging is one domain, and e-mail messaging is another domain. The two domains are linked together with the synchronizer software as described above to allow message headers (and, optionally, the body of the message) to be replicated in each system's mailbox.

Trusted Server Options

The e-mail administrator can administer the trusted server synchronizer software to provide different levels of synchronization or linking actions in both directions, that is, from the trusted server to AUDIX and from AUDIX to the trusted server. The linking actions are based upon the users' preferred location for retrieving messages (either their AUDIX mailbox or their PC).

The synchronizer software can link the mailbox pairs so that:

- *Only message headers* are copied from the system that receives the message to the other system. For example, users who choose AUDIX as their preferred location for receiving messages hear only header information regarding messages that have been received at their e-mail address.

The header includes the name of the sender, the date the message was received, any priority status that exists, and a subject, if any. To see the body of the message, users must log in to their e-mail system. If the user deletes the header in his or her AUDIX mailbox, the message remains intact in the e-mail mailbox.

- *Both message headers and the body of the message* are copied from the system that receives the message to the other system. After one system has received a new message, the trusted server replicates the entire message to both mailboxes for a particular pair. If a user deletes the message in one system, the message is deleted in the other system.

E-Mail Feature Operation from the Telephone

With Lucent INTUITY R4, users can use the telephone to manage messages received at their e-mail address. Messages received at a user's e-mail mailbox are copied to his or her AUDIX mailbox by the synchronizer software. The MWI is activated to alert the user to the arrival of new messages.

The e-mail message can contain up to four media types; specifically voice, text, file attachment, and fax. Users can send messages to both AUDIX and administered e-mail mailboxes. However, message feature operation varies little from that of voice or fax message handling. From the telephone, users can:

- Create and send a message to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient
- Receive an e-mail message that can contain up to four media type components
- Retrieve an e-mail message
- Listen to a voiced rendering of the text component (if Text-to-Speech is available)
- Print the text and/or fax component of an e-mail message
- Forward the e-mail message to an AUDIX, Lucent INTUITY Message Manager, or administered e-mail recipient

Creating and Sending an E-Mail Message

Creating an e-mail message is very much like creating a voice message. Using the telephone, users can create messages containing just a voice component or they can annotate an existing file attachment or e-mail message with a voice message. If the system is equipped with the fax feature, a fax component can also be created along with the voice message.

Users can use the full mailing list and addressing capabilities of AUDIX messaging, that is, they can address the message to one or more internal extensions, to one or more external telephone numbers, or both.

An e-mail message can be marked priority and/or private, scheduled for later delivery, or stored in the user's AUDIX mailbox "file cabinet."

Sending an e-mail message works like sending a voice message. The user can:

- Forward an e-mail message to either an AUDIX user or a non-AUDIX user
- Reply to the sender of an e-mail message, if the user has Lucent INTUITY Message Manager or is an administered e-mail user
- Broadcast an e-mail message to multiple recipients
- Include other message component media types with the e-mail message, specifically, fax, text, or file attachments

Receiving an E-Mail Message

An incoming e-mail message goes into an AUDIX mailbox much the same way as other calls, such as call answer calls and voice messages sent by other users. The system stores the e-mail message in the user's AUDIX mailbox and notifies the user via the MWI that a new message has been received.

Retrieving and Listening to an E-Mail Message

Retrieving an e-mail message is exactly like retrieving any other type of message. When a user accesses his or her mailbox, the user hears an announcement of how many new messages have been received and specifies the message type, that is, voice, fax, text, file attachment, or multimedia.

A multimedia message is treated as a single entity when accessed via telephone. Thus, when users access their mailboxes to listen to a multimedia message, all components that can be voiced are played in serial fashion.

When users play a message that contains a voice, a fax, a text, and a file attachment component, they hear the voice component, followed by a voiced summary of the fax component, followed by the spoken translation of the text component (if enabled), followed by a voiced summary about the attached file.

Printing the Text and/or Fax Component of an E-Mail Message

From the telephone, users can print the text and/or fax component of an e-mail message to a printer or fax machine. For the text component, the Lucent INTUITY system uses the Text-to-Fax feature to translate the component into printed form.

Messages are printed in plain text, that is, without formatting and special attributes such as bold type and tab settings. This includes messages created using Lotus "rich text", which are converted to plain text before being sent to the printer.

The fax component is printed as described in ["Retrieving and Printing a Fax"](#) below.

E-Mail Feature Operation from the PC

The PC interface varies, depending on the e-mail vendor. However, basic PC standards include:

- Toolbar
- Menus
- Help messages

The e-mail application functionality also varies, but includes:

- New message notification, with notation of message component, time and date received, and message size
- The ability to:
 - Review messages
 - Forward messages
 - Create and send messages

PC users can set message handling options to change the way the messages are handled in AUDIX, such as:

- *Transfer* — If Transfer is on, the synchronizer copies messages from one mail system to the other and deletes the messages in the originating mail system.
- *Propagate Expiration* — When an AUDIX message expires, Propagate Expiration deletes the message from the user's PC.
- *Link-Link* — Link-Link is a Lotus Notes feature that replicates any action in one mailbox in the other mailbox of the pair. For example, if a user deletes an e-mail message from his or her PC, the synchronized message in the AUDIX mailbox is also deleted.

E-Mail Planning Considerations

Planning the integration of an e-mail system with AUDIX should involve the PC/LAN system administrator and e-mail administrator. This planning is most often done in conjunction with a person contracted through Lotus. This person is called the Lotus Business Partner, and works with the customer and the Lucent account representative to implement Lotus Telephony OneStop at the customer's site.

The following section highlights some of the major considerations to address to take full advantage of multimedia messaging.

E-Mail Message Size

E-mail messaging can have a significant impact on the size set for a user's mailbox. An e-mail message can be a short memo, or can include attachments of software files of considerable size. If an e-mail message contains a fax page and a voiced message as well, planning is more difficult.

AUDIX converts all message components into seconds of space in the mailbox. [Table 3-2](#) shows some typical average mailbox sizes and corresponding maximum e-mail and maximum message-length capacities.

Table 3-2. E-Mail Messaging and AUDIX Mailbox Size

AUDIX Mailbox Size	Maximum E-Mail Length	Resultant Maximum Message Length
4800 sec (1:20 hr)	2.4 Mbyte	1200 sec (20 min)
3600 sec (1:00 hr)	1.8 Mbyte	900 sec (15 min)
2400 sec (0:40 hr)	1.2 Mbyte	600 sec (10 min)

LAN Impact

Use [Table 3-3](#) to calculate how much of the LAN traffic on the system will be comprised of e-mail messages (including e-mail with attached components).

Table 3-3. LAN Impact of E-Mail Messaging

Component Type	Typical Message Length (Data Packets)
Voice	60 seconds = 132 1-Kbyte packets
Fax	3 pages = 145 1-Kbyte packets
E-mail	5 Kbytes = 5.5 1-Kbyte packets ¹

1. A typical spreadsheet or word processing file is approximately 150 Kbytes.

General E-Mail Considerations

The following list represents some general information to consider when planning a specific feature application.

- If AUDIX users will be sending messages to e-mail users on a remote machine, the AUDIX system administrator should administer the e-mail addresses of those e-mail recipients in the local AUDIX system. This way, AUDIX users can address messages using their telephones, and can add the non-AUDIX recipients to their personal directories.
- Private messages cannot be delivered via cross-domain delivery.
- For a reply to be delivered using cross-domain delivery, a gateway must be administered for every Lucent INTUITY system in the Lucent INTUITY network. If a gateway is not administered, users will have to log in to their AUDIX mailboxes to respond to an AUDIX message sent from a remote Lucent INTUITY system.
- When a broadcast message originating in AUDIX is delivered (using cross-domain delivery) to recipients in both AUDIX and an e-mail system, the AUDIX recipients will not show up on the e-mail "To:" list. The e-mail recipients will not know which AUDIX users also received the message and cannot use the e-mail application's "Reply" function to send a reply to the AUDIX recipients of the original message. However, the reverse is not true. That is, if a broadcast message originates in an e-mail system and has both e-mail and AUDIX recipients, an AUDIX recipient could use the AUDIX "Reply" function to respond to all recipients (both e-mail and AUDIX).

E-Mail Messaging Security

To secure a system that allows access from another domain, customers must consider both internal and external security. External security involves administration to prevent access from an unauthorized source, such as a trusted server or trusted server administrator. Internal security focuses on preventing damage or recovering from damage if a breach occurs, for example, if a computer virus is transmitted in a message component such as an attached software file.

External Security

In addition to the general system security discussed in [“Voice Messaging Security”](#) above, a new component — the trusted server — has been introduced in this release. The trusted server acts as a liaison between the e-mail application and AUDIX by transferring messages between the two systems and performing requested tasks. A request from a trusted server application to retrieve messages from AUDIX involves invoking an IMAPI session and locking the user’s AUDIX mailbox.

The trusted server is empowered to do everything to a user’s mailbox that an AUDIX user can do. To prevent unauthorized access to a customer’s system from an external source such as a trusted server, the system administrator has two levels of security:

- Trusted server password
- IMAPI password

The trusted server password is administered on both the AUDIX server and on the trusted server itself (by the e-mail administrator). It is the password that the trusted server must use when connecting to AUDIX.

The IMAPI password is an optional, secondary level of security used to prevent an unauthorized source external to AUDIX from starting an IMAPI session. While administration of this password is optional, *it is strongly recommended*.

Internal Security

Lucent INTUITY R4 allows the transmission between domains of two new message components, e-mail text and file attachments (binary files). With these new components come new security considerations, namely the inadvertent delivery of a virus that may be embedded in a file attachment. This can occur in *any* system that supports the delivery of binary files. While the AUDIX machine cannot be infected with viruses embedded in these software files, client machines can become infected when a user launches the application associated with the software file.

It is vital that the customer involve the PC/LAN administrator in the planning and implementation of a Lucent INTUITY R4 system. It is likely that the PC/LAN administrator has considerable experience detecting and preventing the transmission of software viruses. This administrator should also have minimum requirements that the AUDIX server must meet to be allowed on the company LAN at all.

AUDIX does not perform any virus detection. Customers should carefully evaluate the security risks of file attachments and make provisions for virus detection software on PCs running an e-mail application (or Lucent INTUITY Message Manager).

As a minimum, customers should advise their users to detach (*not* launch) file attachments and scan them for viruses before use.

Lucent INTUITY Message Manager

Lucent INTUITY Message Manager is a combination of communications systems that function as one software application from a personal computer. Customers can create, send, and receive compound messages containing multiple media types—voice, fax, text, or file attachments (software files) to other users inside or outside of the corporate environment.

Message Manager is a Windows-based graphical user interface (GUI) that allows AUDIX system messages to be viewed on a PC screen through a local area network connection. The AUDIX system is referred to as the “AUDIX server” when it connects to a LAN.

What distinguishes Message Manager from ordinary voice messaging products is the visual access via a PC screen to information. In comparison to accessing information from a telephone keypad, viewing messages on a screen is faster for users. Users can quickly view at a glance who called, and when and why. This information helps users to prioritize and then access important information first, develop mailing lists more easily, and track multiple personal greetings.

Message Manager (release 4.1 and above) is available in six foreign languages—French, Spanish, Brazilian Portuguese, German, Dutch, and Czechoslovakian. Additional languages are being considered for future releases.

Message Manager Features/Benefits

Message Manager (MM) offers product features that benefit users in organizing their text, fax, or AUDIX messages. Adding to these benefits are more enhancements available in the most recent release, Message Manager 4.3. Moreover, in the planning stages is MMR4.5 which offers even more new and efficient ways to manage communications. This release is scheduled for general availability in early 1998.

Features/Benefits

With every release of Message Manager, the following basic features/benefits are included:

- Visual display of the AUDIX mailbox, with the ability to play or view any component, including voice through a simple GUI
- A Personal Phonebook for storing addresses and important information on a PC, independent of the AUDIX server
- Sound card support for playing and recording messages, greetings, and names on a PC
- Remote, off-site access to your messages through a high-speed modem
- On INTUITY AUDIX Release 4 servers only, the ability to receive, create, and send text messages and attached files
- Message annotation
- Nonsequential message retrieval
- Advanced playback controls
- Archival of AUDIX messages to the PC hard drive

Optional Features/Benefits

Customers have a choice of optional features/benefits to:

- Communicate with fax messaging, depending on the release and configuration of the AUDIX server. Users can receive, forward, delete, print, or create fax messages.
- Integrate with the PassageWay call-control application, which allows for handling telephone calls via a PC.
- Access the Internet via Message Manager with a new software application, Lucent Internet Messaging for INTUITY AUDIX (available only with release 4.3 and above).

Release 4.3 Features/Benefits

The most current release, Message Manager 4.3, offers basic and optional features plus the following enhancements:

- Internet Messaging allows users to send and receive e-mail messages with voice, fax, text, or file attachments inside and outside of the corporate internal network.
- The capability to send or to receive messages with multiple binary file attachments.
- For fax users, a new software application compatible with Message Manager that allows users to design a fax cover page that includes text or graphics

- The ability to forward a message with an original voice component without the necessity of adding an additional voice annotation
- Improved capability to work remotely which includes the automatic refresh option to be disabled by users.

Preview of Release 4.5 Features/Benefits

While the R4.5 enhancements are subject to change before general availability in early 1998, the following features and benefits are tentatively scheduled:

- Fax Broadcast designed to allow customized fax cover pages for each recipient
- 32-bit upgrade from 16-bit to increase the capabilities of the Message Manager application
- Uninstall capability to clean up application and languages files
- Balloon help for easy identification of the Message Manager toolbar
- CD-ROM packaging for easy installation
- The ability to be notified of new Message Manager messages while working in another application
- The capability to launch Message Manager from any application
- The ability to display message sizes to quickly review their characteristics
- Enhanced Internet capabilities that retrieve messages from multiple message sources



NOTE:

For a more detailed description on Message Manager features, see ["Messaging Features"](#) below.

Requirements to Run Message Manager

Message Manager requires client software and hardware minimum standards and a LAN connection to the AUDIX server.

Software and Hardware Requirements

The following hardware and software is necessary to support the Message Manager application.

- One of the following compatible operating systems:
 - Microsoft Windows Version 3.1 (or higher)
 - Microsoft MS-DOS Version 5.0 or higher
 - Windows for Workgroups Version 3.11 (or higher)

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- Windows NT Version 3.51 and Version 4.0
- Windows '95
- Minimum of a 486, 66-MHz PC with 16 Mbytes of RAM and 10 Mbytes of RAM and 10 Mbytes of available hard disk storage.



NOTE:

There are some exceptions to these requirements.

- VGA or higher monitor (color recommended)
- LAN interface card
- Windows Sockets (WINSOCK.DLL) access to TCP/IP (either through a Netware Loadable Module or TCP/IP protocol stack)

LAN and AUDIX Server Requirements

Requirements for the local area network (LAN) include:

- LAN configuration that provides TCP/IP transport between the AUDIX server and client PC (Ethernet networks such as the Novell Netware 3.11 operating system have been tested).
- Ethernet network with valid physical connection: 10BaseT twisted-pair for a DEFINITY AUDIX server, and either 10BaseT, 10Base2 (thin coax), or 10 Base5 (thick coax) for an INTUITY AUDIX server
- A customer-provided router or other device to convert token ring protocol to the required Ethernet protocol if Message Manager is to communicate with a token ring network

Internet Messaging Requirements

Message Manager Release 4.3 and above supports Internet Messaging if the following additional requirements are met:

- INTUITY AUDIX Release 4.2-5 or greater within the U.S. and Canada, or Release 4.3 or above for all countries
- Internet Messaging for INTUITY AUDIX software and site license
- Two dedicated trusted servers
- NetCare offer (highly recommended) for consultation and implementation assistance

System Capacity

- *Up to 4000 clients can be registered at one time.* A client is registered when a user starts the client application from a PC, which invokes a TCP/IP session. (Users must exit the client application to “de-register” the client).

- *Up to 96 AUDIX login sessions can be in progress at any one time*, depending on the INTUITY platform used. An AUDIX login session starts when a user logs in to an AUDIX mailbox from a PC. The AUDIX server terminates a login session if a session has been inactive for the amount of time set in the LAN Session Timeout field on the System-Parameters IMAPI-Options screen. However, the client registration is still active, an AUDIX login session is established automatically when the client starts using INTUITY Message Manager again.
- *As many audio sessions as voice ports purchased can be in progress at any one time*. This means a user is logged in to AUDIX (one of the up to 96 login sessions) and an audio session is active (for example, a user is listening to a voice mail message). When the audio session is completed, AUDIX disconnects the voice port, and the client application remains one of the AUDIX login sessions until the inactivity time-out takes effect.

Messaging Features

Every Message Manager release offers new features that add to the efficiency of any work environment. These features are summarized below.

New Message Notification

Message Manager indicates when new messages are received either through a small icon or pop-up window on the PC screen, regardless of the software application in which the user is working.

On the main Message Manager screen, users immediately view new mail with these details:

- The media type component or components included in the message
- The sender of the message
- The subject of the message
- The time and date received
- The status of the message: priority, private, or partial delivery

Play or View a Message

After selecting a folder, the messages stored within the folder are displayed and you can select one of the messages to play or view its contents. The following shows the buttons that are activated when a messages contains the corresponding kind of message and what happens when you click the activated button.



Voice. The message is played through an audio connection or the sound card, depending on the selected option.



Fax. The Fax Viewer displays. You can read the fax on the screen or print its contents.



Text. The Text Viewer displays. You can read the text on the screen or print its contents. If you receive e-mail messages through Message Manager, the message will display as a text component.



Attached Files. You can view a list of the attached files. Once you select a file from the list, you can start (launch) the program and view the file or export the file to your own computer.

Reply to or Forward a Message

After you have played or viewed a message, you may want to add your comments and respond to the sender or mail it to another AUDIX subscriber.

- **Reply to Sender.** You can create a message to send back to the sender using automatic addressing. Include any or all of the original message components, plus any new components.
- **Forward.** You can add your comments to the message you received, then send them and the original message to another AUDIX subscriber.

Call Using Directory Search

You can create and send a message to one or several people, with one or more message components. The message is delivered as soon as possible or can be scheduled for a later delivery time. Two key parts of new message creation are addressing and adding components.

Addressing

You can send the message to just one person, a list of people, or to someone who has an electronic address on a remote system.

Send Faxes

The optional fax software for Message Manager is used to create and send a new fax message. Creating a new fax is similar to printing a hard copy of your work in another program. After the fax is sent, you can use the Outgoing Folder to check the status of the fax.

Fax From Other Applications

Although faxes can be stored in and sent from Message Manager, creating and sending a new fax is actually done from any other Microsoft Windows application that allows printing.

Create a Custom Fax Cover Page

You can use the Fax Cover Page Designer to add text or bitmap graphics to the fax cover page. You can also use the Designer to change the location and size of the Message Manager text display areas.

Send and Receive E-Mail

If your server is set up for Internet Messaging, you can send and receive e-mail messages. An e-mail message is like any other Message Manager message except that you address it differently than mail sent internally.

Use the Outgoing Folder

After the message is sent, you can check its delivery status by opening the Outgoing Folder. The Outgoing Folder lists all the messages you have sent, the time they were sent, and whether the recipient has received or accessed the message. In this folder, more delivery information is available by double-clicking a message or by highlighting a message and clicking the Delivery Report button.

Build Personal Phonebook

You can use the Personal Phonebook in Message Manager to store "cards" with the addresses of AUDIX subscribers, as well as other numbers and notes. Once subscribers are added to the Phonebook, you can quickly add them to an address list. The Personal Phonebook is stored on your PC and can be used while working offline.

Build AUDIX Lists

With AUDIX lists, you can store the addresses of sets of people to whom you want to send messages all at once, such as a project team or a corporate department. You can quickly add the entire address list to a message. AUDIX lists are stored on the AUDIX server and are not available offline.

Work Offline

If you work away from the office, you may want to edit messages you have received or compose new messages, then later log in and send them during a single telephone call. This saves toll charges and sometimes is convenient, because an AUDIX server connection is not required.

Minimize or Lock Message Manager

You can minimize Message Manager and still be notified of new messages throughout the day. Log in to Message Manager, then use standard Windows techniques to minimize the program and keep it active. Later, you can restore the program to retrieve messages or to create and send new messages.

For enhanced security, Message Manager has a Lock feature. When you select the icon, the application is minimized and requires your AUDIX password to be restored. Locking Message Manager prevents others from accessing your AUDIX mailbox. This feature is inactive while you work offline.

Record Your Name or Greetings

When you install Message Manager, you can use your name and personal greeting that were recorded through the AUDIX telephone interface. However, you can select a menu option to record your name, or display a screen to record and manage greetings. The AUDIX server uses the choices you make in Message Manager for playing names or greetings to your mailbox callers.

Outcalling

If you are away from the office, you can still be notified of new AUDIX messages. Use the Outcalling feature to enter a telephone number that the AUDIX server dials to notify you of new messages.

Sound Card

Message Manager uses an audio connection to your telephone to play or record voice messages or greetings. However, you can use your computer's sound card with speakers and a microphone instead. This is also the only way to play or record your voice messages while you work offline.

Planning Considerations

A Lucent account representative works with the customer to determine the optimal configuration of software and hardware to meet present needs and future plans.

Planning the integration of Message Manager with AUDIX should involve the customer's PC/LAN system administrator. Another important planning consideration is understanding that customers are responsible for installing Message Manager. This is true whether the installation is on a PC or on a server for access by users over a LAN. The application can be installed from diskettes inserted in a PC diskette drive or from a LAN file server. Future releases of Message Manager on a CD-ROM are planned.

The following section highlights some of the major considerations customers should be knowledgeable about to fully take advantage of multimedia messaging.

Message Size

A multimedia message created through Message Manager can have a significant impact on the size limitations set for user mailboxes. As [Table 3-4](#) indicates, a message can be very brief or can include software file attachments of considerable size.

Table 3-4. Message Manager and AUDIX mailbox size

Mailbox Size	Maximum Message Length	Resultant Maximum Message Length
4800 sec (1:20 hr)	2.4 Mbyte	1200 sec (20 min)
3600 sec (1:00 hr)	1.8 Mbyte	900 sec (15 min)
2400 sec (0:40 hr)	1.2 Mbyte	600 sec (10 min)

LAN Impact

The AUDIX system is viewed as a server on a LAN. The PC/LAN system administrator at a customer's site should handle LAN installation, administration, and troubleshooting.

Use the information in [Table 3-5](#) to calculate how much of the LAN traffic on a system will be comprised of Message Manager messages (including messages with attached components) based on what a typical user generates during a busy hour. To calculate the total packets per second for the system during a busy hour, add the figures in the last column.

Table 3-5. Impact of Message Manager on LAN Traffic

Component Type	Packet Size Distribution	Typical MM User (packets/hour)	Total MM Packets/Sec.
Voice (without sound card)	<ul style="list-style-type: none"> ■ 96% small voice messages (100 bytes) ■ 4% large voice messages (1 Kbyte) 	102 (without sound card)	102 x number of users 3600 sec per hr
Voice (with sound card)	<ul style="list-style-type: none"> ■ 50% small voice messages (100 bytes) ■ 50% large voice messages (1 Kbyte) 	111 (with sound card)	111 x number of users 3600 sec per hr
Fax	33% small fax messages (100 bytes)	20	20 x number of users 3600 sec per hr
Message Manager text message	<ul style="list-style-type: none"> ■ 33% small text messages (100 bytes) ■ 67% large text messages (1 Kbyte) 	25	25 x number of users 3600 sec per hr

Internet Messaging

Internet Messaging for the INTUITY AUDIX Multimedia Messaging System builds on INTUITY AUDIX Release 4 multimedia capabilities to allow exchange of voice, fax, text, and binary components over the Internet.

Internet Messaging Features

Internet Messaging has the following characteristics:

- Internet Gateway. Users gain an Internet e-mail address and can send or receive messages over the Internet. Internet Messaging uses Extended Simple Mail Transport Protocol (ESMTP), a standard TCP/IP-based mail protocol.
- Mailbox access through POP3 clients. In addition to the Telephone User Interface (TUI) and INTUITY Message Manager 4.3, users can also select one of the currently available POP3 email client programs to check their messages. For example, Netscape Mail and News can be used to receive and respond to messages through the INTUITY AUDIX server.
- Lucent Voice Player. With this player, Internet email users can play and respond to messages received from INTUITY AUDIX senders.
- Web browser administration of Internet Messaging. Internet Messaging features can be updated or changed through a graphical user interface. This simplifies administration, since web browsers can display visual information, link easily to other relevant screens, and be used from any location with a modem and Internet access.

What Internet Messaging Can Do for You

Internet Messaging can:

- Allow INTUITY AUDIX users to reach any of the more than 60 million e-mail users worldwide via the Internet.
- Increase the number of choices that users have to access messages, including industry-standard e-mail platforms.
- Save costs by allowing message transport through existing, shared Internet facilities.
- Simplify administration of the feature through a graphical user interface.
- Simplify distribution of the Lucent Voice Player through an automatic e-mail response system.

The Graphical User Interface

Although it is possible to administer Internet Messaging through the INTUITY AUDIX system console, a simpler graphical interface has been developed for you to use with a World Wide Web browser. This tool enables you to accomplish administration with these additional capabilities:

- A common interface across platforms
- Remote access from any location using a telephone line, a modem, and an Internet connection
- Graphical displays of data, which show relationships between variables that cannot be derived through a textual interface
- Electronic links to and from additional screens or useful locations
- Context-sensitive help, with online, interactive procedures and troubleshooting steps

The following browsers are known to function properly for Internet Messaging administration:

System	Netscape	Microsoft
Microsoft Windows	Netscape Navigator 3.01	Internet Explorer 3.0
Apple PowerMac	Netscape Navigator 3.01	
Sun Solaris	Netscape Navigator 3.01	

An example of the Trusted Server Administration screen is shown in [Figure 3-4](#).

Internet Messaging

Server Name: netdev
Performing Administration Tasks

Trusted Server Administration

	Messaging Server	Administration Server
Name:	internet	internetd
Password:	*****	*****
IMAPI password for both Servers:	*****	

Submit Previous Help Next Reset

Figure 3-4. Internet Messaging Trusted Server Screen

Planning

To plan and implement Internet Messaging, there are several things you should consider:

- Trusted servers are an additional, software-only security feature required for communication between systems. The program requires the purchase and activation of two new trusted servers. Confirm that the trusted servers are available. If not, schedule their purchase and activation with your Lucent account representative.
- The program might require the activation of additional IMAPI sessions. Confirm that the IMAPI sessions are available. If not, schedule their purchase and activation with your Lucent Account Representative.
- If the TCP/IP host address is added, the INTUITY AUDIX must be rebooted. Schedule this reboot for a low-traffic period. However, if you currently use INTUITY Message Manager, TCP/IP activation is already complete.
- If you plan to enable Text-To-Speech (TTS) capability through the Telephone User Interface (TUI), schedule the TTS purchase and activation with your Lucent Account Representative.
- Plan for security issues. See [“Security”](#) below.

Administering AUDIX for Internet Messaging

To define the Internet Messaging server and functionality to AUDIX:

- Contact Professional Services (or your account representative, if you did not contract with Professional Services) to have Internet Messaging installed.
- Administer TCP/IP on the AUDIX server.
- Update the IMAPI password, if necessary. If any other trusted servers are set up, you *must* use the same IMAPI password in Internet Messaging.
- Set up IMAPI sessions for Internet Messaging server access to INTUITY AUDIX.
- Define two Internet Messaging trusted servers on the AUDIX server and administer access for them (including the surrounding security requirements).
- If purchased, set up Text-to-Speech sessions.

Administering Internet Messaging for AUDIX

Once the AUDIX system knows about the trusted servers, you can do the initial administration of the Internet Messaging system. To make Internet Messaging fully functional, you must:

- Define the local domain name and IP addresses or, if used, the mail gateway.
- Enter the trusted server names and passwords. If used, enter the IMAPI password.
- Enter the postmaster extension to which status messages will be sent.
- Administer any other available options, such as POP3 access, Lucent Voice player through the Autoresponder, etc.

Security

Using Internet Messaging presents several security issues. Lucent Technologies is not responsible for any damages that may arise as a result of the use of Internet Messaging. Therefore, you must consider the risks inherent in each and administer the package appropriately.

- POP3 enabled. On the General Options and Settings screen, if the `POP3 enabled?` field is set to **Yes**, hackers can determine a user's login name and password. Use Internet Messaging only behind a corporate firewall and restrict external, Internet access POP3 port.
- Login requirement. On the Login Requirement screen, if the `Require Administrators to Login?` field is set to **No**, any user with the correct URL can log in to the INTUITY AUDIX and change the Internet Messaging options.

- Proxy server. If a user accesses Internet Messaging administration through a proxy server, any other user who logs in through the same proxy server can access Internet Messaging through the same login. The other user is not required to validate a login ID.
- Viruses. The ease with which messages can be broadcast and transmitted over the Internet simplifies the distribution of computer viruses. Enact a policy to address the receipt of messages and files that may be infected.
- Spoofing. Internet e-mail addresses are not validated for identity. As a result, the identity of the message sender is not guaranteed. Users should be suspicious of messages from unverified sources. The source of a message can be checked by reading the header information.

Enhanced-List Application

The Enhanced-List Application (ELA) greatly expands your business' capability to deliver messages to large numbers of recipients. A single enhanced list can contain 1500 addresses and the system administrator can create up to 100 such lists.

You can also nest (or embed) enhanced lists. For example, a list with 1500 addresses can be a member contained within another list. So, your users can record a message, address it to the parent enhanced list, and send it to nearly 150,000 people — just as easily as if the message were being sent to one person sitting at the next desk.

All users administered in AUDIX (including e-mail and remote users) can send messages to the recipients on enhanced lists. Or, you can administer your system to only allow selected users in your AUDIX network access to the enhanced lists.

Basic Concepts

To understand ELA, you first need to understand some concepts and terminology, such as *trusted servers* and *domains*.

- A *trusted server* is a computer or a software application in a domain outside of INTUITY AUDIX. It uses its own login and password to launch an IMAPI session and access AUDIX mailboxes. The ELA software, acting as a trusted server, can access and manipulate an AUDIX message just as the AUDIX application does.
- For the purposes of ELA, a *domain* is a logical boundary defined by the application. INTUITY AUDIX voice and fax mail messaging is one domain, and ELA is another domain. The two domains are linked together to allow messages to be distributed between domains.

ELA Features

ELA has the following characteristics:

- Up to 1500 recipients can be contained in an enhanced list (compared to 250 addresses in a standard AUDIX mailing list.)
- Up to 100 enhanced lists can be created on an INTUITY AUDIX machine.
- Nesting (embedding an enhanced list within another Enhanced List) enables a total recipient population of nearly 150,000.
- Changes in an enhanced list propagate to all lists that refer to the changed list.
- Access to enhanced lists is possible from anywhere within the AUDIX network (standard AUDIX mailing lists are only accessible to those users with mailboxes on the same machine as the lists).
- Messages can be delivered to local and remote AUDIX users, administered e-mail users, and remote AMIS preadministered users.
- Messages can be delivered across domains from an e-mail trusted server to AUDIX. This enables administered e-mail users to access the Enhanced Lists.

What ELA Can Do for You

With ELA you can:

- Distribute messages to a targeted audience
You can create a list of people to whom you send messages frequently. Then, you can send them all the same message by entering one enhanced-list address.
- Centralize messages into one AUDIX mailbox
First select one office as your primary location. Then create an enhanced list at each secondary location that has as its only member the number of your primary office location. When a mailbox at a secondary location receives a message, ELA puts it into the mailbox for the primary office.
- Forward messages to support staff automatically
If you often forward incoming messages, you can create an enhanced-list mailbox that automatically forwards messages to your staff. Your staff can review the messages and then respond to them as they normally would.

Planning

ELA is a powerful messaging tool that can distribute large quantities of messages. You should consider the following items to ensure effective implementation and use.

Planning with Professional Services

ELA requires some solid planning to ensure your system makes effective use of the feature. You can contract with Professional Services to work with you to plan and administer ELA, or you can do the planning and administration yourself using ELA worksheets that your account representative provides. In either case, the result of that planning is completed ELA worksheets that you will use as you proceed to implement ELA.

ELA also requires that you administer the AUDIX system and the ELA server.

Administering AUDIX for ELA

To define the ELA server and functionality to AUDIX:

- Contact Professional Services (or your account representative, if you did not contract with Professional Services) to have ELA installed.
- Contact Professional Services (or your account representative, if you did not contract with Professional Services) to have ELA activated.
- Verify that ELA is enabled for your system.
- Increase the number of mailing lists AUDIX allows on the system.
- Define an ELA Class of Service.
- Set up ELA and shadow mailbox Community IDs.
- Administer TCP/IP on the AUDIX server.
- Define two ELA trusted servers to the AUDIX server and administer access (including the surrounding security requirements).
- Set up IMAPI sessions for ELA server access to AUDIX.

Administering ELA for AUDIX

Once the AUDIX system knows about the ELA trusted servers, you can do the initial administration of the ELA system. To make ELA fully functional, you must:

- Define the AUDIX server to ELA and administer access.
- Select the shadow mailbox extension.
- Create enhanced lists.
- Add members to enhanced lists.
- Record a name for the enhanced lists (optional).

ELA Message Delivery

We recommend that you schedule delivery for large enhanced lists during off-peak hours.

During peak traffic hours, your system processes other user-generated messages. ELA intentionally slows delivery of messages to large enhanced lists during peak traffic so your system can continue to process these other messages.

Hardware/Software Requirements

ELA runs on the same machine as AUDIX.

- ELA must be installed on a Lucent INTUITY R4.2-5 or higher machine. If your site has an earlier release, contact your Lucent service representative to obtain the necessary upgrade. ELA is not available for pre-R4 Lucent INTUITY systems.
- MAP/40s requires 64 Mbyte of RAM.

Local Area Networks

If your configuration includes a local area network, planning ELA implementation should involve your PC/LAN administrators to ensure that AUDIX and the network are not adversely affected. The amount of traffic on your LAN from ELA messages could increase if ELA sends messages for delivery to an e-mail or Message Manager recipient or to TCP/IP-networked remote machines. If none of these are valid for your site, ELA will not cause any LAN traffic.

Remote Messages

If your site is networked, estimate the increase in the amount of remote traffic by first determining the percent of current traffic that is remote and calculating the number of messages per minute that percent represents. When ELA is actively sending messages, add that number of messages to the traffic estimate for remote message delivery.



NOTE:

For typical applications of ELA, the increase in messaging traffic can be negligible.

Port Usage

Voice port usage increases as recipients retrieve messages sent by ELA. Plan for the increase with Professional Services when you purchase ELA. Refer to the worksheets that were compiled at the time of the purchase to determine the port usage impact.

Monitor your system to determine if your Grade of Service (GOS) falls below acceptable levels. If that happens frequently, particularly during the peak busy hour, contact your Lucent account representative to purchase more ports.



NOTE:

If ELA degrades service, request that those users with access to enhanced lists schedule delivery of large ELA messages for off-peak hours. (For example, at 10:00 p.m. or 4:00 a.m.) That way, delivery of messages will not conflict with other user-generated traffic.

IMAPI Session Requirements

An IMAPI session is invoked when an e-mail trusted server, Message Manager, or the ELA trusted server needs to communicate with the AUDIX server. The AUDIX server must have a sufficient number of IMAPI sessions administered to provide adequate access for all IMAPI requests. Additionally, the ELA server must be registered as an AUDIX trusted server.

Shadow Mailbox

The shadow mailbox is a special mailbox that ELA uses to distribute messages. The use of a shadow mailbox prevents replies to ELA-delivered messages from being sent back to the entire enhanced list. However, you can administer enhanced lists such that recipients can reply to the person who originally sent the message. The shadow mailbox must belong to a community that cannot receive messages.

Security

When securing a system that allows access from another domain, you must consider both internal and external security.

External Security

The ELA application runs as a trusted server. The trusted server makes requests of the AUDIX server via IMAPI to distribute messages to designated recipients. The trusted server can do anything to an ELA mailbox that an AUDIX user can do.

To prevent unauthorized access to AUDIX from an external source such as a trusted server, system administrators have two levels of security at their disposal:

- Trusted server password
- IMAPI password

Trusted Server Password

The trusted server password is administered on both the AUDIX server and on the trusted server. The trusted server must use this password when it connects to AUDIX.

IMAPI Password

The IMAPI password is an optional, secondary level of security used to prevent an unauthorized source external to AUDIX from starting an IMAPI session. We *strongly recommend* that you take advantage of this extra protection.

If you choose to administer an IMAPI password, we recommend that you change it on a regular basis, for example, monthly. (If you have set your administrator's password to age automatically, the system prompts you to change your password. You can also use this prompt to remind you to change the IMAPI password.)

NOTE:

If you change an IMAPI password in AUDIX, all trusted servers must be administered with the new IMAPI password. For example, if your INTUITY AUDIX R4 supports an e-mail server, the e-mail administrator must also administer the e-mail trusted server to reflect the new IMAPI password.

Other Unauthorized Use

External security also involves administration to prevent access from an unauthorized source. These sources can include a user who is administered to use e-mail or remote AMIS Analog networking. Users might send "mail bombs" to an enhanced list.

Mail bombs are harassing messages that do not serve your business needs, and impose unnecessary traffic on your system.

ELA mailboxes are no more vulnerable to unauthorized use than other voice mailboxes. However, the impact on system performance can be many times greater.

To prevent unauthorized access to an ELA mailbox from an external source such as e-mail users or remote AMIS Analog networking users, you can place those users in a community with sending restrictions.

Internal Security

Internal security focuses on preventing or recovering from damage if a breach occurs, for example, a virus is transmitted in a message component such as an attached software file.

INTUITY AUDIX R4 allows the transmission of two new message components, text (originating from Message Manager or e-mail) and binary file attachments (software files, such as a spreadsheet or word processing file). With these new components come new security considerations, namely, the inadvertent delivery of a computer virus that may be embedded in a file attachment. This can occur in any system that supports the delivery of software files. While the AUDIX machine cannot be infected with viruses embedded in these software files, client machines can become infected when a user launches the application associated with the software file.

CAUTION:

ELA does not perform any virus detection. The customer should evaluate the security risks of file attachments carefully and make provisions for virus detection software on PCs running Message Manager or an e-mail application supported by INTUITY AUDIX R4.

At a minimum, advise your users to detach (not launch) file attachments and scan them for viruses before use.

High Capacity Option

The INTUITY AUDIX High Capacity Option consists of multiple INTUITY AUDIX systems configured as message servers. These multiple systems appear as one large system to the subscribers with adjunct module software designed specially for High Capacity. The High Capacity Option provides increased call answer availability by enabling a back-up message server to accept a call answer message if the subscriber's home message server is unavailable.

INTUITY Interchange Administration

INTUITY Interchange allows INTUITY networking customers to simplify their current point-to-point network topology and administration by supporting store-and-forward message protocols. With INTUITY Interchange, subscribers can exchange messages between INTUITY and non-INTUITY systems.

INTUITY Interchange is compatible with the existing systems that support AUDIX digital networking. It automatically transcodes analog to digital and vice versa with connectivity transcoding between DCP, RS-232, TCP/IP, and AMIS analog.

It also supports an Interchange-to-Interchange configuration to increase network capabilities.

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Lucent INTUITY Lodging and Lodging FAX Messaging

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Systems can be added or moved within the Interchange network without readministering individual remote machines by using a uniform addressing scheme.

It allows for a subset of names to be downloaded from the Interchange to a specific location. Professional Services provides initial translation support for the INTUITY Interchange.

INTUITY Interchange also provides voice and fax messaging support.

Lucent INTUITY Lodging and Lodging FAX Messaging

Lucent INTUITY Lodging is a simple, easy to use voice message and call answer application designed for hotels and other lodging providers, including hospitals and colleges. Lodging is ideal for situations in which the same voice extension or mailbox needs to be turned on, turned off, and assigned to different people. The guest voice message interface is multilingual. Guests can choose a language from those installed in which they want to hear the system instructions spoken. Lucent INTUITY Lodging also provides the ability to interface with a Property Management System (PMS) to activate, deactivate, and set preferences for a voice mailbox when guests check in or check out.

Lodging FAX Messaging provides fax call answer and retrieval as an option with the Lodging feature.

The Lucent INTUITY Lodging application is recommended for situations in which the population is transient, requires a simplified interface, and does not require full messaging capabilities such as annotating and forwarding messages. It does not interact with other applications such as INTUITY AUDIX Digital Networking. The INTUITY AUDIX application, however, does interact with the other applications. Therefore, since the system can operate both voice messaging applications simultaneously, guests or temporary residents can be equipped with Lodging services while the staff is equipped with INTUITY AUDIX services from the same Lucent INTUITY system.

Lucent INTUITY Lodging Features

The Lucent INTUITY Lodging applications provides:

- Call Answer
- Voice Messaging
- Optional PMS Interface
- Simplified Guest Interface
- Specialized Telephone Interface

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Lucent INTUITY Lodging and Lodging FAX Messaging

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- Lodging FAX Messaging
- Broadcast Messaging

Call Answer

Call Answer provides an answering service for unanswered extensions. Callers reaching call answer may either record a message or press zero to transfer to an operator or attendant. The system administrator establishes the extension numbers that callers will reach when they press zero. Callers may press zero at any time to be transferred to an attendant or operator for assistance. If they stay on the line after leaving a message, record the maximum length message, or remain silent instead of speaking, the system automatically transfers the call to an attendant.

Lucent INTUITY Lodging Release 1.1 and later allows guests to record custom greetings to which callers can listen before leaving a message. The standard system greeting is played if a guest does not record a personal greeting and for the Release 1.0 application. System administrators can change the system greeting for both releases.

Voice Messaging

Voice messaging for the Lucent INTUITY Lodging application consists of retrieving, playing, and optionally saving the messages. The customer administers the system to determine whether or not guests are permitted to save messages and if they need a password to retrieve them.

The Lucent INTUITY Lodging application offers several ways for guests and temporary residents to retrieve their messages:

- From their rooms, guests can call the system directly. The system then plays any messages in the order established by the system administrator, that is, the oldest or the newest message can be played first.
- From outside the facility or from the facility lobby, guests can call the system, enter a password, and retrieve their messages. The system must be configured and administered to support this retrieval.
- Guests can ask an attendant to connect them to the system or direct the attendant to retrieve messages for them.
- Attendants can restore the deleted messages for guests, provided that they receive the request prior to midnight of the day that the message was deleted. Attendants can also retrieve guest messages up to 24 hours after the guest has checked out.

Voice messaging for the Lucent INTUITY Lodging application also includes text and fax notification. While the application does not store text and fax messages, it does store a tally. Attendants can enter the number of messages and activate the message waiting indicator to notify the guest of text and fax messages.

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Lucent INTUITY Lodging and Lodging FAX Messaging

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Optional PMS Interface

The Lucent INTUITY Lodging application can operate with or without an active interface to a PMS. The optional interface to the PMS keeps the voice messaging database synchronized with the property's main registration system without intervention from an administrator. In configurations using a PMS interface, the Lucent INTUITY system is the slave, and the PMS system is the master. The PMS terminal is the single point of control for both the PMS and the Lodging application for checking guests in and out, and assigning preferences such as language and password.

Broadcast Messaging

System administrators can use the Lucent INTUITY Lodging application to create messages describing services, opportunities, or events and send the message to a selected group of people or to all guests.

Requirements

Lucent INTUITY Lodging requires:

- At least one Tip/Ring circuit card
- Hours of storage
- A switch integration package

Since the Lucent INTUITY system uses universal ports on the Tip/Ring circuit cards, no specialized circuit cards are needed. Note, however, that older voice circuit cards from previous products can not be migrated to the Lucent INTUITY system.

The number of channels supported for Lucent INTUITY Lodging depends on the size of the MAP. Each platform can be configured with a limited number of Tip/Ring circuit cards. Each card can have six channels. See [Table 3-6](#) for channel information.

Table 3-6. Hardware Platform Channel Information

Hardware Platform	Number of Tip/Ring Circuit Cards	Number of Lodging Channels Supported
MAP/5P	3	18
MAP/40P	7	42
MAP/100	11	42

⇒ NOTE:

The MAP/100 supports a total of 64 channels. The system uses a maximum of 42 of its channels for Lodging at one time.

3 System Features Description*Lucent INTUITY Lodging and Lodging FAX Messaging*

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The administration on the switch/PBX depends upon whether or not both voice messaging software applications are installed on the Lucent INTUITY system.

When Lodging is co-resident with INTUITY AUDIX:

- All users are placed in the same coverage path into the Lucent INTUITY hunt group number
- Each user is entered in the database of only one application, INTUITY AUDIX or Lucent INTUITY Lodging
- AUDIX users call the Lucent INTUITY hunt group to get their messages; Lodging users call a dummy number that is forwarded to the hunt group number

When Lodging is not co-resident with INTUITY AUDIX:

- All guest telephones are placed in the coverage path of the Lucent INTUITY main number
- All guests call the main number to get their messages

The Lucent INTUITY system also requires a link to the PMS if the Lodging application will be interacting with it.

Languages Available for Lucent INTUITY Lodging

The following languages are available for the Lucent INTUITY Lodging application:

- American English
- British English
- Canadian French
- Greek
- Japanese
- Mandarin Chinese
- Spanish
- Brazilian Portuguese

Contact your sales representative for additional information about available languages.

Networking

4

Overview

Networking provides the capability to transfer message components between customers located on different systems. These components include voice, fax, Message Manager or e-mail text messages, and attached binary (software) files. The Lucent INTUITY R4 system offers different types of networking:

- Digital, including:
 - TCP/IP Local Area Networking (LAN)
 - RS-232
 - DCP
- AMIS Analog

Purpose

This chapter provides the basis on which to plan for networking a new Lucent INTUITY R4 messaging system, including an understanding of network:

- Capacities
- Connectivity
- Channel support
- Features and operation

Digital Networking

INTUITY AUDIX Digital Networking is an optional feature package that provides customers with the ability to exchange messages with customers on other Lucent INTUITY and AUDIX systems. The remote system can be collocated with or geographically distant from the local Lucent INTUITY system.

INTUITY AUDIX Digital Networking uses the proprietary AUDIX digital protocol to exchange messages, user profiles, and message status information with other machines. The digital protocol uses a digital file format, similar to a data file transfer between two computer systems to transmit the information. Digitally transmitted messages are communicated quickly and with excellent sound quality.

Digital networking provides customers with the ability to exchange:

- Voice, fax, text messages, and attached files from networked sources, including:
 - Messages from users on other Lucent INTUITY R4 systems
 - Message Manager text components
 - Networked Internet Messaging users
 - Lotus Telephony OneStop e-mail users that are administered on the server
- Voice and fax messages with customers on Lucent INTUITY R3 or later systems
- Voice messages with customers on INTUITY AUDIX, Definity AUDIX R3.2, and AUDIX R1V3 or later systems (AUDIX systems)

Requirements

All Lucent INTUITY platforms support INTUITY AUDIX Digital Networking. INTUITY AUDIX Digital Networking requires:

- The base platform configuration
- At least one voice card
- Switch integration, if required
- The components shown in [Table 4-1](#)

Table 4-1. INTUITY AUDIX Digital Networking Requirements

Requirement	Notes
Networking card (ACCX or LAN)	
UNIXware Networking Set	<ul style="list-style-type: none"> ■ Remote procedure calls ■ Internet utilities ■ Ethernet hardware support ■ Commands Networking extension
One of the following modems or data modules (or others that may be certified in your area): <ul style="list-style-type: none"> ■ AT&T Paradyne 3820 ■ 7400A data module 	Required for RS-232 asynchronous connections
INTUITY AUDIX Digital Networking software package	Must be enabled
<i>INTUITY Digital Networking, 585-310-567</i>	Documentation provided with the networking product

Capacities

The INTUITY AUDIX Digital Networking feature supports a maximum of 485 remote machines. The system supports a maximum of 500,000 administered and nonadministered remote users. The total number of networked systems and remote users depends on the:

- Amount of available storage
- Available networking ports
- Type of ports

The Lucent INTUITY R4 system provides a maximum capacity of 64 ports with 12 channels of digital networking. [Table 4-2](#) summarizes the Lucent INTUITY R4 system capacities for a system using digital networking

Table 4-2. Lucent INTUITY R4 System Capacities with Digital Networking

Component	MAP/40s	MAP/40	MAP/100
Voice channels (ports) available for voice messaging	18	42	64
Maximum networking channels (four channels per ACCX networking card)	4	8	12
Maximum number of optional TCP/IP networking channels	4	4	4
Total networking ports	8	12	12
Modems/data modules	Optional	Optional	Optional

Connectivity

The INTUITY AUDIX Digital Networking feature package provides different types of network connections using the Lucent Digital Communication Protocol (DCP) or the Electronic Industries Association (EIA) RS-232 protocol. Data connections serve both local and remote networking, depending on the customer's system configuration.

Connection Types

[Table 4-3](#) briefly describes the different types of network connections.

Table 4-3. Network Connections

Connection	Description
DCP mode 1	A connection using a data rate of 56 Kbps
DCP mode 3	A connection using a data rate of 64 Kbps
RS-232 low speed	An asynchronous or synchronous RS-232 connection using data rates of 9.6 Kbps or 19.2 Kbps through a modem
TCP/IP	A connection using the customer's LAN/WAN  NOTE: The optional feature Enhanced-List Application (ELA) requires the administration of a TCP/IP address, but does not require a physical connection.

Connection Use

The type of data connection used depends on the facilities of the site and how the customer plans to connect with remote sites. The customer does not have to use the same type of data connection for all networking channels. Each channel can have a different type of data connection. For example, a customer may dedicate channel 1 for a local stacking arrangement. A customer could use Channel 3 as an RS-232 channel for connecting to a remote machine that does not have a digital switch with DCP capabilities.

To use DCP mode 1, the Lucent INTUITY R4 system must connect to a digital switch with DCP capabilities. These switches include the System 75, System 85, or DEFINITY Communication Systems Generic 1, 2, or 3.

To use DCP mode 3, the Lucent INTUITY R4 system must connect to a digital switch with DCP capabilities. These switches include the System 75, System 85, or DEFINITY Communication Systems Generic 1, 2, or 3. Use DCP Mode 3 to create a stacked arrangement.

Use low-speed RS-232 connections when DCP switch facilities are not available.

Use TCP/IP to directly connect two or more machines when DCP facilities are not available. The TCP/IP throughput is higher and more cost effective than DCP.

Channel Support

The Lucent INTUITY R4 system allows combinations of DCP and RS-232 in two-channel increments through the ACCX circuit card. Each ACCX circuit card terminates four data channels in one of the following combinations:

- Two DCP ports, each providing two Interface channels (I-channels) for data. Depending on the version of the switch the customer has, only one of the two I-channels of each DCP port may be used as shown in the following list:
 - System 75 R1V3, DEFINITY G1 R1V4, and DEFINITY G3i, G3s, or G3vs Version 1 only support one I-channel per DCP port
 - DEFINITY G3i, G3s, and G3vs Version 2 can use both of the I-channels. The option must be purchased, installed, and administered on the switch before Lucent INTUITY R4 system administration is performed. Lucent account representatives have more information on the I-channel option for the INTUITY AUDIX Digital Networking feature package.
- Four RS-232 ports
- One DCP port (two I-channels) and two RS-232 ports
- Up to 12 TCP/IP channels can be supported on one card (in blocks of four)

The Sales and Design Support Center (SDSC) or the International Technical Assistance Center (ITAC) works with the customer to help determine the best configuration. [Figure 4-1](#) shows Lucent INTUITY R4 system digital networking connectivity.

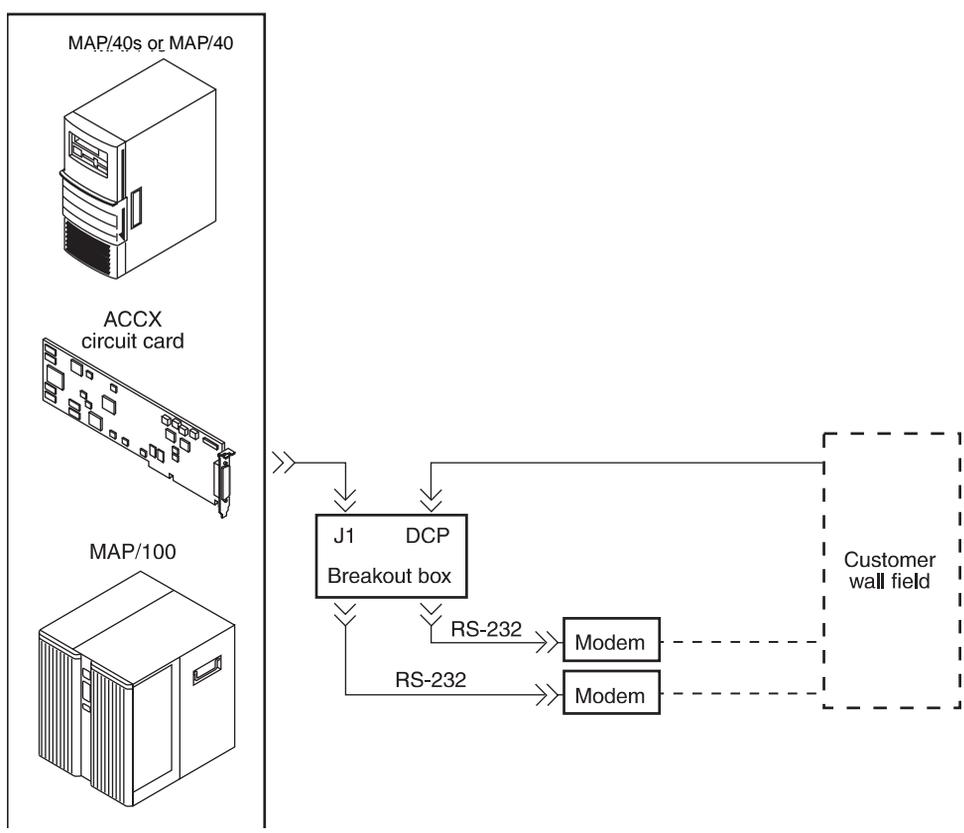


Figure 4-1. Digital Networking Connectivity (DCP and RS-232)

Features

Users who want to send INTUITY AUDIX Digital Networking messages to recipients on administered remote systems can:

- Address their messages by name only.



NOTE:

This feature applies *only* to administered remote recipients. *Administered* refers to remote users that have been entered in the database of the local Lucent INTUITY system.

- Include the names and telephone numbers of remote recipients in their personal mailing lists.



NOTE:

Nonadministered remote recipients can be included only by telephone number.

- Hear the spoken name of the person to whom they are addressing mail or looking up in the directory.

**NOTE:**

If the administrator has not recorded these names, users hear only the remote mailbox ID.

- Use the names and number directory (* * N) to look up telephone numbers by name.
- Assign aliases to any remote recipients on systems administered for INTUITY AUDIX Digital Networking. Administered remote recipients can be included by name or telephone number. Nonadministered remote recipients can be included by telephone number only.
- Use automatic addressing to respond to incoming messages.

Digital networking enhances AUDIX Messaging in many ways:

- Customers with business offices in more than one location, whether in the same building or in different cities, can exchange messages with all locations.
- Customers who exceed the capacity of one INTUITY AUDIX system at a location can network multiple machines together to enable users to exchange messages as if they were on the same machine.
- The following message-exchange features can be used for messages exchanged between remote users:
 - The ability to address a message by entering a user's name. This is called *name addressing*.
 - The ability to play a recorded name, if a name is recorded for the remote user, when a user addresses a message to the remote user or when the user receives a message from the remote user.
 - The ability to forward messages to one user or a group of users, respond to messages, and create group mailing lists.

**NOTE:**

Mailing lists cannot be shared across the network, unless the optional feature Enhanced-List Application (ELA) is purchased. For more information on ELA, see [Chapter 3, "System Features Description"](#).

- The quality of the voice message received is the same as when it was recorded, no matter how many times the message is forwarded. This is true for voice messages exchanged between INTUITY AUDIX systems and between INTUITY AUDIX and DEFINITY AUDIX systems. Voice messages exchanged between INTUITY AUDIX and AUDIX R1 systems use the AUDIX R1 voice messaging encoding. This type of encoding is not of as high a quality as that used by the INTUITY AUDIX voice messaging system.

- Local and remote user databases are updated automatically with the remote update feature.
- Customers with businesses that operate in different time zones can send or receive messages any time of the day or night.
- All a digital networking user needs to know to exchange messages with remote users is the machine prefix and remote user extension or, if using the name addressing feature, just the user's name.

Users can exchange fax messages with INTUITY AUDIX Release 3 and later systems that are enabled for fax.

Users can exchange e-mail messages with INTUITY AUDIX Release 4 and later systems if both systems are enabled for e-mail.

Operation

Before users can exchange messages, the machine name, machine extension length, dial string, and starting and ending extensions must be administered for each machine.

Because an administrator sets up the Lucent INTUITY R4 system with remote machine and user information, all a user needs to know to send a message to a remote user is the user's name or machine prefix and extension.

Encoding Methods

The Lucent INTUITY R4 system can accommodate messages encoded using the code excited linear prediction (CELP) encoding algorithm or the sub-band algorithm. Because AUDIX utilizes only the sub-band algorithm, outgoing messages transmitted from a Lucent INTUITY system to an AUDIX are converted from CELP to sub-band format as they are sent to the remote system. Incoming messages are stored in the format received, either CELP or sub-band. Transcoding is made possible by the ACCX circuit card and the INTUITY AUDIX Digital Networking feature package software. [Table 4-4](#) shows the encoding methods for the INTUITY AUDIX Digital Networking package.

Table 4-4. Encoding Methods for INTUITY AUDIX Digital Networking

Voiced Entity	Path	Encoding Method
Voice messages	Local	CELP
Digitally networked voice messages	Outgoing INTUITY to AUDIX	Transcoded CELP to sub-band
	Outgoing AUDIX to INTUITY	Sub-band
	Outgoing INTUITY to INTUITY	CELP
	Outgoing AUDIX to AUDIX	Sub-band
AMIS analog networked voice messages	Outgoing INTUITY to another voice messaging system	None

AMIS Analog Networking

Audio Messaging Interchange Specification (AMIS) Analog Networking is also available on the Lucent INTUITY platform. For detailed information on AMIS Analog Networking, see *AMIS Analog Networking*, 585-300-512.

AMIS Analog Networking

AMIS Analog Networking provides Lucent INTUITY customers with the ability to exchange voice and fax messages with customers of other systems with AMIS, such as non-Lucent systems that use the AMIS standard.

Description

The AMIS Analog Networking feature permits users to exchange voice mail messages with other voice messaging systems, anywhere in the world, that also have AMIS analog networking capabilities.

The AMIS Analog Networking feature is especially useful to the following Lucent customers:

- AUDIX system customers who want to exchange voice mail messages with DEFINITY AUDIX systems or with non-Lucent voice messaging systems that cannot be digitally networked. The AUDIX system supports both digital networking and AMIS analog networking. Both types of networking can be used on the same machine.
- DEFINITY AUDIX system customers who want to exchange voice mail messages with AUDIX systems, other DEFINITY AUDIX systems, or with non-Lucent voice messaging systems.

Requirements

[Table 4-5](#) lists the required components for AMIS Analog Networking.

Table 4-5. AMIS Analog Networking Requirements

Component	Notes
Base platform configuration	
Switch integration	
Voice card (IVC6)	At least one is required. If adding AMIS to an existing configuration, consider adding more voice ports to accommodate increased traffic.
AMIS analog software package	This software package must be enabled.
<i>AMIS Analog Networking</i> , 585-300-512	This book is provided with the networking product.

Connectivity

The AMIS Analog Networking feature package requires no additional hardware or connections beyond the standard configuration.

Features

AMIS Analog Networking features Message Delivery using preadministered or casual addressing. This section briefly describes these features. For more detailed information on the *AMIS Analog Networking feature*, see *AMIS Analog Networking*, 585-300-512.

Message Delivery

Message Delivery permits users to send messages to any telephone that generates touch-tone signals and has a number within the range of allowable numbers defined by the system administrator. This capability is automatically available when the AMIS Analog Networking capability is activated.

Preadministered and Casual Addressing

The system administrator can administer remote AMIS Analog Networking systems for one-step (*preadministered*) or two-step (*casual*) addressing. This section describes the features of AMIS Analog Networking when preadministered addressing is used.

For preadministered, one-step addressing, local users typically enter the remote machine's prefix (if assigned), followed by the recipient's mailbox ID and the key. However, users who want to send AMIS Analog Networking messages to recipients on remote systems administered for one-step addressing can also:

- Address their messages by name only.

**NOTE:**

This feature applies to administered remote recipients *only*. *Administered* refers to remote users that have been entered in the local Lucent INTUITY system's database.

- Include the names and telephone numbers of remote recipients in their personal mailing lists.

**NOTE:**

Nonadministered remote recipients can be included by telephone number only.

- Hear the spoken name of the person to whom they are addressing mail or looking up in the directory.

**NOTE:**

If the administrator has not recorded these names, users hear only the remote mailbox ID.

- Use the names and number directory () to look up telephone numbers by name.
- Assign aliases to any remote recipients on systems administered for AMIS Analog Networking. Administered remote recipients can be included by name or telephone number; nonadministered remote recipients can be included only by telephone number.
- Use automatic addressing to respond to incoming messages.

Operation

Digital networking allows a voice messaging system to exchange digital files in the same manner as two computers exchange files. AMIS Analog Networking, however, does not operate in this way. AMIS Analog Networking transfers analog voice files instead of digital files and communicates with other AMIS Analog Networking systems including AUDIX R1 or later, DEFINITY AUDIX prior to Release 3.2, and non-Lucent AMIS Analog Networking systems. AMIS Analog Networking operates in the following manner:

1. A local user records and addresses a message to a remote AMIS Analog Networking user.
2. AMIS Analog Networking dials the number of the user machine to which the message was addressed.

3. The AMIS Analog Networking system on the remote machine answers the call, exchanges protocols with the local machine, and allows the local AMIS Analog Networking machine to play the message.
4. The remote AMIS Analog Networking machine records the message in the mailbox of the user to whom the message was addressed.
5. The remote user can now listen to the message.

Voice ports are used for AMIS analog connections. Protocol information is sent between systems via touch-tone signals, and the messages are played by the sending system and recorded by the receiving system. This industry standard for intervendedor networking is defined in the AUDIO Messaging Interchange Specification (AMIS) document. Lucent INTUITY supports AMIS Analog Networking connectivity with the following vendors:

- Centigram
- Comverse
- Digital Sound
- Northern Telecom
- Octel
- Rolm
- VMX

TCP/IP Local Area Networking

Transmission Control Protocol/Internet Program (TCP/IP) is supported for use with an Ethernet LAN circuit card. This card enables the Lucent INTUITY system to connect to a customer's LAN and support windows applications such as Message Manager, a supported e-mail application, and Enhanced List Application (ELA).

- Lucent INTUITY Message Manager Release 2.2 or greater is an optional windows application that operates with INTUITY AUDIX and INTUITY FAX messaging.
- Lucent INTUITY R4 supports integration with an e-mail trusted server, such as a Lotus Notes synchronizer.
- Enhanced List Application (ELA) is an optional feature that allows mailing lists of up to 1500 recipients per list.

Types of LAN Connections

The four possible types of LAN connections are:

- 10Base2 BNC (RG-58 50-ohm thin wire coaxial cabling).
- 10Base 5 using an Auxiliary Unit Interface (AUI). The AUI is also called a transceiver or patch cable (RG-8 or RG-11 50-ohm thickwire coaxial cabling)
- 10BASE-T twisted-pair wiring.
- Twisted pair without link integrity.

For more information regarding software and hardware requirements for the supported e-mail application, see [“Lucent Intuity Electronic Mail Messaging”](#) in [Chapter 3, “System Features Description”](#).

For more information regarding software and hardware requirements for the Message Manager application, see [“Internet Messaging”](#) in [Chapter 3, “System Features Description”](#).

For more information regarding software and hardware requirements for the ELA application, see [“Enhanced-List Application”](#) in [Chapter 3, “System Features Description”](#).

Switch Integration

5

Overview

The Lucent™ INTUITY™ R4 system must be correctly integrated with the switching system so that the two can share call information. This chapter provides an overview of that integration, and is organized as follows:

- Description of switch integration
- Supported integration methods
- Switch integration hardware and software requirements
- Distributed communications system (DCS) description, configuration, operation, and requirements

Purpose

This chapter includes high-level planning information for use in configuring a Lucent INTUITY R4 system with various switches.

What Is Switch Integration?

Switch integration refers to the sharing of information between a voice messaging system and a switch to provide a seamless interface to callers and system users. A fully integrated voice messaging system answers each incoming telephone call with information taken directly from the switch. Switch integration is required in every Lucent INTUITY system configuration. The Lucent INTUITY R4 system supports integration with Lucent and non-Lucent switches.

Supported Features

A fully integrated switch can access the following features of the INTUITY AUDIX Voice Messaging system:

- Call answer

Call answer allows users to:

- Leave a message
- Transfer to another extension
- Transfer to an attendant
- Administer multiple personal greetings (not supported for some switches)

- FAX messaging

A system user with FAX permissions can use the same extension number to receive FAX and voice messages.

- Voice or multimedia mail

Voice mail services allow users to:

- Send voice, text, or FAX messages to other users
- Listen to received messages
- Forward messages received with comments attached
- Reply to messages (not supported for some switches)
- Send the same message to more than one person using mailing lists

- Message waiting indication

A message waiting indicator (MWI) is typically in the form of a lamp on a user's telephone that lights to indicate the presence of a message. It can also be stutter dial tone or a message on a display set.

- Bulletin board service

Bulletin board service allows you to record a message. A caller reaching a bulletin board listens to this message and is then disconnected.

- Automated attendant

An automated attendant directs callers through a series of menu selections to reach a desired compartment, extension, or attendant.

⇒ NOTE:

Interactions through the telephone sets may vary from one switch to another and from one telephone set to another.

Supported Integration Methods

The Lucent INTUITY system supports the following integration methods:

- Inband signaling
- Serial interface (with or without a modem or protocol translator)
- Digital communications interface unit (DCIU) interface
- Interface with a digital station interface circuit card

Inband Signaling

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 offhook to answer the call, but before the voice is cut through. Typically, the string contains the calling party identification (CLI), the called party identification (CP), and the reason for the call (redirection or direct call). [Figure 5-1](#) shows the configuration for inband integrations.

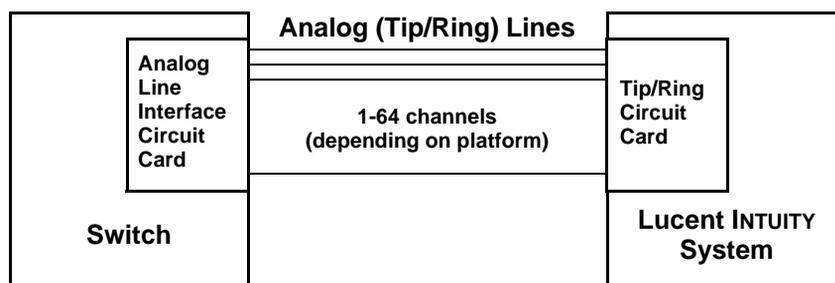


Figure 5-1. Configuration for Inband Switch Integration

Serial Interface

Serial integration can be of two types:

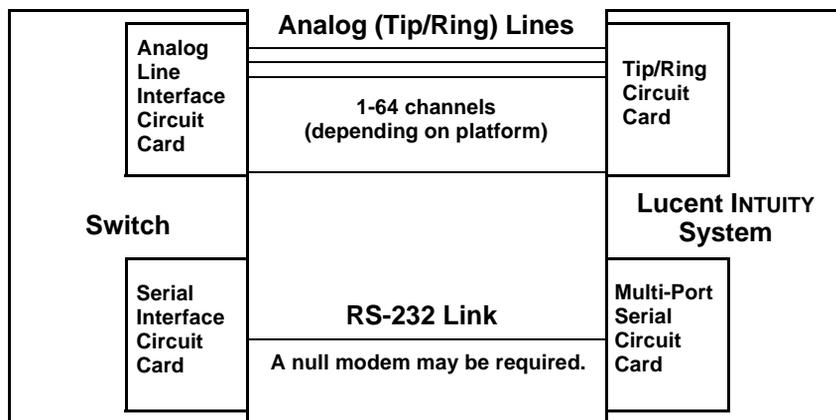
- Proprietary

Serial integration requires an RS-232 interface. The elements of the serial protocol are typically a superset of those in the inband signaling, with the addition of a field describing channel information. When the call is forwarded to the system, a packet of information is sent via an RS-232 standard serial cable, providing the integration data for the channel the call arrives on.

- Simplified message desk interface (SMDI)

SMDI is a Bellcore-defined integration protocol that controls the exchange of integration information through a serial interface. It is an industry standard typically used by central office (CO) switches.

[Figure 5-2](#) shows the configuration for serial integrations. Some serial Centrex integrations require use of a modem or protocol translator placed in the RS-232 link.



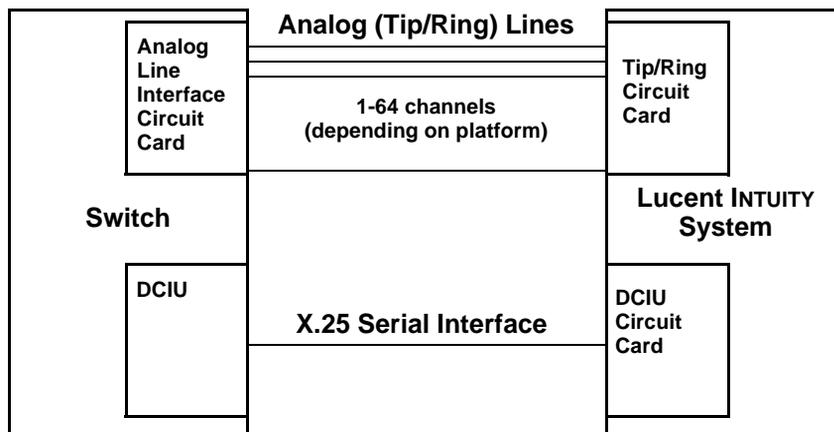
NOTE:

If a modem or protocol translator device is used, it is placed in the RS-232 link.

Figure 5-2. Configuration for Serial Switch Integrations

Digital Communications Interface Unit (DCIU) Interface

The DCIU integration is a proprietary data interface supported by DEFINITY switches. Lucent INTUITY provides integration using the DCIU interface for DEFINITY switches ([Figure 5-3](#)).

**NOTE:**

The connection is either through an isolating data interface (IDI) or a modular processing data module (MPDM), which is placed on the X.25 serial interface link.

Figure 5-3. Configuration for DCIU Integrations

Interface with a Digital Station Interface Circuit Card

The digital station interface circuit card provides digital station interface with a variety of switches. This card is designed to work as a digital voice and data interface card. However, in Lucent INTUITY systems, it is supported as a data interface only. The primary function of this circuit card is to provide call data for calls landing on the Lucent INTUITY voice ports. In these integrations, each Tip/Ring port on the Lucent INTUITY system is connected to the switch through an analog line as an analog station. Each of the ports on the digital station interface card is connected to the switch as a digital station through a digital line.

[Figure 5-4](#) shows the configuration for integrations with a digital station interface circuit card.

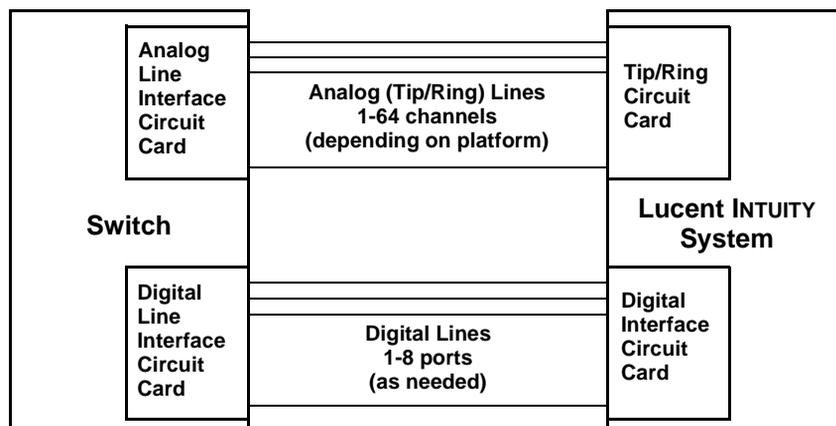


Figure 5-4. Configuration for Integrations with a Digital Station Interface Circuit Card

Switch Integration Hardware Devices and Connections

The switch and integration type determine the hardware and software required for the integration. The Lucent INTUITY R4 system supports the following configurations:

- DCIU circuit card

This circuit card is the hardware device through which information is exchanged between the Lucent INTUITY R4 system and the Lucent System 75 switch, the Lucent System 85 switch, and the Lucent DEFINITY G1, G2, and G3 switches.

- 3A translator

This device links to the Lucent INTUITY system through the multi-port serial circuit card to get information from the Lucent 5ESS[®] switch.

- 202T modem

This device links to the Lucent INTUITY system through the multi-port serial circuit card to get information from the Northern Telecom (Nortel) DMS-100 and Nortel SL-100 switches. It can also be used with the Lucent 5ESS[®] switch.

- Digital station interface circuit card

This circuit card is the hardware device through which information is exchanged between the Lucent INTUITY system and the Nortel Meridian 1 and Nortel Meridian SL-1 switches.

- Direct connection

The Nortel DMS-100 and Nortel SL-100 switches can connect to the multi-port serial circuit card without any intervening hardware.

- Inband connection

Ordinary Tip/Ring analog wiring to connect the Lucent INTUITY system to the switch is all that is required for inband integrations with the following switches:

- Lucent MERLIN LEGEND®
- Lucent EuroGeneris™
- Lucent System 25
- Lucent DEFINITY R6csi
- Nortel Norstar DR3/DR6
- Siemens Hicom 200/300

[Table 5-1](#) lists the switches that the Lucent INTUITY R4 system supports. It includes the switch hardware and software requirements, the Lucent INTUITY system hardware and software requirements, and supporting documentation.

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Lucent DEFINITY G3i, G3R, G3S, and G1	X.25/DCIU Out-of-band DCIU	<u>Software:</u> All	<u>Software:</u> DCIU switch integration package <u>Hardware:</u> DCIU circuit card	INTUITY Messaging Solutions Integration with System 75, DEFINITY Generics 1 & 3 and R5/6 (INTUITY 4.3 Release), 585-310-257
Lucent System 75	X.25/DCIU Out-of-band DCIU	<u>Software:</u> R1V3, issue 1.7 and above <u>Hardware:</u> Processor interface (PI) card Some early versions of the System 75 R1V3, models 1A, 1B, 2A, and 2B carriers may not support the PI card. These carriers may not have a PI/EIA port for IDI connectivity, and customers must use the MPDM option.	<u>Software:</u> DCIU switch integration package <u>Hardware:</u> DCIU circuit card	INTUITY Messaging Solutions Integration with System 75, DEFINITY Generics 1 & 3 and R5/6 (INTUITY 4.3 Release), 585-310-257
Lucent DEFINITY G2	DCIU	<u>Software:</u> All	<u>Software:</u> DCIU switch integration package <u>Hardware:</u> DCIU circuit card	INTUITY Messaging Solutions Integration with System 85, DEFINITY Communications System Generic 2, 585-310-256
Lucent System 85	X.25/DCIU Out-of-band DCIU	<u>Software:</u> R2V4 and above	<u>Software:</u> DCIU switch integration package <u>Hardware:</u> DCIU circuit card	Same as Lucent DEFINITY G2.

Continued on next page

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches — Continued

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Lucent 5ESS Centrex	BRI-to-SMDI protocol conversion (3A translator) SMDI	<p><i>Software:</i></p> <p>Release 5E4 (2), version 4.2 or later Business and residence customer services (BRCS) package I, II, or III ISDN package I</p> <p>ISDN message service (also called Delux MSS)</p> <p>Basic rate interface (BRI) T-interface or U-interface line set up in office dependent data (ODD) as an applications processor interface (API) as OB + D (data only) with D-channel packet switching (3Aa translator)</p> <p><i>Hardware:</i></p> <p>202T modem or 3A translator</p> <p>NT1U-200 or NT1U-220 network terminating unit (if distance requires)</p> <p>ISDN SM optical remote module (ORM) to support the BRI/API link</p> <p>One 2-way analog station line for remote alarming and for access to Lucent services personnel.</p> <p>Analog station lines (matched to the number of Lucent INTUITY voice ports) in a multiline hunt group with the number of queue slots in each group based on traffic</p>	<p><i>Software:</i></p> <p>Serial/ inband switch integration package</p> <p><i>Hardware:</i></p> <p>3A translator or 202T modem</p> <p>Multi-port serial circuit card</p>	<p>INTUITY Messaging Solutions Release 4 Centrex Switch Integration, 585-310-253</p>

Continued on next page

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches — *Continued*

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Northern Telecom DMS-100 and SL-100 Centrex	Serial (with or without 202T modem) Out-of-band SMDI	<p><u>Software:</u></p> <p>BCS24 through BCS28 and BCS32 or later packages for the SMDI data link</p> <p>NTX100 Meridian digital Centrex basic (IBN) package</p> <p>NTX101 Meridian digital Centrex enhanced business services (IBN) package</p> <p>NTX119 Message Service package</p> <p>NTX730 ASCII driver</p> <p>NTX732 SMDI package</p> <p>Plain old telephone service (POTS) only: NTX220 vertical services package or NTX806 enhanced call forwarding package</p> <p><u>Hardware:</u></p> <p>202T-compatible modem at the switch (if distance requires)</p> <p>ntix67fa terminal circuit card (1200-baud link) or nt1x89AA/AB or high-vintage MPC card (2400-baud link)</p> <p>829 channel interface unit, OMNI port, or other equivalent repeater (in some configurations based on the distance between the switch and the Lucent INTUITY system)</p> <p>B25 A or equivalent cable when connecting the 202T modems to the repeater</p> <p>DMS-100 circuit cards ntix67bc and ntix67bd are not compatible with the Lucent INTUITY system.</p>	<p><u>Software:</u></p> <p>Serial/inband switch integration package</p>	<p>INTUITY Messaging Solutions Release 4 Centrex Switch Integration, 585-310-253</p>

Continued on next page

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches — Continued

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Northern Telecom Meridian 1a and Meridian SL-1	Digital station interface circuit card Station emulation Proprietary	<p><u>Software:</u></p> <p>Generic 11, Release 15 and above with options 11, 21, 21a, 51, 61, 71 and 81</p> <p>Option 19 package for digital display (DDSP)</p> <p>Option 46 package for message center (MWC)</p> <p>Line disconnect tone allowed (LDTA) package (required in some countries)</p> <p>Switch releases 15 and 16 support silence disconnect only and do not support LDTA.</p> <p>Hardware:</p> <p>Meridian 1:</p> <p>NT8D09 or NT8D03 circuit card for analog connections to the Lucent INTUITY system</p> <p>NT8D02 circuit card for digital connections to the Lucent INTUITY system</p> <p>Meridian SL1:</p> <p>QPC594 circuit card for analog connections to the Lucent INTUITY system</p> <p>QPC578 circuit card for digital connections to the Lucent INTUITY system</p>	<p><u>Software:</u></p> <p>Digital station interface circuit card switch integration package (VB-PC)</p> <p>Hardware</p> <p>Digital station interface circuit card</p>	<p>INTUITY Messaging Solutions Release 4 Switch Integration with Digital Station Interface, 585-310-251</p>
Lucent MERLIN LEGEND R2 or later Lucent MERLIN LEGEND R1.2i or later	Tip/Ring Inband	<p><u>Software:</u></p> <p>Release 2.1 or later (U.S.)</p> <p>Release 1.2i or later (non-U.S.)</p> <p>System programming and maintenance terminal emulation package (to allow administration of the switch via the Lucent INTUITY system)</p> <p>Hardware:</p> <p>BTM-012 or BTM-016 module</p>	<p><u>Software:</u></p> <p>Serial/inband switch integration software package</p>	<p>INTUITY Messaging Solutions Integration with MERLIN LEGEND Communications System, 585-310-255</p>

Continued on next page

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches — *Continued*

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Lucent DEFINITY R6csi	Tip/Ring Inband Mode code	<u>Software:</u> Release 6.2 and above	<u>Software:</u> Serial/inband switch integration package	INTUITY Messaging Solutions Integration with System 75, DEFINITY Generics 1 & 3 and R5/6 (INTUITY 4.3 Release), 585-310-257
Lucent System 25	Tip/Ring Inband Proprietary	<u>Software:</u> R3V3	<u>Software:</u> Serial/inband switch integration package	INTUITY Messaging Solutions Release 4 Integration with System 25, 585-310-250
Lucent Euro-Generis	Tip/Ring Inband Mode code	<u>Software:</u> SU71 Analog interface configured as voice mail interface (VMI) ports	<u>Software:</u> Serial/inband switch integration package	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252
Siemens Hicom 200/300	Tip/Ring Inband Proprietary (VMle)	<u>Software:</u> Voice mail interface enhanced (VMle) package <u>Hardware:</u> SLMA-16 card for analog ports	<u>Software:</u> Serial/inband switch integration package	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252
Nortel Norstar DR3/DR6, Centrex	Tip/Ring Inband Proprietary (VMI)	<u>Software and hardware:</u> Voice message interface (VMI) unit	<u>Software:</u> Serial/inband switch integration package	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252

Continued on next page

5 Switch Integration

Switch Integration Hardware Devices and Connections

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Table 5-1. Requirements for Supported Switches — Continued

Switch	Interface, Integration, and Protocol	Switch Requirements	Lucent INTUITY Requirements	Supporting Documentation
Intecom S/80, S/40, S/10	Serial Out-of-band Proprietary (VMP)	<u>Software:</u> Version 10.1.2 and later Voice messaging product (VMP) interface <u>Hardware:</u> Octal STE OPX or equivalent line circuit cards for Lucent INTUITY voice ports QALTA I/O port for serial interface	<u>Software:</u> Serial/inband switch integration package <u>Hardware:</u> Multi-port serial circuit card	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252
NEC NEAX 2400	Serial Out-of-band Proprietary (MCI)	<u>Software:</u> Message center interface (MCI) link support Models SIM and IMG: software level 5200 or above Models MMG and UMG: software level 4000 or above <u>Hardware:</u> Analog ports (PA-16LCQ) or equivalent recommended with loop disconnect signaling for connection to the Lucent INTUITY system	<u>Software:</u> Serial/inband integration package <u>Hardware:</u> Multi-port serial circuit card	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252
Ericsson MD110 Model 20, 40, 50, or 90	Serial Out-of-band Proprietary (ICU)	<u>Software:</u> Version BC5.3 or later Programming units in the LIM with the ICU: IHAH, IH, DIM, and ILP Programming units in each LIM: DIR and MWP <u>Hardware:</u> ELU analog station line circuit card (version R1A) for Lucent INTUITY voice ports ICU circuit card (version R1A) SFU circuit card for serial interface	<u>Software:</u> Serial/inband switch integration package <u>Hardware:</u> Multi-port serial circuit card	INTUITY Messaging Solutions Release 4 Inband and Serial Switch Integration, 585-310-252

Distributed Communications System

The Lucent INTUITY system can serve more than one switch when the switches are part of a distributed communications system (DCS) network.

Description

The DCS network feature on Lucent switches allows multiple switches to work together as one switch. The switches can be in the same location or distributed between sites. All switches in a DCS network share the same uniform dialing plan. Switches share call information over a DCIU link. Users receive calls from remote users as they would receive calls from their local switch. The switch sends caller names or extensions to the users' telephone displays, and can use leave-word calling and other switch features.

The DCS feature package allows a single Lucent INTUITY system to integrate with up to 20 of the switches on the DCS network. The DCS feature package provides called-party information to the Lucent INTUITY system from all the switches on the DCS network.

If a customer has a DCS network, users—regardless of location—can include each other on mailing lists, forward and reply to each others' messages, and have calls routed to them efficiently and accurately.

Host Switches

The switch that hosts the Lucent INTUITY system connects it to the other switches in the network. The Lucent INTUITY system uses the existing DCS trunks of the switch for both data and voice communications. The following switches can be the host and/or a remote switch for the Lucent INTUITY system in a DCS environment:

- System 75
- DEFINITY G1, G3i, G3r, G3s, or G3vs

Configuration

There are two possible configurations for a Lucent INTUITY system in a DCS network:

- Using BX.25 data channels
- Using ISDN-PRI D-channel (DEFINITY G3i, G3r, G3s, and G3vs only)

Operation

How DCS Networking operates on a Lucent INTUITY system depends on the DCS configuration.

DCS Configuration Using BX.25 Data Channels

One Lucent INTUITY system residing on a switch can support up to 20 remote switches in a DCS network. A remote switch does not have a direct data link connection to the Lucent INTUITY system. The remote switch passes data through the host switch to the Lucent INTUITY system through a channel over the DCS BX.25 data link. The Lucent INTUITY system on the host switch has separately administered channels to each of the supported remote switches. These *hop channels*, provided by the host switch, are used to control message waiting indicators (MWIs) and to identify remote switches to the Lucent INTUITY system. The host switch then provides the voice port and Lucent INTUITY system connections for all switches in the DCS network that communicate with the Lucent INTUITY system on the host. All Lucent INTUITY system features can be activated from both the host and remote switches.

The remote Lucent INTUITY system hunt group can be a coverage point in a call coverage path at a remote switch not connected directly to the Lucent INTUITY system. The remote switch must be in the DCS network.

DCS Configuration Using ISDN-PRI D-Channel (DEFINITY G3i, G3r, G3s, and G3vs only)

This configuration uses BX.25 connectivity between the Lucent INTUITY system and the host switch. The ISDN-PRI connectivity is used between the host switch and the remote switches in the DCS network. This configuration requires the same hardware as the DCS Over ISDN-PRI D-channel feature. Lucent INTUITY system messages are transported to the remote switch via administered non-call-associated temporary signaling connections (NCA-TSCs) between nodes supporting ISDN-PRI D-channel. An administered NCA-TSC is established between two administered NCA-TSC endpoints on two different PBXs and remains up or enabled for a period of time depending on administered translations. The connection may be administered on an as-needed or permanent basis.

These same configurations are available on the remote switch. See "DCS and AUDIX Networking" in *DEFINITY Enterprise Communications Server R6 Administration and Feature Description*, 555-230-522, for detailed examples of DCS in the following configurations:

- Traditional DCS network
- D-channel DCS network (private network only)
- D-channel DCS network (public network access/egress)
- Integrated DCS network (private network only)
- Integrated DCS network (public network access)

Requirements

All the Lucent INTUITY R4 system platforms support DCS networking. DCS networking requires the base platform configuration with switch integration and the associated software package.

For U.S. customers, the Sales and Design Support Center (SDSC) designs a multinode DCS arrangement with a Lucent INTUITY R4 system. The International Technical Assistance Center (ITAC) provides this service for customers in other countries.

Connectivity

[Figure 5-5](#) shows the connectivity for providing Lucent INTUITY AUDIX Voice Messaging transparency in a DCS network. The connectivity consists of a single INTUITY AUDIX machine connected to multiple switches via a host or gateway switch. The voice lines to and from the INTUITY AUDIX system all terminate in an Automatic Call Distribution (ACD) group on the host switch. Thus, the host switch is a tandem point for all voice connections between the INTUITY AUDIX system and the other remote switches in the DCS arrangement. The DCS tie trunks provide voice lines between the host switch and the remote switches.

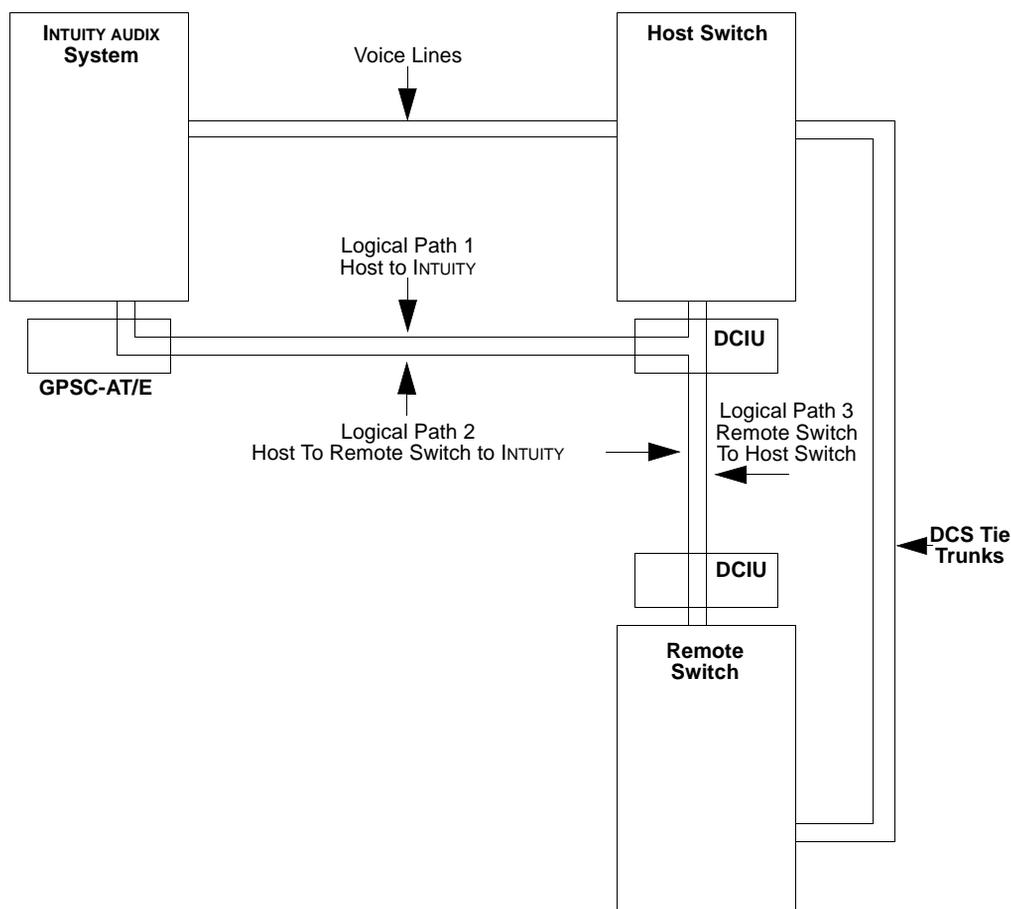


Figure 5-5. High-Level DCS Connectivity with a Lucent INTUITY R4 System

In a DCS network, logical channels on the physical link provide connectivity for the transmission of voice messages between the switches and the INTUITY AUDIX system. The DCIU on the host switch is used for these communications. These logical channels are rerouted from the host switch to each of the remote switches. Thus, logical paths can be established between each switch and the INTUITY AUDIX system:

- The host switch and the INTUITY AUDIX system exchange voice messages via logical path 1.
- The remote switch and the INTUITY AUDIX system exchange voice messages via logical path 2.
- The host switch and the remote switch exchange voice messages via logical path 3.

Administration and Maintenance

6

Overview

This chapter briefly describes the features provided to administer and maintain a Lucent INTUITY R4 system. These features include remote and local administration and maintenance access through terminals, utility programs, and screens.

Lucent INTUITY R4 system features related to primary software applications and features available in Lucent INTUITY R4 are discussed in [Chapter 3, "System Features Description"](#).

Purpose

This chapter provides a reference listing of administrative and maintenance features available with a Lucent INTUITY R4 Messaging system.

Administration

This section contains a variety of topics that relate to initial and ongoing administration of a Lucent INTUITY R4 system.

Administrative Interfaces

The Lucent INTUITY R4 system provides two interfaces to access and administer system and AUDIX features and data:

- The telephone
- A dedicated monitor and keyboard for local administration access to a system of windows, menus, and screens

**NOTE:**

For definitions of windows, menus, and screens, see the [“About This Book”](#) chapter at the beginning of this book.

Most of the platform and networking administration is done through the administration windows, and much of the user and messaging administration is accomplished through the administration screens.

This allows the customer’s system administrator to control access to the various portions of the system. Two customer administration logins allow varying levels of access to the features and capabilities of a Lucent INTUITY R4 system:

- System administrator (sa)
- Voice mail (vm)

Lucent technicians use a craft login during installations or upgrades and to assist the customer remotely if a problem occurs.

The Internet Messaging feature is administered and maintained through a World Wide Web (WWW) browser interface. This interface can be used from any location with access to the internal LAN or the Internet. AUDIX security is used as in the rest of the system.

This section describes each of these administrative and login features.

Administration from the Telephone Interface

The system administrator performs some administrative tasks using the telephone, including recording:

- Users’ names (this is optional; users can record their own names)
- Networked machine names — for information and procedures, see *INTUITY Digital Networking*, 585-310-567

- Automated Attendant menus and options

The voiced menu options that callers hear are actually personal greetings that the customer records for the auto-attendant's extension. The Multiple Personal Greetings feature can also be used to provide different menus and options for different types of callers. For more information and procedures, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

- Bulletin Board announcements

As with Automated Attendants, the customer system administrator records Bulletin Board messages. For more information and procedures, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

- Enhanced-List Application (ELA) mailbox names

To AUDIX, ELA mailboxes look and act like any user mailbox. The customer system administrator records a name for this mailbox so users hear a meaningful name when they send messages for distribution. For more information and procedures, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

- Announcement fragments

An announcement fragment is a recorded voice segment and an announcement is a set of rules for determining the specific fragments to be played. For example, "Welcome to AUDIX" is a fragment that plays when the announcement rule mandates. The customer can re-record that fragment to suit their business purposes, for example, "Welcome to the ABC Company." For more information see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Administration from Lucent INTUITY Windows

Most Lucent INTUITY platform administration tasks are performed using windows accessed by selecting options from the Lucent INTUITY main menu. Through the Lucent INTUITY windows the customer's system administrator can:

- View information, enter information, access menus, select an option to display another window or menu, or select available system options
- Display more than one screen or menu concurrently, although only the last window displayed is active
- Cancel the active window to return to the previous menu or window
- Use function keys to perform commands
- Access on-line system help and field help for data entry fields in the window

[Figure 6-1](#) shows a sample window and menu.

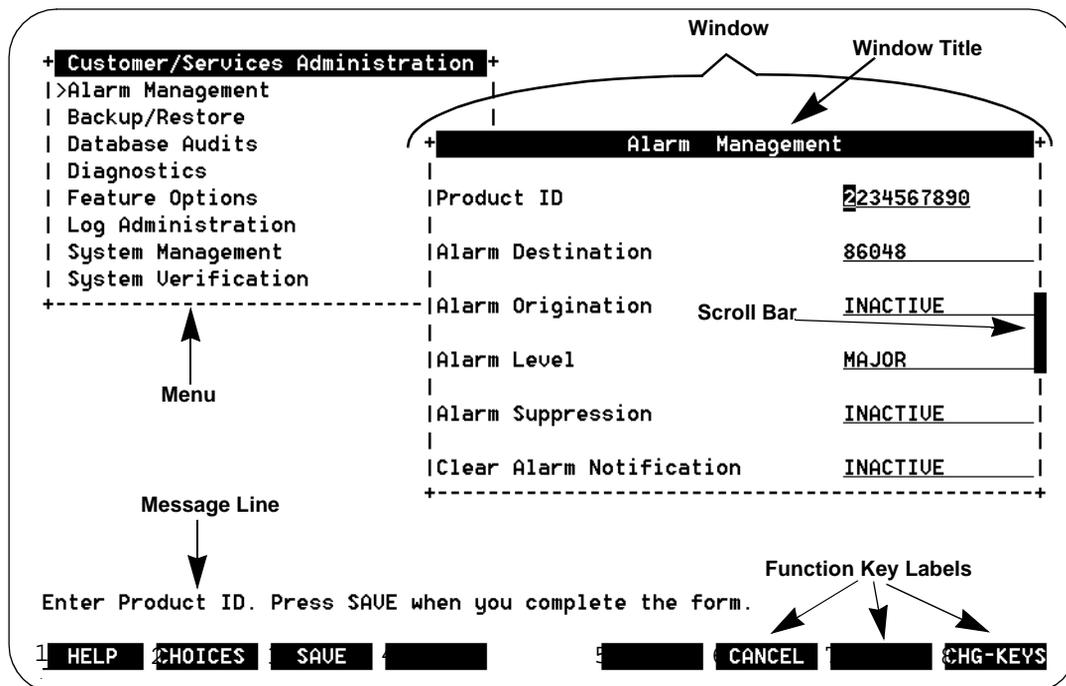


Figure 6-1. Sample Lucent INTUITY Administration Menu and Window

Table 6-1 describes the layout and components of the Lucent INTUITY Administration menu and window.

Table 6-1. Lucent INTUITY Administration Window Layout and Components

Window/Menu Component	Description
Menu	A special type of window that contains a list of options. A menu differs from other windows in that you cannot enter data into a menu.
Window	That bounded portion of the administrative interface through which the customer can view system information or status. A window differs from a screen in that a screen fills the monitor viewing area while a window has an edge and displays only on a portion of the monitor viewing area.
Window Title	Shows the name of the window or menu.

Continued on next page

Table 6-1. Lucent INTUITY Administration Window Layout and Components — Continued

Window/Menu Component	Description
Scroll Bar	Indicates when a window contains more than one screen of information. The customer can scroll forward and backward through the information.
Message Line	Contains a brief message about how to use the window.
Function Key Labels	Boxed labels that correspond to the first eight function keys (F1 through F8) on the keyboard that comes with the system. Each label represents a command that is executed when the corresponding function key is pressed. If no command label appears for a given function key, that key is not available for the active window.

Administration from AUDIX Screens

The customer's system administrator administers most aspects of AUDIX messaging using AUDIX administration screens. When the customer first accesses the AUDIX administration screens, a blank screen displays. From this screen, the customer enters commands that cause the system to display other screens, such as Machine Profile, Subscriber, and Class of Service screens. These screens allow the system administrator to enter or view information, or select available system options.

Each screen has a name, which is part of the command that is used to display that screen. As with the administration windows, on-line help and field help for data entry fields is available.

[Figure 6-2](#) shows a sample screen.

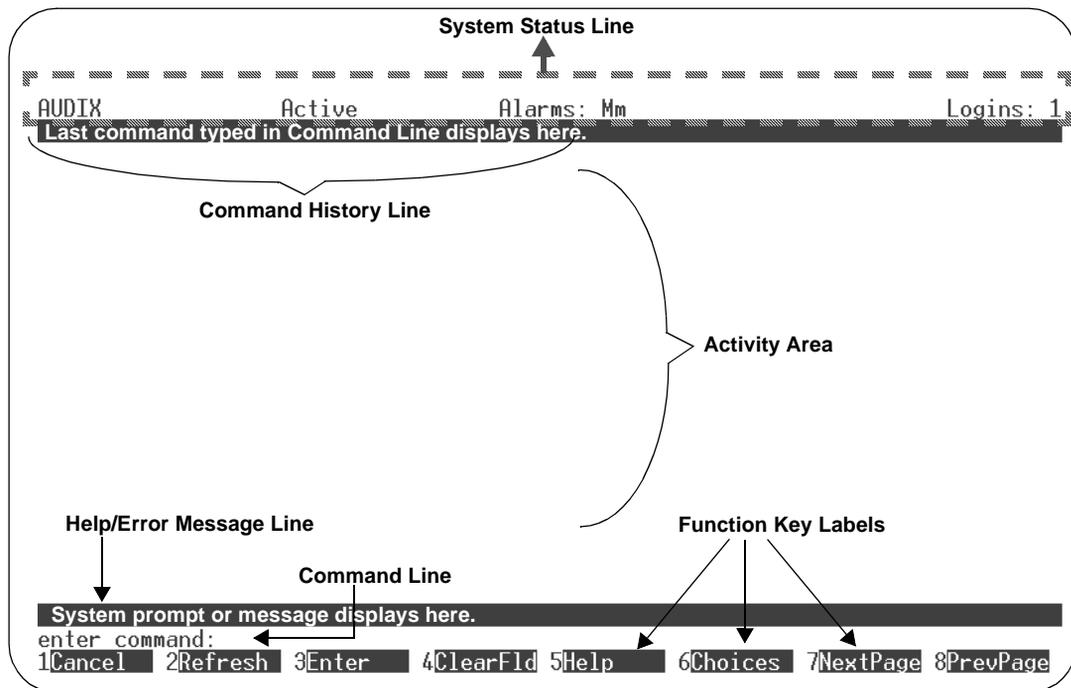


Figure 6-2. Sample AUDIX Administration Screen

[Table 6-2](#) describes the layout and components of the AUDIX Administration screen.

Table 6-2. INTUITY AUDIX Administration Screen Layout

System Status Line	This line displays Lucent INTUITY R4 system information, including the machine name, application status, any active alarms, and the number of people logged in.
Command History Line	This line displays the fully-expanded command currently entered in the command line and the current page number and page count (for example, change subscriber "Jane Doe" Page 1 of 2). If the active screen is a help screen, this line contains the title of the screen or field help (for example, change subscriber "Jane Doe" : field help Page 1 of 1).
Activity Area	The activity area displays: <ul style="list-style-type: none"> ■ Data-entry fields used to specify new or changed parameter values ■ Display-only fields, which contain current parameter values that cannot be changed from this screen ■ Report results, which display requested system information ■ Screen and field help activated with the <i>Help</i> or <i>Choices</i> keys
Help/Error Message Line	This line displays system feedback (for example, Command Successfully Completed), error messages, and prompts.
Command Line	This line is used to enter commands to access a new screen or exit AUDIX Administration.
Function Key Labels	This portion of the screen shows labels for function keys F1 through F8. The labels indicate the actions invoked by pressing the function keys while a screen is active.

System Logins

There three logins provide varying levels of access to the features and capabilities of the Lucent INTUITY R4 system. This layered login approach provides a means to limit access to certain features. It is also convenient if the system administrator chooses to delegate AUDIX administration responsibilities to another person.

VM Login

The voice mail (vm) login permits:

- Administration of the INTUITY AUDIX Voice Messaging feature package via the AUDIX Administration screens
- Access to some maintenance logs

SA Login

The system administrator (sa) login permits:

- Administration of all the Lucent INTUITY feature packages and system-wide features via both the Lucent INTUITY windows and the AUDIX Administration screens
- Access to most maintenance logs

Craft Login

The Lucent services craft login permits:

- Administration of all the Lucent INTUITY feature packages and system-wide features via both the Lucent INTUITY windows and the AUDIX Administration screens
- Access to all maintenance logs

Administrative Access by More Than One Person

A Lucent INTUITY R4 system does allow more than one person to perform the same function on the same screen, for example, adding a user to the INTUITY AUDIX Voice Messaging database. However, when two people happen to be, for example, editing the same user's profile, only the changes made by the person who saves the screen *last* are written to the hard disk. The other person's changes are lost.

Help

Help is available at three levels in the Lucent INTUITY R4 system:

- From a computer or terminal, window, screen, and field help are activated with Help and Choices keys.
 - The Help key provides general system information and window and screen navigation and data entry overviews.
 - The Choices key is available when the cursor is in a field in a window or screen. It provides information specific to that field, such as the purpose of the field and valid data entry values.
- Over the telephone from the remote services center, which is open 365 days a year.
- The Lucent INTUITY R4 documentation set contains detailed administrative and diagnostic procedures.

Remote Access

Remote access allows system administrators to perform administrative duties from a monitor that is remote from the Lucent INTUITY R4 system, for example, system administrators can use the monitor at their desks. There are two types of remote access: Lucent services and customer.

Lucent Services Remote Access

Lucent technicians can access a customer's system remotely through the asynchronous port on the Remote Maintenance Board (RMB).¹ If installed, the RMB uses the second communications port (COM2).

Customer Remote Access

The customer can access the Lucent INTUITY R4 system remotely through a terminal and modem to the first serial port on the CPU or to the multi-port serial card.

[Table 6-3](#) lists the remote access requirements.

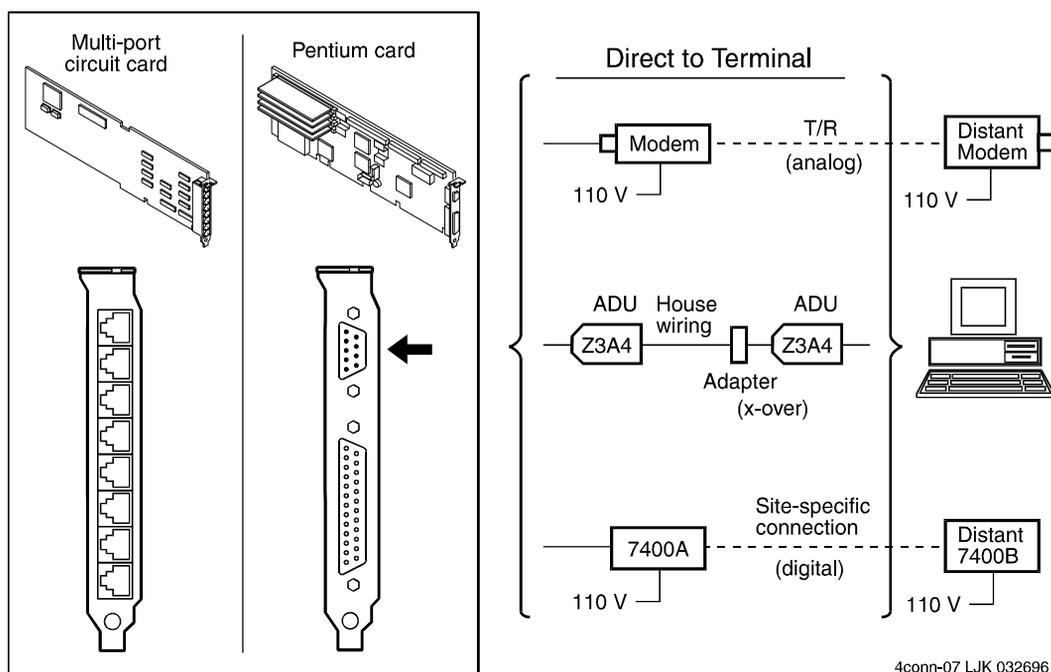
1. A Remote Maintenance circuit card may not be available. Check with a Lucent account representative for availability.

Table 6-3. Remote Access Requirements

Component	Notes
Multi-port serial card	Provides 8 serial ports, required if COM1 is already in use
Multi-port serial card software	Required with the multi-port serial card
One of the following connection types: <ul style="list-style-type: none"> ■ US Robotics Sportster modem ■ Paradyne Comsphere 3820 modem ■ Paradyne Comsphere 3910 modem (or other locally certified modems outside the U.S.) ■ 7400A and 7400B data modules ■ ADU 	Required if the remote terminal is greater than 50 ft (15 m)
One of the following terminals: <ul style="list-style-type: none"> ■ Lucent 386 ■ Lucent 4410 (for PROCOMM PLUS 4410 or Terranova emulation) ■ Lucent 513 (for Terranova emulation) ■ Lucent 715 ■ Lucent 4425 ■ vt100 	

Serial Port Connectivity

[Figure 6-3](#) shows the Lucent INTUITY R4 system's serial port connections for the MAP/40s, MAP/40, MAP/40P, and the MAP/100.



4conn-07 LJK 032696

Figure 6-3. INTUITY Serial Port Connectivity for the MAP/40s, MAP/40, MAP/40P, and MAP/100

Internet Messaging Administration

The customer's system administrator can administer the operation of Internet Messaging through a WWW browser interface, as shown in [Figure 3-4](#). The screens are organized for progressive completion by clicking the Next link at the bottom of each page.

Where possible, default values or a list of selections are provided. However, some fields require that an entry be made, after which the system will operate properly.

Reports

The Lucent INTUITY R4 system gathers information on the status of the system and makes it available in a series of reports. Reports provide statistics on system use and help the customer's system administrator identify the source of any problems that may occur.

The reports discussed in this section are:

- [Traffic Reports](#)
- [System Verification Reports](#)
- [System Monitor Report](#)
- [Feature Option Reports](#)
- [Voice Equipment Reports](#)
- [Fax Print Queue](#)
- [Internet Messaging Maintenance Screens](#)

Traffic Reports

Traffic reports provide information on the amount of caller-generated and user-generated traffic on the voice channels of the system (over the analog lines of the voice cards). Information in the traffic report includes the:

- Number of calls coming to the system
- Average amount of time a single call occupies a channel
- Percentage of time the channel was occupied within a particular time period

The traffic report can display information for all voice channels or break down the traffic data by applications (services) assigned to the voice channels. [Table 6-4](#) lists the information displayed in traffic reports.

Table 6-4. Lucent INTUITY R4 Traffic Reports

Report	Purpose	Document Reference
INTUITY AUDIX Messaging and AMIS Analog Networking		
Community Traffic (Hourly/Daily)	Displays the number of messages sent and received by each community.	<i>INTUITY Messaging Solutions Release 4 Administration, 585-310-564</i>
Feature Traffic (Hourly/Daily)	Displays traffic information by feature: voice mail and call answer.	
Load Traffic (Hourly/Daily)	Displays the number of calls handled by each active port within a reporting period.	
Special Features Traffic (Hourly/Daily)	Displays traffic information for outcalling, message delivery, and AMIS Analog Networking.	
Subscriber Traffic (Daily/Monthly)	Displays traffic information about a specific user.	
Remote Messages Traffic Report (Daily/Monthly)	Gathers information about traffic load between a local AUDIX and a specified remote AUDIX machine for up to 13 months.	
Special Features Traffic Report (Hourly/Daily)	Shows the outcalling traffic information (which includes outcalling, message delivery, and AMIS analog networking).	
INTUITY AUDIX Digital Networking		
Network Channel Usage (Hourly/Daily)	Displays the number of calls handled by each active INTUITY AUDIX Digital Networking port within a reporting period.	<i>INTUITY Digital Networking, 585-310-567</i>

System Verification Reports

The following system verification windows allow a view of up-to-the-minute status on system hardware/software and operating status:

- Verify System Installation
- Verify System Status
- View Installed Hardware
- View Installed Software

These windows can be accessed by choosing the Customer/Services option Administration from the main menu, and then selecting the System Verification option.

System Monitor Report

The System Monitor is a dynamic (changing) report screen that shows the current activity on the voice channels of the Lucent INTUITY R4 system. The customer's system administrator can use the System Monitor to verify that channels are working properly when troubleshooting the system.

The system monitor window can be accessed by choosing the Voice System Administration option from the main menu, and then selecting the System Monitor option.

Feature Option Reports

Each feature or application also provides its own set of reports for tracking data specific to the feature itself. The feature options window can be accessed by selecting the Customer/Services Administration option from the main menu, and then selecting the Feature Options option.

[Table 6-5](#) lists the feature options and the information that displays in the Feature Options window.

Table 6-5. Information Reported in the Feature Options Window

Feature Option	Report Shows	Value Shown
AMIS Analog Networking	The status of the feature	on or off
DCS	The status of the feature	on or off
Fax	The status of the feature	on or off
High-speed digital ports	The number of high-speed digital networking ports enabled	Up to 12
Low-speed digital ports	The number of low-speed digital networking ports enabled	Up to 12
Maximum number of IMAPI sessions (for connections to Message Manager, ELA, e-mail, etc.)	The number of IMAPI sessions purchased; a value of 0 (zero) indicates that IMAPI has not been purchased	Up to 96
Multilingual	The status of the feature	on or off
SCSI disk mirroring	The status of the feature	on or off
TCP/IP administration	The status of the feature	on or off
TCP/IP digital ports	The number of digital networking ports enabled	Up to 12
Text-to-speech sessions	The number of text-to-speech sessions enabled	Up to 4

Continued on next page

Table 6-5. Information Reported in the Feature Options Window
— *Continued*

Feature Option	Report Shows	Value Shown
Trusted servers	The number of trusted servers that can be administered in AUDIX	Up to 64
hours_of_speech	The number of hours of speech purchased and activated on the system's hard disks	Number of hours of speech remaining that can be purchased and activated on the hard disk
voice_ports	Number of ports purchased and activated on the system	Up to 12

Voice Equipment Reports

These reports show IVC6 circuit cards and voice channel information such as the number of channels and current status of channels. This report can be accessed by choosing the Voice System Administration option from the main menu, and then selecting the Voice Equipment option.

Fax Print Queue

The Fax Print Queue displays the status of fax print jobs sent using INTUITY FAX Messaging. The customer's system administrator can specify which print jobs to display. This report can be accessed by choosing Voice System Administration from the main menu, and then selecting Fax Print Queue.

Internet Messaging Maintenance Screens

Internet Messaging uses a WWW browser to display information about how the system is working. Occurrences or status of events in the system are displayed in the:

- Internet Messaging Logs
- Traffic Display
- System Control & System Status

The logs display messages about events that occur during Internet Messaging's operation. Traffic is displayed in a graphic chart, measuring the volume of message, data or POP3 client logins. Whether the system is operating and the required system resources is also displayed.

Administration Tools and Utilities

The following tools and utilities are available to enhance the system administration environment:

- [AUDIX Administration and Data Acquisition Package](#)
- [DEFINITY Communications System Generic 3 Management Applications](#)
- [DEFINITY Communications System Generic 3 Management Applications](#)
- [Call Accounting System](#)
- [Backup and Restore](#)

AUDIX Administration and Data Acquisition Package

The AUDIX Administration and Data Acquisition Package (ADAP) is part of the standard Lucent INTUITY R4 system configuration. ADAP is a collection of software programs installed on a customer-provided PC. ADAP uses a command-line language interface and allows the customer's system administrator to download traffic data, user data, and other system data from the messaging database files on the Lucent INTUITY system to a PC or printer for further processing.

Operation of the ADAP software is the responsibility of the customer.

ADAP Connectivity

The customer-provided PC on which ADAP software resides is connected to the Lucent INTUITY R4 system either directly via an RS-232 port (COM1 or the multi-port serial card) or using remote access capabilities as discussed under "[Remote Access](#)" above. The customer's system administrator logs in to the voice messaging system using an ADAP-supplied command.

ADAP Data Management

Live data is the information maintained by the voice messaging system and stored on the Lucent INTUITY R4 system itself. Except for database-modification commands and the system attendant reports, *ADAP does not work directly with live data* in the voice messaging database. Instead, ADAP copies this data to the PC. Changing the data stored on the PC does not change the information stored on the voice messaging system.

With the command-line language, the customer's system administrator can retrieve and send data directly to the PC or to a printer for further processing.

ADAP Optional Components

To use ADAP's capabilities, it may be necessary to add some components to the standard configuration. [Table 6-6](#) lists the ADAP requirements. For more information on ADAP, see *AUDIX Administration and Data Acquisition Package*, 585-302-502.

Table 6-6. ADAP Requirements

Component	Notes
Multi-port serial card and software	Provides eight serial ports; required for multiple administration sessions and/or if COM1 is already in use
One of the following connection types: <ul style="list-style-type: none"> ■ Paradyne Comsphere 3820 modem ■ AT&T Paradyne Comsphere 3910 modem (or other locally certified modems outside the U.S.) ■ 7400A data module 	Required if the distance to the PC is greater than 50 ft (15 m)
Personal computer	The ADAP software must be loaded on a computer that is separate from the Lucent INTUITY R4 system.
ADAP software	Standard with the Lucent INTUITY R4 system
<i>AUDIX Administration and Data Acquisition Package</i> , 585-302-502	Documentation provided with the ADAP product

DEFINITY Communications System Generic 3 Management Applications

Generic 3 Management Applications (G3-MA) are a set of PC-based applications for station provisioning and ongoing administration of switches and adjuncts.

INTUITY AUDIX Support

Two of the G3-MA applications support administration or provisioning of the INTUITY AUDIX systems:

- AUDIX Data Exchange — allows the customer's system administrator to swap information between a switch and INTUITY AUDIX. Thus the customer's system administrator can use a PC as both a switch administration terminal and an AUDIX administration terminal
- Adjunct Provisioning — can be used to add a new INTUITY AUDIX system to an existing switch before cutover.

**NOTE:**

Adjunct Provisioning is available to Lucent provisioning personnel only. It is not available to customers.

G3-MA Connectivity

[Figure 6-4](#) shows the G3-MA connectivity with the Lucent INTUITY R4 system. For detailed G3-MA connectivity diagrams and the INTUITY AUDIX connectivity diagrams, see *DEFINITY Communications Systems Generic 3 Management Applications Connectivity and Installation, Part 2*.

**NOTE:**

COM2 is not available for connection to G3-MA on a Lucent INTUITY R4 system. It is dedicated for remote alarming through the Remote Maintenance circuit card (RMB). Connectivity to G3-MA requires a multi-port serial card.

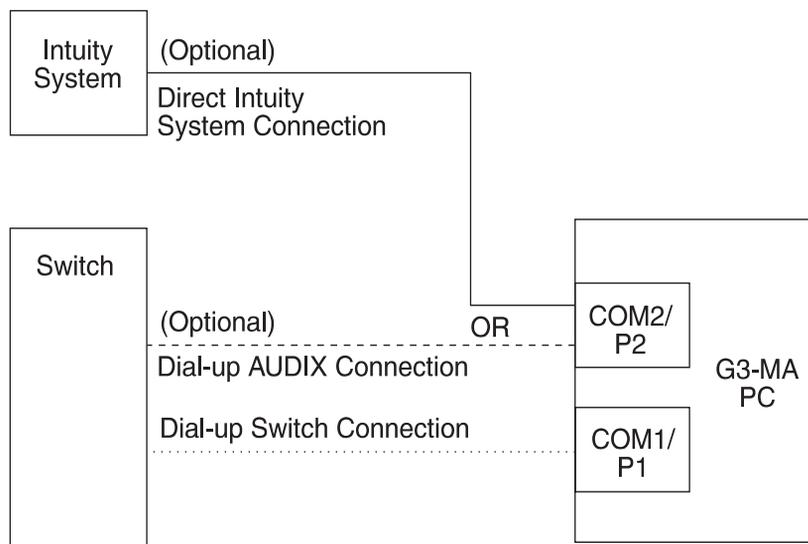


Figure 6-4. G3-MA Connectivity with the Lucent INTUITY R4 System

The Release 3 Call Management System (CMS) is a software product used with the Automatic Call Distribution (ACD) feature of a Lucent switch to:

- Collect call-traffic data
- Format management reports
- Provide an administrative interface to the ACD feature
- Collect data on, and provide an administrative interface to, the Call Vectoring feature (available with the ACD feature on many Lucent switches)

Call Vectoring with CMS

If customers use the Call Vectoring feature to route calls to the INTUITY AUDIX system, CMS provides the option of using CMS reports to view INTUITY AUDIX traffic data. This is possible because calls routed to the INTUITY AUDIX system via call vectoring are carried on a Vector Directory Number (VDN), which is an extension defined in the switch software. CMS collects data and can generate reports on VDNs. Thus, CMS can report on the VDN that carries calls to the INTUITY AUDIX system and includes traffic data on the INTUITY AUDIX system.

INTUITY AUDIX Data CMS Collects

CMS VDN reports can provide a variety of INTUITY AUDIX data, including the:

- Total number of calls to the INTUITY AUDIX system
- Average time calls waited before being answered by the INTUITY AUDIX system
- Average length of a call (average talk time) to the INTUITY AUDIX system
- Number of calls that transferred out of the INTUITY AUDIX system
- Busiest hour of the day

R3 CMS can also collect data about the INTUITY AUDIX system by identifying the INTUITY AUDIX system as a measured ACD split or hunt group. However, measuring an INTUITY AUDIX split with CMS is not recommended. This is because INTUITY AUDIX split activity can significantly deteriorate the performance of R3 CMS, and INTUITY AUDIX split and agent data can quickly fill R3 CMS disk space.

In addition, CMS VDN data about INTUITY AUDIX may not match the data collected in INTUITY AUDIX traffic reports or ADAP. A major reason for this difference is that calls may spend time in vector processing before actually connecting to the INTUITY AUDIX split. CMS collects VDN data on calls during this time, but INTUITY AUDIX does not. Additional discrepancies may exist for various reasons, including differing points at which CMS and INTUITY AUDIX peg answered and abandoned calls and the way calls are tracked while being rerouted through the switch.

For more information about CMS, see *Call Management System Administration*, 585-215-511.

Call Accounting System

The Lucent INTUITY Call Accounting System (CAS) is a comprehensive software package designed to administer telephone expenses and track facility usage within an organization. CAS operates on a Lucent INTUITY R4 system connected to the customer's MERLIN LEGEND, System 75, System 25, or DEFINITY G1 or G3 switch.

CAS works as follows:

- A telephone call placed on site routes through the switch to its final destination or an incoming call is routed to an extension. These actions are called *transactions*.
- The switch prepares an electronic record of the transaction.

- CAS receives the electronic records from the switch and processes, costs, and stores them as call records.
- Reports of the call records can be accessed through the Lucent INTUITY system.

Backup and Restore

All backups are made on streaming cartridge tape, whether they are unattended or attended backups.

Unattended Backup

The Lucent INTUITY R4 system regularly and automatically backs up information critical to its operation. This is called an *unattended* backup. Although, the unattended backup alone cannot completely restore the system to its previous state, it contains all of the information necessary to bring the system back to working order should problems occur. For example, unattended backups do not store any voice data. In the event of a system failure, all voice messages will be lost if you have not also performed an attended backup.

CAUTION:

At a minimum, the customer should have enough tapes to keep backups for 7 days. Each day, a new tape should be inserted and the tape containing the backup should be labeled and stored in a secure location. Depending on the needs of the business, these tapes can be archived for longer than 7 days, or can be rotated through the 7-day back-up cycle.

Attended Backup

In addition to the information saved on nightly backups, an administrator can copy other types of information from the Lucent INTUITY R4 system's hard disks to tape storage for security and recovery purposes. This is called an *attended* or *manual backup*. An attended backup gives the administrator more options regarding what data to back up than does an unattended backup. For example, the administrator can back up all voice messages and other voice data using an attended backup.

NOTE:

Establish a regular, rigorous backup schedule based on the quality of service you plan to provide to your users.

The customer's system administrator should perform attended backups at all of the following times:

- After making major system changes
- After entering large numbers of new users
- When experiencing system problems to avoid losing information entered since the last unattended backup

 **CAUTION:**

TCP/IP networking momentarily goes down during an attended backup. This is not cause for alarm. The network comes back on its own. However, the customer's system administrator may want to perform attended backups during off-peak or out-of-business hours.

Maintenance

This section contains a variety of topics that relate to special maintenance features of the Lucent INTUITY R4 system.

- [System Maintenance](#) — describes the organization and function of the maintenance layer
- [Logs](#) — describes the different types of logs where the Lucent INTUITY R4 system records information about its activities
- [Diagnostics](#) — describes the types of hardware diagnostics available on the Lucent INTUITY R4 system
- [Database Audits](#) — describes the types of database audits that run automatically or on demand to ensure the integrity of system data
- [Remote Service Center](#) — describes the role of the remote service center in maintaining the Lucent INTUITY R4 system
- [Mirroring](#) — describes the Lucent INTUITY R4 system's data-mirroring feature package
- [Additional Maintenance Tools](#) — describes other Lucent products that the customer can use in conjunction with the Lucent INTUITY R4 system, such as Trouble Tracker and the Remote Port Security Device
- [Security](#) — describes a few of security features of the Lucent INTUITY R4 system

System Maintenance

In the Lucent INTUITY R4 system, the customer services layer of the product is part of the platform, and is common to all features and feature packages. Depending on its requirements, the feature or feature package uses the utilities offered by the maintenance layer.

This scheme provides the customer's system administrator with a single point of reference for maintenance and troubleshooting regardless of configuration. For example, a Lucent INTUITY R4 configuration includes INTUITY AUDIX Voice Messaging, Lucent INTUITY FAX Messaging, and INTUITY AUDIX Digital Networking. All of these applications use the same alarm log to report problems occurring within the feature or in its interaction with other feature packages. This log:

- Receives entries from all areas of the system
- Prioritizes alarms according to severity
- Is accessible in an easy-to-read report

Reviewing the logs allows the customer's system administrator to get a quick understanding of overall system status. This common maintenance platform offers a variety of other features aimed at efficient and effective maintenance and troubleshooting. For detailed information on maintenance features, see the maintenance book for the appropriate platform.

Logs

The Lucent INTUITY R4 system uses a series of logs as the central collection point for information flowing from all of the Lucent INTUITY features and feature packages. These logs provide a system-wide view of activities, errors, and alarms.

Messages in the logs range in importance from informational to critical. The logs vary based on audience (who can access them) and information type. The Lucent INTUITY R4 system uses four logs:

Activity log	The activity log records a list of INTUITY AUDIX mailbox-related events (for example, logins and message creation, receipt, and deletion). This log is useful for responding to user-reported problems. The activity log is accessible to the vm, sa, and craft logins.
Administrator's log	The administrator's log records informational messages that may require some action by the Lucent INTUITY system administrator. These messages may simply log a successful nightly backup or they may alert the system administrator that the system is low on disk space. The administrator's log is accessible to the vm, sa, and craft logins.
Alarm log	Lucent INTUITY R4 system alarms signal a service-affecting or potentially service-affecting problem with the system. The alarm log records major, minor, and warning alarms generated by the Lucent INTUITY R4 system. The system automatically notifies a designated remote service center of all major and minor alarms. The customer is responsible for resolving all warning alarms. The alarm log is accessible to the vm, sa, and craft logins.
Maintenance log	The maintenance log records error occurrences, error resolutions, and informational events which may help Professional Services troubleshoot a Lucent INTUITY alarm. The maintenance log is accessible only to the craft login.

Alarms

Errors found by the system are recorded in the maintenance log. The system then attempts to diagnose and isolate those problems and may send an alarm to the alarm log if it can not correct the error automatically.

The contents of the alarm log represent all of the significant problems the system detects. Therefore, it is the starting point for troubleshooting the system.

NOTE:

Many alarm codes and alarm numbers have changed from previous releases. See INTUITY Messaging Solutions Release 4 Alarm and Log Messages, 585-310-566, for current alarm listings.

The alarm log holds two types of entries:

- Active alarms An active alarm indicates a current problem in the system.
- Resolved alarms Resolved alarms have been corrected either automatically or through a repair procedure.

Three alarm levels indicate the severity of an alarm:

- Major alarms Major alarms indicate problems that may affect key system components or features. For example, if more than 25% of the voice ports are out of service, a major alarm is generated.
- Major alarms are repairable by Lucent technicians.
- Minor alarms Minor alarms indicate problems that could affect full service, but are not critical to system operation. For example, if the nightly unattended backup of system data fails, a minor alarm is generated.
- Minor alarms are repairable by Lucent technicians.
- Warning alarms Warning alarms indicate problems that could potentially affect system service if not resolved. For example, if the customer system administrator does not create a trusted server password and a trusted server tries to log in, a warning alarm is generated.
- Warning alarms are repairable by the customer.

When an active alarm is corrected, its status changes from “active” to “resolved.”

Alarm Resolution. If the customer purchases a maintenance service contract and activates the alarm origination feature, the Lucent INTUITY R4 system automatically sends major and minor alarms to a remote service center for correction. Warning alarms are not sent to a remote service center. Warning alarms must be corrected by the Lucent INTUITY R4 system administrator using the procedure detailed in *INTUITY Messaging Solutions Release 4 Alarm and Log Messages*, 585-310-566.

Alarm Notification. Viewing the administrator’s log and the alarm log daily is the best way to be informed of new entries.

Active alarms (alarms that have not been resolved) and new entries to the administrator’s log are noted on the STATUS line.

The STATUS line can display multiple levels of alarms. The alarm level is important because it classifies problems within the Lucent INTUITY R4 system so that the most severe can be worked first. In most cases, the alarm level also marks the area between the responsibility of the system administrator (warning alarms) and the responsibility of the Lucent remote service center (major and minor alarms).

Remote Maintenance Circuit Card (RMB)

The Lucent INTUITY R4 system may employ a Remote Maintenance circuit card (also known as the RMB).² This card monitors a number of items including disk drive status and environmental conditions.

The Remote Maintenance circuit card:

- Provides a single point of remote alarming and service access to the Lucent INTUITY R4 system (this is accomplished through an on-board Hayes-compatible modem in the U.S. version and an external modem in the non-U.S. version)
- Provides dial-up access, even when the Lucent INTUITY R4 system is no longer responding to local control
- Has a UNIX-based remote console feature that allows remote service center personnel to remotely access the Lucent INTUITY R4 system almost as if they were at the local console
- Allows the remote service center to perform a reboot of the Lucent INTUITY R4 system
- Monitors voltage levels and fan status on the Lucent INTUITY R4 system

NOTE:

The RMB also monitors the internal uninterrupted power supply on older models of the MAP/100.

Remote Service Center

The remote service center plays a key role in maintaining and troubleshooting the Lucent INTUITY R4 system.³

If a major or minor alarm remains active on a customer's system for at least 5 minutes, the Remote Maintenance circuit card automatically places a call to the remote service center designated on the Alarm Management screen. The modem on the Remote Maintenance circuit card that was used to place the call to the remote service center also allows remote service center personnel to log in

-
2. A Remote Maintenance circuit card may not be available. Check with a Lucent account representative for information on availability.
 3. Access to a remote service center may not always be available. Check with a Lucent account representative for information on availability.

to the system and correct the problem. Problems can usually be corrected without disrupting service.

Remote notification of alarms varies based on the terms of a customer's maintenance contract. If the customer selects the Lucent remote service center as their remote alarming center, alarms are sent to the remote service center, where they are tracked and dealt with in a timely manner.

Diagnostics

The Lucent INTUITY R4 system provides utilities to manually test most of its hardware components and their physical links to other parts of the system.

■ POST

Any time the Lucent INTUITY is booted or rebooted, a power-on self test (POST) is performed. It checks the following components on a pass/fail basis: CPU, CMOS RAM, ROM checksum, memory refresh, DMA controllers, interrupt controller, keyboard, dedicated memory, base memory, extended memory, total memory, calendar/clock, floppy disk, and hard disk.

■ Remote Maintenance circuit card

This card, described in "[Remote Maintenance Circuit Card \(RMB\)](#)" above, automatically monitors a number of internal components, including:

- Temperature
- System clock
- Memory

Digital Networking

Several networking test are available to diagnose networking problems.

Remote Connection Test. The remote connection test checks the transmission path from the local to the remote machine. This test can be performed on a remote machine with which the customer plans to exchange voice messages.

Channel Internal Loop-Around Test. The channel internal loop-around test checks the operation of an individual channel on the networking card. This test ensures that the board is operating correctly.

Modem Loop-Around Test. The modem loop-around test checks the connectivity between the networking card and the modem through a channel configured as RS-232. The test sends a signal from the networking card to the modem and back. This test ensures that the card and the modem are communicating and that the modem is configured correctly.

Network Loop-Around Test. The network loop-around test checks the data transmission path that connects the local Lucent INTUITY machine with the service office (SO) and the public network.

 **NOTE:**

The customer's system administrator may have to reset the networking card after performing a networking diagnostic test.

TCP/IP

The TCP/IP diagnostics can be used when users are experiencing problems with Lucent INTUITY Message Manager, Enhanced-List Application (ELA), or mailbox synchronization with a supported e-mail application. TCP/IP diagnostics are also used in connection with digital networking and Ethernet LAN connectivity, either as part of diagnosing a reported user problem, or as part of troubleshooting an alarm. These diagnostics allow you to:

- Test the Lucent INTUITY R4 system's TCP/IP software
- Test the connection between the Lucent INTUITY R4 system and a user's PC
- View the statistics for the LAN card

For more information, see *INTUITY Digital Networking*, 585-310-567.

Voice Card and Connections

Voice card diagnostics check each channel on the voice card for loop current. Loop current is present on a channel when a live telephone line is physically connected between the voice port and a properly administered switch port.

Serial Port Circuit Card and Connections

The serial port circuit card is equipped with diagnostic utilities that allow a customer's system administrator to troubleshoot the circuit card, for example, monitor lead status, view port parameter settings, and test functionality.

Serial Port External Loopback Test. This test is a program that writes a data pattern to one or more selected ports, reads the data back, and then compares the two. Before executing this test, the transmit and receive pins must be wired together.

Serial Port Internal Loopback Test. This test is similar to the external loopback test, but it does not require that the transmit and receive pins be wired together. Because it does not test the full cabling of the port, the internal loopback test is not as thorough as the external loopback test.

Serial Port Send Test. The send test simply writes a continuous stream of printable alphanumeric characters to the specified port. This test is helpful when a new device is being added to the system and a continuous stream of data is required to resolved wiring issues.

Switch Integration

Switch integration is the mechanism by which the Lucent INTUITY R4 system and the switch share information to expedite and enhance call processing. At this time, switch integration diagnostic utilities are available for Lucent Data Communications Interface Unit (DCIU) integrations and Digital Station Interface circuit card integrations.

DCIU Integrations

Diagnostic utilities for DCIU integrations include:

- View switch link status
- Diagnose the switch integration card
- Reset switch integration hardware and software
- Busy-out the switch integration link
- Release the switch integration link

For more information, see the switch integration documentation specific to the switch at the customer's location.

Digital Interface Circuit Card Integrations

Diagnostic utilities for Digital Interface Circuit Card integrations include the VB-PC Link Status screen. This screen shows usage and status of the VBPC ports.

NOTE:

This is not a real-time display.

Database Audits

During normal operation, Lucent INTUITY databases work independently of each other under the direction of a set of software and hardware processes. These processes coordinate the files, databases, and system hardware.

Since databases are handled separately, it is possible for one database to contain information that conflicts with another database. For example, if a user is removed from the INTUITY AUDIX database, other databases may still contain messages addressed to that user or mailing lists that include that deleted user's name.

To reconcile possible conflicts among databases, software programs called *audits* run automatically (or can be performed on demand) to check for inconsistencies and, where possible, update information in databases to correct problems. For example, audits remove all references to a deleted user. This includes deleting the user's name from mailing lists and canceling message deliveries to that user.

INTUITY AUDIX Voice Messaging Audits

The INTUITY AUDIX feature package performs many regular internal audits on the databases of information it maintains. These databases include:

- Mailboxes
- Mailing lists
- Network data
- Personal directories
- User data
- Voice files



NOTE:

These audits can also be run on demand.

Networking Database Audits

The networking database audit consists of a series of internal checks. These checks verify, for example, that files are not corrupted and that values within the files are within the proper ranges. The networking database consists of two parts: the networking administration database and the remote user update status database.

Switch Integration Software Audits

The switch integration software in the Lucent INTUITY R4 system is part of a layer that is accessible to all the software applications. Therefore, it maintains its own database of users to execute the switch-related requests from the applications. Users are added to the Lucent INTUITY switch integration database automatically after being added to an application, such as INTUITY AUDIX.

Because the switch integration software maintains its own database, it must be synchronized periodically with the other application databases. This synchronization is accomplished through several audits.

Lodging Mailbox Database Audit

The Lodging mailbox database audit consists of a series of internal checks between the Lodging speech database and the Lodging mail database. If the audit finds discrepancies, Lodging reports them. The administrator can then schedule a time to run the Audit and Fix Database command to resolve them.

Mirroring

Disk mirroring is an optional feature package available on the Lucent INTUITY R4 system.

Description

The loss of a hard disk in a nonmirrored system can be costly both in terms of operational down time and the loss of data integrity. The Lucent INTUITY R4 system offers a disk mirroring option that minimizes the impact of losing a disk drive. Mirroring allows operation to continue while the damaged disk drive is down and reduces the potential for losing critical business data.

The Lucent INTUITY R4 system continuously stores voice messages and other information on the hard disk. When the Lucent INTUITY R4 system stores information in a mirrored configuration, it writes duplicate copies of the information at the same time.

Requirements

Mirroring requires the base platform configuration with switch integration. A mirrored system requires twice the disk capacity of a standard unmirrored configuration. Therefore, in most cases, the customer must also add one or more additional 2-Gbyte hard drives to the Lucent INTUITY R4 system.

The mirroring software package is also required.

Capacity

Mirrored disks provide no additional speech storage space since two copies of the exact same data are maintained. In fact, enabling mirroring *decreases* the Lucent INTUITY R4 system's potential speech storage capacity. Although this is not usually an issue on the MAP/100 (because it can support up to six hard disk drives), mirroring on the MAP/5P, MAP/40, MAP/40P, and MAP/40s limits speech storage space to that available on the first disk drive.

NOTE:

A portion of the first disk drive in any Lucent INTUITY R4 system is dedicated to nonspeech data. See [Chapter 2, "System Components and Capacities"](#) for more information.

Table 6-7 shows the differences in speech storage space between mirrored and unmirrored configurations.

Table 6-7. Mirrored and Unmirrored Speech Storage Comparisons

Platform	Number of 2-Gbyte Disks	Speech Storage Space (hrs)	
		Mirrored	Unmirrored
MAP/5P, MAP/40P, MAP/40s, and MAP/40	2	155	425
MAP/100	6	455 ¹	1255 ¹

1. Disk 1 provides 175 hours of speech storage. Disk 2 is not used for speech storage. Disks 3 through 6 provide 270 hours of speech storage each.

Connectivity

Besides the installation of additional hard disk drives, mirroring requires no additional hardware or connections beyond the standard configuration.

Security

The Lucent INTUITY R4 system is designed to be very secure. The following is a list of some of the security features.

User Passwords

Passwords protect all messaging mailboxes. The Lucent INTUITY R4 system offers password, password aging, and password time-out mechanisms that can help restrict unauthorized users.

User passwords must comply with the following guidelines:

- Passwords can be 5–15 digits in length, although the system administrator may specify a minimum required length
- A password cannot:
 - Be the same number as the extension (for example, extension 34555 cannot use password 34555)
 - Contain repeated digits (for example, 77777)
 - Be consecutive digits (for example, 12345)

The system administrator can administer the Lucent INTUITY R4 system to age user passwords, at which time users must select a new password.

Callers are given three attempts per call to enter their mailbox correctly before they are automatically disconnected. An administrator can also specify how many consecutive invalid attempts are allowed before a voice mailbox is locked.

Administrative Logins and Passwords

There are three logins to access the Lucent INTUITY R4 system. Each login has its own unique password and provides varying levels of access to the features and capabilities of the system. This layered approach limits access to particularly powerful features and is convenient when delegating system administrator responsibilities.

All of the user password compliance guidelines apply, including password aging for both the system administrator (sa) and voice mail (vm) logins.

For more information, see [“System Logins”](#) above.

Enhanced Call Transfer



NOTE:

Enhanced call transfer is available with Lucent DCIU switch integration only.

With Enhanced Call Transfer, the Lucent INTUITY R4 system uses a digital control link message to initiate the transfer. The switch then verifies that the requested destination is a valid extension in the dial plan. The Lucent INTUITY R4 system verifies that the digits entered contain the same number of digits as are administered on the INTUITY AUDIX system for extension lengths. When callers request a name addressing transfer, the name must match the name of an INTUITY AUDIX user (either local or remote) whose extension number is in the dial plan.

Call transfers are subject to control by the customer system administrator. This administrative control is designed to encompass all of the numbers to which a caller may transfer.

Controlling Call Transfers Using Allowed and Denied Numbers

To transfer to another extension, the user presses , the digits of the extension to which he or she wants to transfer, and . The system administrator used the *Allowed* and *Denied Numbers* menus to administer the INTUITY AUDIX system to permit transfers to only certain allowed numbers or ranges of numbers. For example, the system administrator can administer the Lucent INTUITY R4 system to forbid call transfer to extensions beginning with “9”, if this number causes access to an outside line.

If a caller enters an extension that is an allowed transfer, the switch completes the transfer, disconnects the INTUITY AUDIX system, and sends a “disconnect — successful transfer” message to the system. If the number is not valid, the switch leaves the system connected to the caller and sends a “fail” message to the INTUITY AUDIX system. Then the system plays an error message to the caller and prompts for further activity.

Controlling Call Transfers Using “Subscribers versus Digits”

Allowing * transfers increases the risk of toll fraud. If the customer decides to allow * transfers, the Lucent INTUITY R4 system can be set to allow transfers by either *subscribers* or *digits*.

- Transfer by subscriber — In this case, callers can only transfer to an administered AUDIX user.
- Transfer by digits — In a system administered to allow transfer by digits, the destination telephone number must correspond to a pattern administered in the Allowed and Denied Numbers menus. It must also have the same number of digits as extension numbers within the INTUITY AUDIX system.

Restricting call transfers to administered users is the more secure of the two options. Fraudulent use of call transfer is virtually eliminated when the INTUITY AUDIX system verifies that the specified destination is an administered number and denied numbers are administered carefully to include such things as a phantom mailbox beginning with “9”. However, you must also consider that if *digits* are specified, the caller might find a way to access the switch and to use switch features and functions to complete fraudulent long-distance calls.

Switch Administration

The Lucent INTUITY R4 documentation set includes detailed instructions on how to administer switches to prevent toll fraud. For more information, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564, and the switch integration book for the specific switch at the customer’s site.

Outcalling

Toll fraud can be minimized when outcalling to INTUITY AUDIX users who are off-site and often have their message notification forwarded to a call pager. To do so, the outcalling:

- Ports can be assigned to a toll-restricted Class of Restriction (COR) that allows calling only within a local area
- Numbers can be entered into an unrestricted calling list for either ARS or Toll Analysis
- Numbers can be limited to 7 or 10 digits to restrict outcalling to, for example, international extensions

Unattended Backups

The nightly unattended (automatic) backup that the Lucent INTUITY R4 system performs can not be used to restore the system completely. However, it does contain enough information to bring the system back to working order should a problem occur. This offers customers the security of always having the previous day's messaging and system information available.

At a minimum, the customer should have enough tapes to complete seven backups (one for each night of the week). Depending on the needs of the business, these tapes can be archived for longer, or can be swapped out daily. This ensures that the previous day's messaging and system information is available at any time.



CAUTION:

Unattended backups do not store voice data. In the event of a system failure, all voice messages are lost unless you have also performed an attended backup.

Additional Maintenance Tools

Several other Lucent Technologies products can enhance the Lucent INTUITY R4 system maintenance environment.

Trouble Tracker

As described under ["Alarms"](#) above, most system configurations will send alarms to a remote service center. However, as an option, the system can also send alarms to a Trouble Tracker system. Trouble Tracker is a Lucent product that uses databases to monitor a network. For more information on Trouble Tracker, see *Introduction to Trouble Tracker*, 585-225-021.

[Figure 6-5](#) shows Trouble Tracker connectivity with the Lucent INTUITY R4 system.

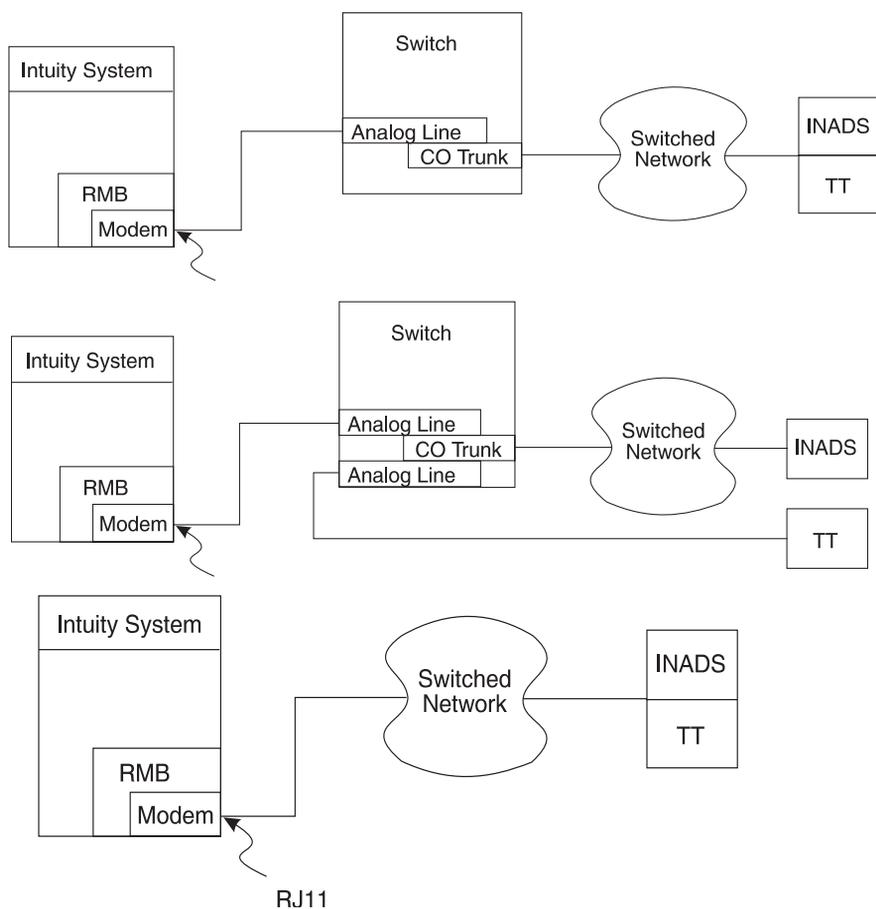


Figure 6-5. Trouble Tracker Connectivity with the Lucent INTUITY R4 System

Remote Port Security Device Lock and Key

The DEFINITY Remote Port Security Device (RPSD) is a single line dial-up port-protection system. It prevents unauthorized access to a host resource with the installation of lock-and-key hardware units. When the lock unit is installed on the analog interface channel leading to the host port, access is provided only when the calling party uses the RPSD key unit installed on the calling-party end of the channel.

The RPSD Lock and Key can be used on the RMB dial-up port or any port being used for remote administration. [Figure 6-6](#) shows RPSD connectivity with the Lucent INTUITY R4 system.

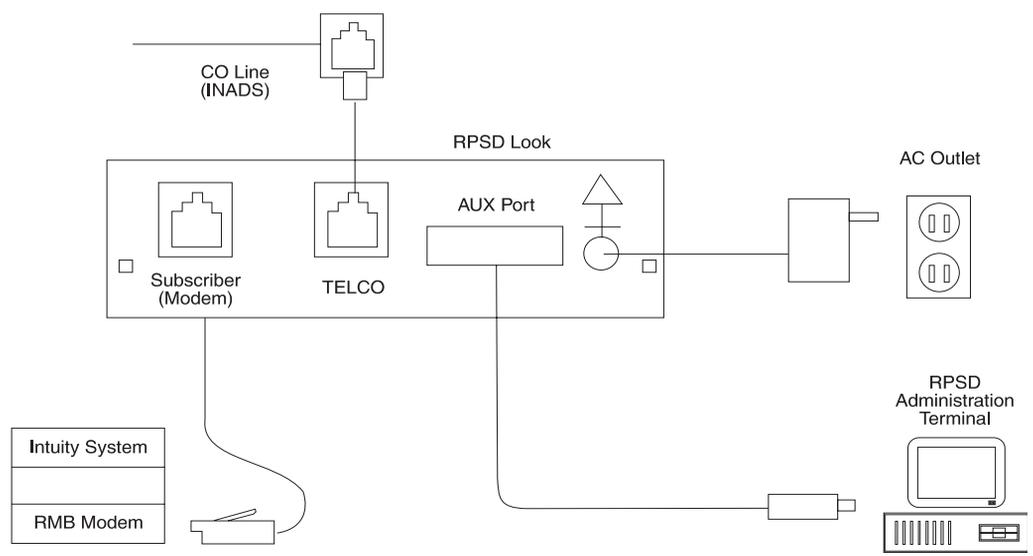


Figure 6-6. RPSD Connectivity with the Lucent INTUITY R4 System

New Installations, Upgrades, and Migrations

7

Overview

This chapter describes an overview of the processes required to complete the installation of a new Lucent INTUITY R4 system, an upgrade to R4 from an earlier version, and a migration from another Lucent voice messaging product.

Purpose

The purpose of this chapter is to provide customers with prerequisites and planning information required for installation of a new Lucent INTUITY R4 system. This includes customers installing a Lucent INTUITY system for the first time, as well as those upgrading from an existing Lucent INTUITY system or migrating from another Lucent messaging product.

New Installations

To ensure the new Lucent INTUITY R4 system meets the needs of the customer, a Lucent Technologies account representative conducts an in-depth analysis of the customer site and business requirements. This analysis is provided by the Sales and Design Support Center (SDSC) for customers within the U.S. and by the International Technical Assistance Center (ITAC) for customers in other countries. It includes an evaluation of the following:

- Whether the business has a single or multiple locations
- The number of end users (per site, if applicable)
- The estimated call volume
- The impact of any optional features purchased on the system capacity
- Any existing LAN or other networking configuration, and the information the technicians need to add a server to the system, such as TCP/IP addressing, Ethernet configuration, etc.

NOTE:

It is the customer's responsibility to install and configure the LAN hardware and software. Therefore, the customer's PC/LAN administrator and e-mail administrator must be included in the planning phase.

- The number of INTUITY AUDIX machines that will be required

The results of that analysis are recorded on a series of worksheets that the installation technicians use to configure the system when it arrives at the customer's site.

For more detailed information and installation procedures see the following:

- *Lucent INTUITY Messaging Solutions Release 4 MAP/5P System Installation, 585-310-185*
- *Lucent INTUITY Messaging Solutions Release 4 MAP/40P System Installation, 585-310-196*
- *Lucent INTUITY Messaging Solutions Release 4 MAP/40 System Installation, 585-310-169*
- *Lucent INTUITY Messaging Solutions Release 4 MAP/100 System Installation, 585-310-173*
- *Internet Messaging for the INTUITY AUDIX Multimedia Messaging System, 585-310-195*

Platform Operating Requirements

[Table 7-1](#) lists operating requirements for each of the Lucent INTUITY R4 platforms. For more information, see [Chapter 2, "System Components and Capacities"](#).

Table 7-1. Lucent INTUITY R4 Platform Operating Requirements

Component/ Condition	MAP/5P	MAP/40P	MAP/40	MAP/100
Operating temperature	+10 to +32°C (+50 to +90°F)	+10 to +32°C (+50 to +90°F)	+10 to +32°C (+50 to +90°F)	+10 to +32°C (+50 to +90°F)
Maximum heat output	1100 BTU (approx.)	1100 BTU (approx.)	1100 BTU (approx.)	1100 BTU (approx.)
Weight				
<ul style="list-style-type: none"> ■ Computer¹ ■ Monitor ■ Printer 	13 kg (29 lbs) 6.7 kg (15 lbs) 9 kg (20 lbs)	20 kg (45 lbs) 6.7 kg (15 lbs) 9 kg (20 lbs)	23.5 kg (52 lbs) 6.7 kg (15 lbs) 9 kg (20 lbs)	63 kg (135 lbs) 6.7 kg (15 lbs) 9 kg (20 lbs)
Height x width x depth				
<ul style="list-style-type: none"> ■ Computer ■ Monitor ■ Printer 	41 x 28 x 46 cm with stabilizing feet (16 x 11 x 18 inches) 34 x 33 x 37 cm (13.5 x 13 x 14.5 inches) 12.5 x 40.5 x 27.5 cm (5 x 16 x 11 inches)	44.5 x 33 x 53.4 cm (17.5 x 13 x 21 inches) 34 x 33 x 37 cm (13.5 x 13 x 14.5 inches) 12.5 x 40.5 x 27.5 cm (5 x 16 x 11 inches)	44.5 x 17.7 x 53.4 cm (17.7 x 7.0 [12.6 with base] x 21 inches) 34 x 33 x 37 cm (13.5 x 13 x 14.5 inches) 12.5 x 40.5 x 27.5 cm (5 x 16 x 11 inches)	61 x 50 x 56 cm (24 x 19.5 x 21 inches) 34 x 33 x 37 cm (13.5 x 13 x 14.5 inches) 12.5 x 40.5 x 27.5 cm (5 x 16 x 11 inches)
Volts AC (VAC) ²				

Continued on next page

Table 7-1. Lucent INTUITY R4 Platform Operating Requirements — *Continued* —
Continued

Component/ Condition	MAP/5P	MAP/40P	MAP/40	MAP/100
■ Computer	90–130 or 200–250	90–130 or 200–250	90–130 or 200–250	90–130 or 200–250
■ Monitor	110–240	110–240	110–240	110–240
■ Printer	115 ± 5%	115 ± 5%	115 ± 5%	115 ± 5%
Maximum power dissipation	325 W	325 W	325 W	325 W

Continued on next page

1. The actual w such as add
2. Locate each unit and printer within 6 feet of its power receptacle and keep the communication cables separate from the power cables.

Site Specifications

Observe the following when determining where to place the Lucent INTUITY R4 platform:

- *Do not* install the unit in an area with high-power electrical equipment.
- *Do not* install the unit in the same area as copier machines because of the paper particles created by such equipment.
- Install the unit in an area that provides protection from excessive sunlight, heat, cold, chemicals, static electricity, magnetic fields, vibration, dust, and grime.
- Maintain an air-distribution system that provides adequately cooled, filtered, and humidity-controlled air.

- Provide surge protection and power backup in areas subject to power brown-outs or frequent power surges.
- Provide additional grounding if necessary in a multiple-system installation to facilitate an environment that is free of radio-frequency noise.

**CAUTION:**

Use only shielded cables and equipment to maintain safe levels of electromagnetic compatibility. To maintain electromagnetic interference (EMI) protection, personal protection, and immunity from circuit noise, you must ground each machine to a solid, stable single-point ground.

Recommended Test Equipment

It is recommended that the following test equipment be used when installing a Lucent INTUITY R4 platform:

- A volt/ohm meter.
- Two telephones connected through the switch. These must be of the same type as the majority of telephones the customer will be using on the system. If the Message Waiting Indicator (MWI) for the Lucent INTUITY R4 system is a lamp, the test telephones must be equipped with a lamp. If the MWI is a stutter tone, they must be able to give the stutter notification.

The two test telephones must be placed so that you can easily see the Lucent INTUITY monitor while you are using them.

- If the system includes Lucent INTUITY FAX Messaging, you must have access to a customer fax machine for testing.

Switch Administration

Before an installation can begin, the switch or PBX must be administered to support the following situations:

- Testing each channel connected to the Lucent INTUITY system before assigning the channel to INTUITY AUDIX or another application; during this testing, the customer must be able to call each channel individually using the ChanTran option.
- Testing the INTUITY AUDIX system with two test users.
- Performing cut-to-service procedures that provide the users with an active coverage path.

Points of Demarcation

A *demarcation point* defines the extent of Lucent's responsibilities for a product. Beyond this point, the customer is responsible for providing overall service.

When planning for a INTUITY AUDIX R4 system, be aware of the following demarcations:

- Switches
- Local area network (LAN) connectivity for Message Manager or a supported e-mail application, such as an e-mail application running on a Lotus Notes synchronizer server
- Lucent INTUITY FAX Messaging demarcation
- Lucent INTUITY Internet Messaging e-mail demarcation

Non-Lucent Switch Demarcation

Lucent service technicians dispatched for Lucent INTUITY system installation are not responsible for making any connections directly to a non-Lucent switch. The demarcation point for non-Lucent switches depends on the type of switch integration:

- Serial configurations—immediately following the null modem
- Serial configurations with peripheral hardware—immediately following the translator or the modem, as applicable
- Inband configurations—immediately before the modular connectors
- Digital station interface configurations—the end of the Lucent-provided connector cables

NOTE:

Lucent recommends joint acceptance testing for systems integrated with non-Lucent switches.

LAN Connectivity Demarcation

The demarcation point for TCP/IP networking is the point of connection into the LAN circuit card. The customer is responsible for:

- The LAN cable
- The connector at the end of the cable for connection to the Lucent INTUITY system
- LAN administration not performed on INTUITY AUDIX
- Maintaining the TCP/IP addresses and administration on the INTUITY AUDIX R4 system after cutover, unless otherwise specified by contract

Lucent service technicians dispatched for INTUITY AUDIX R4 system installation are not responsible for troubleshooting the customer's LAN. When planning or installing an INTUITY AUDIX R4 system, it is vital to include the PC/LAN administrator and e-mail administrator, as applicable, in the process.

Lucent INTUITY FAX Messaging Demarcation

Lucent INTUITY FAX Messaging uses the same equipment as Lucent INTUITY voice messaging. The IVC6 universal ports support both voice and fax messages without additional cabling or hardware. As with INTUITY AUDIX, the point of demarcation for Lucent INTUITY Fax Messaging is the same as the switch integration point of demarcation, that is, the switch box (for non-Lucent switches).

Lucent service technicians dispatched for Lucent INTUITY system installation are not responsible for troubleshooting customer fax machines.

Lucent INTUITY Internet Messaging Demarcation

The demarcation point for Internet Messaging is the same as that listed for LAN connectivity described above. In addition, the customer is responsible for:

- The service agreement with an Internet service provider (ISP)
- A connection to the ISP or directly to the Internet if an ISP is not used
- POP3 client installation and setup if you are providing POP3 access as part of Internet Messaging

In addition, Internet Messaging can only trace delivery of a message to the trusted server, the last point before delivery to the ISP or Internet connection. Message status can be traced in the Messaging Logs. Given the nature of Internet delivery mechanisms, a message cannot be followed between endpoints. This is a distinct difference from the digitally networked aspect of an INTUITY AUDIX network, in which it is possible to trace the delivery of a message from origination to endpoint.

Maintaining System Security

Security is the customer's responsibility. The following briefly lists some planning considerations regarding security. More specific information is discussed with each feature description in [Chapter 3, "System Features Description"](#) and in [Appendix B, "Security"](#).

Password and System Security

Lucent INTUITY R4 has new password features for both the users and the system administrators that can be administered by the customer's system administrator. Lucent INTUITY Lodging offers the following features that help to ensure the security of messages:

- Guest passwords
- Administrative passwords
- Deleted-Message retrieval
- Old Mailboxes (Checked-Out guests)

Additionally, there are guidelines for password compliance for which the customer should plan.

To ensure password security, the customer should:

- Administer the new password-aging feature for users and system/voice mail administrators. This feature ensures that users and system/voice mail administrators change their passwords at specific intervals as determined by the customer's business needs.
- Administer the new levels of user password security, including login compliance guidelines, such as:
 - The password is not be the same number as the extension (for example, extension 34555 cannot use password 34555)
 - The password does not contain repeated digits (for example, 77777) or consecutive digits (for example, 12345)
- Change the passwords for the system administrator (sa) and voice mail administrator (vm) immediately after the installation is complete.

To ensure system security:

- Remove all test users and test mailboxes from the system as instructed by the Lucent INTUITY R4 installation procedure.
- Do not set up and administer mailboxes until there is a need.
- Always log off the system if it will be unattended, even for a short period of time.
- Coordinate with the PC/LAN administrator and e-mail administrator to administer trusted server passwords and, optionally, IMAPI passwords.

Switch Security

The switch must be administered correctly to minimize unauthorized access. At a minimum, the customer should plan to restrict outward dialing. When outcalling is used only to alert on-premise customers who do not have AUDIX message indicator lamps on their telephones, assign an outward-restricted Class of Restriction (COR) to the AUDIX ports.

- Block the use of Trunk Access Codes (TACs). Station-to-trunk restrictions can be assigned to disallow stations from dialing specific outside trunks. Callers then cannot transfer out of the INTUITY AUDIX system to an outside facility using TACs.
- Assign low Facilities Restriction Levels (FRLs). The switch treats all the PBX ports used by voice mail systems as stations. Therefore, each voice mail port can be assigned a COR and COS with an associated FRL. FRLs range from 0 to 7, with each number representing a different level of restriction. The higher the FRL number, the greater the calling privileges. For the purposes of AUDIX administration, all FRLs between the INTUITY AUDIX system and the switch should be the same, low FRL.

**NOTE:**

The switch must be administered correctly if the customer plans to make use of the Automated Attendant feature.

Getting Help with an Installation

The following resources are available for help during an installation:

- Help screens located on the system — help for specific fields and general system help is available online
- Remote maintenance center support
 - For installations within the U.S., the Lucent Technical Services Organization (TSO)
 - For installations in countries other than the U.S., the Global Support Organization (GSO)
- Netcare/Professional Services — assistance for Lucent INTUITY Internet Messaging
- Lucent INTUITY R4 documentation set — installation, maintenance, administration, and other documents are shipped with or in advance of the hardware

Upgrades

There are three types of upgrades available:

- System upgrade

A system upgrade replaces a Lucent INTUITY Release 2 or Release 3 system with a Release 4 system. This involves replacing the entire computer and copying customer data from the existing platform (R2 or R3) to the replacement platform (R4). Both the existing and replacement systems' voice services must be shut down while the upgrade package

transfers all data files. After the transfer is complete, the replacement platform is powered up and placed in service. The existing platform is returned to the factory for refurbishing.

⇒ NOTE:

Though the Lucent INTUITY R4 System is a “new” system, the platform may contain some refurbished components. Therefore, it is referred to as a replacement system rather than a new system.

⇒ NOTE:

Part of the system upgrade involves upgrading some platform components. However, a “platform upgrade” is a different type of upgrade (see bullet below).

- Software upgrade

A software upgrade increments an existing Lucent INTUITY R4 system to the current version of the software, for example, from Release 4.0 to Release 4.1.

- Platform upgrade

A platform upgrade advances an existing Lucent INTUITY R4 platform to one of a larger capacity.

System Upgrade

Upgrading an INTUITY AUDIX Release 2 or Release 3 system to an INTUITY AUDIX Release 4 system includes the following processes:

- Planning for a system upgrade
- Connecting the Lucent INTUITY systems
- Running the upgrade
- Establishing the INTUITY AUDIX R4 system

This section discusses planning only. For a detailed discussion of requirements and procedures for conducting an upgrade, see *Lucent INTUITY Messaging Solutions Release 4 Change Description and Upgrade Planning*, 585-310-607.

Planning for a System Upgrade

Before a customer purchases a Lucent INTUITY R4 system upgrade, the Multimedia Messaging Implementation and Support Center (MMISC), formerly known as the AUDIX Upgrade Control Center (AUCC), runs a pre-sales software package remotely on the customer’s system to determine upgrade feasibility. This software package detects and displays:

- Hardware and software configuration
- Current languages installed
- Feature option information
- Basic system measurements on port usage, disk usage, and number of users

Once an upgrade is determined to be feasible, this information is used in building the replacement system.

System Upgrade Issues

Several issues should be considered when planning a system upgrade to Lucent INTUITY R4.

- If the system is an INTUITY AUDIX Release 1, it cannot be upgraded directly to INTUITY AUDIX R4, but must first be upgraded to INTUITY AUDIX Release 2.
- If the system contains the Lucent INTUITY module Interactive Voice Response (IVR), this module must be removed before a system can be upgraded to INTUITY AUDIX R4. IVR is not compatible with INTUITY AUDIX R4.
- If the system is out of disk space and cannot support another hard disk, some information may have to be removed or additional hardware may need to be purchased. The pre-sales software package determines if the platform can support another hard disk.
- During an upgrade, the system will have to be taken out of service for some portion of the data transfer. How long the system will be out of service depends on the amount of data to be transferred, and whether a LAN card must be installed. Downtime estimates are in the sections following. The downtime will affect the:
 - Amount of time the technician is scheduled to be on site for the upgrade
 - Advance instructions for the end users
 - Amount of time the system administrator will be involved in the upgrade

Out-of-Service Time for Data Transfer

Upgrades to R4 require that the voice systems of both the existing and replacements systems be shut down while the upgrade package transfers the data files.

[Table 7-2](#) shows estimates of the time required for the data transfer, depending on the amount of data to be transferred. These are estimates only and may not be reflect the exact time it takes to upgrade an individual system.

Table 7-2. Upgrade Time Estimates

	Hours of Downtime		Hours of Technician Time	
	Maximum	Minimum	Maximum	Minimum
MAP/5P	6.2	1.7	12.6	4.8
MAP/40	8.5	2.0	14.8	5
MAP/100	18.8	3.5	25.1	6.5

The data transfer requires a direct connection or a dedicated local area network (LAN). This direct connection is a coaxial cable connecting the two systems.

LAN Cards

All upgrades require a LAN card in the existing system. This allows the existing system to talk to the replacement system. The pre-sales software package detects a LAN card if one is installed.

If the customer's existing system does not contain a LAN card, the technician will install one on the day of the upgrade. The technician must shut down the system to install the LAN card. This time is included under Maximum Hours in [Table 7-2](#). The replacement system comes with a LAN card installed.

Site Planning

The customer's site must contain an area with adequate space and power supply for the replacement system. Ideally, the replacement system should be assembled close enough to the existing system so that the cables attached to the existing system can be swung to the replacement system once the data transfer is complete.

The customer's existing monitor will be connected to both systems with an A/B switchbox that the technician brings to the site as part of a Reusable Upgrade Kit (RUK). The RUK also includes a LAN card, cables, and connectors.

Custom Announcements and Fragments

Custom announcements are transferred, but are not be activated during the upgrade. The system administrator has to reinstate custom announcements. This is done as part of the upgrade procedure.

See *Lucent INTUITY Messaging Solutions Release 4 Upgrade Procedures*, 585-310-168, for information on how to reinstate custom announcements.

Software Upgrade

A software upgrade increments an existing Lucent INTUITY R4 system to the latest version of the R4 software, for example, from Release 4.0 to Release 4.1.

A software upgrade of a Lucent INTUITY R4 system involves the following processes:

- Planning for the upgrade
- Resolving upgrade issues
- Site planning

Planning for a Software Upgrade

The software upgrade starts with a full system backup. Typically, the customer's system administrator completes this just before the technician arrives to perform the upgrade.

The upgrade program itself consists of three tapes that upgrade various software and platform components on the customer's R4 system. Not all tapes are used in every case. The remote maintenance center accesses the customer's system remotely and determines what tapes to ship to the customer's site.

Depending on the customer's site configuration and existing or requested options, there could be several more tapes to install, including:

- Switch integration software
- Remote Field Update (RFU)
- INTUNIX
- System Programming Maintenance (SPM)
- Call Accounting System (CAS)

Again, only those tapes the customer's system requires are shipped.

Time Required for the Upgrade

The length of time required to complete a software upgrade depends on the platform the customer has, the amount of user data and activity, the number of components that must be upgraded, and on additional, optional components, such as mirrored disks. [Table 7-3](#) shows the estimated time that the customer's system will be unavailable to callers and users, and how long a technician can expect to spend at the customer's site.

NOTE:

A software upgrade is typically performed after business hours. Any implications to the technician, such as access to the customer's site, should be communicated to the account representative.

Table 7-3. Software Upgrade Time Estimates

	Hours of Downtime		Hours of Technician Time	
	Maximum	Minimum	Maximum	Minimum
All Platforms	2.5	0.5	4 ¹	2

1. A software upgrade can take more than 4 hours if the customer has a large system such as a mirrored MAP/100 with a substantial amount of user data or if the technician encounters a problem during the course of the upgrade.

Site Planning

The customer's site must contain an area with adequate space to install any additional hardware components, if additional components are included as a part of the upgrade. Beyond that, the customer does not have any site considerations to plan for, as there is no computer exchange involved.

Platform Upgrade

Upgrading a Lucent INTUITY R4 MAP/40 involves the following processes:

- Planning for the upgrade
- Performing the upgrade

Planning for an R4 MAP/40 Platform Upgrade

Planning a platform upgrade involves the customer, the Lucent account representative, and possibly the remote maintenance center.

Platform Upgrade Issues

There are two issues for a Lucent INTUITY R4 MAP/40 platform upgrade: the time required to perform the upgrade, and determining if additional memory (RAM) must be purchased.

Since the MAP/40 platform upgrade does not involve replacing the computer, the time required to perform the upgrade is minimal. [Table 7-4](#) shows the estimated hours of system downtime and technician time involved.

Table 7-4. MAP/40 Platform Upgrade Time Estimates

	Hours of Downtime		Hours of Technician Time	
	Maximum	Minimum	Maximum	Minimum
If no additional RAM required	0.5	0.5	0.5	0.5
If additional RAM required	1.5	1	1.5	1

The customer's system administrator can easily access the RAM currently installed by accessing the View Installed Hardware window (select the Customer/Services Administration option and then the System Verification option). If there is less than 64 Mbytes of RAM listed, the customer must purchase additional memory (SIMMs) before the platform can be upgraded.

Performing the R4 MAP/40 Platform Upgrade

A Lucent technician runs platform upgrade software that reconfigures the existing MAP/40 software and platform components to conform with the requirements for the new MAP/40 platform. Also, depending on the memory configuration of the existing MAP/40 platform, the technician may install additional SIMMs to provide the memory required by the MAP/40 platform.

See *Lucent INTUITY Messaging Solutions Release 4 Upgrade Procedures*, 585-310-168, for more information on performing a platform upgrade.

Migrations

A migration is a move from any of the following Lucent INTUITY messaging products to a Lucent INTUITY R4 system:

- AUDIX R1
- DEFINITY AUDIX
- AUDIX Voice Power

This section discusses each of these, including:

- Planning considerations
- A listing of Lucent INTUITY R4 system features that are new to users and administrators of the above systems
- Guidelines to prepare users for the migration to the Lucent INTUITY system
- Tasks the customer is responsible for completing

AUDIX R1 Migrations

Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606, contains more detailed information on planning and implementing a migration from an AUDIX R1 system to a Lucent INTUITY R4 system.

Planning for an AUDIX R1 Migration

When migrating an AUDIX R1 system to a Lucent INTUITY system, Lucent Technologies supports the transfer of user data for the following AUDIX R1 releases:

- R1V5
- R1V6
- R1V7
- R1V8

Switch Connections

You can connect the Lucent INTUITY system to most of the same AUDIX R1 switches. See [Table 5-1](#) in [Chapter 5, "Switch Integration"](#), for a complete list of supported switches, including hardware and software requirements.

New Features and Functionality

Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606 contains a complete listing and definition of all new features and existing features that now function differently. [Table 7-5](#) provides an abbreviated listing with no descriptions.

Table 7-5. New or Changed Features from AUDIX R1 to Lucent INTUITY R4

User Features	
Fax Messaging	Non-English System Languages
System Announcements in Multiple Languages Simultaneously	Dual Language Greetings
60-digit Outcalling Numbers (with # as a digit)	Turn Off AUDIX Call Answering
Lucent INTUITY Message Manager	Retention of Non-Addressed Messages
Send/Receive Messages from E-Mail Users	Integrate AUDIX and E-Mail Mailboxes
Listen to Text Messages (produced in either Message Manager or a supported e-mail application)	Print Text Messages (produced in either Message Manager or a supported e-mail application)
Address Messages to Enhanced Lists (up to 1500 Users on One List)	Password Compliance Guidelines
Restrictions on Transfers	Additional Options for Addressing Messages
Lucent INTUITY Lodging	Property management system integration
Administrative Features	
Customize Screen-Labeled Keys	Multiple Administrative Login Levels
Multiple Simultaneous Logins	Windowing Between Switch and AUDIX Interfaces (System 75, G1, and G3 only)
Administrative/User Password Aging	Can Administer 'Address Before Record'
Fax	Outgoing Print Job Queue
Can Disable Call Answering	Quick Silence Disconnect
TCP/IP Lan Access	Change Extensions
TCP/IP Networking Administration	Print Screens
Multimedia Messaging Administration	Text-to-Speech Administration
Enhanced List Administration	Transfer Number Administration

Features No Longer Available

The following administrative features are not available with the Lucent INTUITY R4 system:

- ADAP PC2AUDIX

The INTUITY AUDIX system supports only the command line interface of the AUDIX Administration and Data Acquisition Package (ADAP). It does not support the PC2AUDIX application of ADAP. If you are a heavy user of ADAP reports, additional work may be necessary for you to produce reports similar to those you used for AUDIX R1.

- Call detail recording

The INTUITY AUDIX R4 system does not currently offer the Call Detail Recording (CDR) feature. However, this feature will be offered on future releases.

- Exceeded thresholds in the status line

The INTUITY AUDIX system does not have the thresholds field that appears in the status line of the AUDIX R1 system. However, the Alarms field on the INTUITY AUDIX status line registers a warning when a threshold is exceeded and Lucent INTUITY records each event in the Administration Log.

Additional INTUITY AUDIX Automated Attendant Features

The INTUITY AUDIX system offers the following additional automated attendant features compared to those of the AUDIX R1 system:

- Holiday schedule

You can define holidays and assign specific automated attendants to operate on those holidays.

- Business week schedule

You can define business hours and assign specific automated attendants to operate during business hours and other attendants for nonbusiness hours.

- Verification of complete automated attendant definition

The INTUITY AUDIX system offers a verification utility that checks for missing elements of an automated attendant. This ensures that the automated attendant will handle calls properly.

Lucent INTUITY Administrative Tools

The Lucent INTUITY system is a hardware/software platform. INTUITY AUDIX is loaded onto it. The tools for most maintenance, networking, and switch integration tasks related to AUDIX have been incorporated on the Lucent INTUITY platform as subsystems that are separate from AUDIX. As a result, you must now use two administrative interfaces to administer the AUDIX system:

- AUDIX messaging administration screens
- Menu-driven Lucent INTUITY system windows for most other administration

For more information on these features, see [“Administrative Interfaces”](#) in [Chapter 6, “Administration and Maintenance”](#).

AUDIX R1 Migration Process Overview

You can migrate user data, voice data, and mailing lists using one of these three processes:

- Standard user migration
Replaces your AUDIX R1 system and allows you to keep your AUDIX R1 system available for a specified time, so that users can access old messages.
- Tandem user migration
AUDIX R1 remains up and running and the migration moves a subset of your AUDIX R1 users to the Lucent INTUITY system.



NOTE:

The tandem migration is available only if you have a System 85, Generic 2 or System 75, Generic 3r switch. These switches allow a BX.25 data link with more than one AUDIX hunt group.

- Enhanced migration
Allows the migration of mailing lists and user voice data.

Standard User Migration

The standard user migration replaces the AUDIX R1 system with a Lucent INTUITY system. However, you have the option of leaving the AUDIX R1 system temporarily attached to voice ports so that users can access their AUDIX R1 mailboxes for old messages.

The standard user migration assumes that you want to:

- Keep the same telephone number for users to call to get their messages.
- Keep your AUDIX R1 system temporarily available for users to access old messages.
- Minimize the number of voice ports you purchase for your switch. Instead of buying additional voice ports to which you attach your Lucent INTUITY system, you will use most of the existing AUDIX R1 voice ports and use a few ports temporarily for users to access old AUDIX R1 messages.

Data Automatically Migrated. The standard user migration transfers some data automatically from the AUDIX R1 system to the Lucent INTUITY system:

- User data, *excluding*:
 - Password
 - Locked designation
 - User ID
 - Text service machine
- AMIS networked remote user data, *excluding*:
 - Voiced name
 - Nonadministered type
- Class of service data, *excluding*:
 - Name

Data Not Migrated. The standard user migration does *not* transfer:

- Voice data
 - Users' incoming messages (without header information)
 - Users' personal greetings
- Users' mailing lists
- Users' recorded names
- Names
- Users' passwords
- Voice messages
- Filed messages
- Customized announcements
- Bulletin board announcements
- Automated attendant menus
- Remote machine profiles
- All other system administration data

 **NOTE:**

The installer readministers remote machine profiles from design engineering specifications and system administration data from customer supplied worksheets. You must re-enter or re-record all other nonmigrated items.

If names, greetings, and voice messages must also be migrated, see ["Enhanced Migration"](#) below.

Tandem User Migration

The tandem user migration activates the Lucent INTUITY system on your switch *in addition to* your AUDIX R1.

⇒ NOTE:

This migration is available only if you have a System 85 Generic 2, or System 75 Generic 3R switch.

The tandem migration requires that you use the Switch Station screen to change the coverage path of each individual user you want to move to the Lucent INTUITY system. It also requires that you specify a subset of users to be migrated to the Lucent INTUITY system.

⇒ NOTE:

The tandem user migration is not recommended unless you need more than 64 ports for your voice messaging between networked Lucent INTUITY systems. It requires significantly greater processing time when compared to a single Lucent INTUITY system on a switch.

Data Automatically Migrated. The tandem user migration transfers some data automatically from the AUDIX R1 system to the Lucent INTUITY system:

- User data, *excluding*:
 - Password
 - Locked designation
 - User ID
 - Text service machine
- AMIS networked remote user data, *excluding*:
 - Voiced name
 - Nonadministered type
- Class of Service data, *excluding*:
 - Name

Data Not Migrated. The tandem user migration does *not* transfer:

- Voice data
 - Users' incoming messages (without header information)
 - Users' personal greetings
- Users' mailing lists
- Users' recorded names
- Users' passwords
- Customized announcements

- Bulletin board announcements
- Automated attendant menus
- Remote machine profiles
- All other system administration data

**NOTE:**

You must re-enter or re-record all nonmigrated items on the Lucent INTUITY system.

Enhanced Migration

**CAUTION:**

You must complete a standard user migration from AUDIX R1 to the Lucent INTUITY system before you begin the enhanced AUDIX R1 Migration.

The enhanced migration consists of the migration of user voice data and mailing lists from an AUDIX R1 system to the Lucent INTUITY system.

**NOTE:**

All migrated messages become new messages on the Lucent INTUITY system.

Once migration is complete, the Lucent INTUITY system replaces the AUDIX R1 system. The AUDIX R1 system may be left connected temporarily so that users can listen to any messages stored by the AUDIX R1 before the Lucent INTUITY system was placed into service. This allows them to verify that the messages migrated and to obtain header information for the migrated messages. However, even if the AUDIX R1 is left in service, the Lucent INTUITY system provides service for all *new* messages.

Data Automatically Migrated. The enhanced migration transfers some data automatically from the AUDIX R1 system to the Lucent INTUITY system:

- Voice data
 - Users' incoming messages (without header information)
 - Users' personal greetings
- Users' mailing lists
- Users' recorded names

Data Not Migrated. The enhanced migration does not transfer the following:

- Users' passwords
- Customized announcements
- Remote machine profiles

- Filed messages
- All other system administration data
- Automated attendant menus

**NOTE:**

You must re-enter or re-record all nonmigrated items on the Lucent INTUITY system.

Preparations for Migration

Preparing for a migration involves site preparations, system preparations, and preparing users for the change. Preparations need to start months in advance of the actual migration. Lucent INTUITY Release 4 Planning for Migrations, 585-310-606, contains a detailed discussion of the tasks customers should consider and accomplish to ensure a successful migration.

Some high-level points of which a new R4 customer should be aware include:

- Distributing information to users 1 month and 1 week in advance of a:
 - Standard user migration
 - Tandem user migration
 - Enhanced migration
- Scheduling updates of remote networked machines

Post-Migration Administration

Once the migration, switch administration, and acceptance testing of the system is complete, the customer must complete administration of the Lucent INTUITY system. The type and number of tasks varies, depending on the system the Lucent INTUITY R4 system replaced. Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606 contains a detailed discussion of the tasks customers must perform to ensure successful implementation of their new system.

Some high-level tasks include:

- Reviewing the list of transferred users
- Adding users who did not migrate
- Recreating automated attendants

**NOTE:**

You may want to examine the way you have auto-attendants set up. The Lucent INTUITY system allows the scheduling of attendants for holidays and for business hours and nonbusiness hours. See [“Additional Intuity AUDIX Automated Attendant Features”](#) above for more information.

- Administering custom announcements
- Re-recording custom fragments

**NOTE:**

Be careful to match your custom fragments to the fragments listed in *Lucent INTUITY Messaging Solutions Release 4 Administration*, 585-310-564. Your fragments may no longer be appropriate to the standard fragments and announcements in the Lucent INTUITY system.

- Assigning a new coverage path to users
- Administering remote networked machines for the new machine (see *Lucent INTUITY Messaging Solutions Digital Networking*, 585-310-567, or *AMIS Analog Networking*, 585-300-512, for more information)
- Readministering DCS on remote DCS switches
- Readministering switches (see the appropriate installation book for your platform for more information)

DEFINITY AUDIX Migrations

Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606, contains more detailed information on planning and implementing a migration from a DEFINITY AUDIX R1 system to a Lucent INTUITY R4 system.

Planning for a DEFINITY AUDIX Migration

This section provides the following:

- A listing of Lucent INTUITY R4 system features that are new to users and administrators of a DEFINITY AUDIX system
- Guidelines to prepare users for the migration to the Lucent INTUITY system
- Migration tasks for which the customer is responsible for completing

When you are migrating a DEFINITY AUDIX system to a Lucent INTUITY system, Lucent supports the transfer of user data for the following releases:

- R1.0
- R2.0
- R3.0
- R3.1

**NOTE:**

R3.2 migrations are currently under development. Ask your Lucent Technologies account representative for details.

Switch Connections

Unlike the DEFINITY AUDIX system, the Lucent INTUITY system is not inserted within the cabinet of your switch. The Lucent INTUITY system runs on a separate computer or MAP that is connected to your switch. You can connect your Lucent INTUITY system to all of the same switches to which you can connect the DEFINITY AUDIX system. However, the Lucent INTUITY system also connects to other switches.

See [Table 5-1](#) in [Chapter 5, "Switch Integration"](#) for a complete list of supported switches, including hardware and software requirements.



NOTE:

The DEFINITY AUDIX system running in Display Set (DEF. AUD. 3.1) or Digital Port Emulation mode (DEFINITY AUDIX 3.0 or earlier) does not require data communications hardware on the switch. Therefore, it may be necessary to install data communication hardware on your switch when you replace the DEFINITY AUDIX system with the Lucent INTUITY system.

New Features and Functionality

Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606 contains a complete listing and definition of all new features and existing features that now function differently. [Table 7-6](#) provides an abbreviated listing with no descriptions.



NOTE:

Some of these features are available on the most recent version of DEFINITY AUDIX.

Table 7-6. New or Changed Features from DEFINITY AUDIX to Lucent INTUITY R4

User Features	
Fax Messaging	Address Messages Before Recording
60-digit Outcalling Numbers (with # as a digit)	Turn Off AUDIX Call Answering
System Announcements in Multiple Languages Simultaneously	Retention of Non-Addressed Messages
Send/Receive Messages from E-Mail Users	Integrate AUDIX and E-Mail Mailboxes
Listen to Text Messages (produced in either Message Manager or a supported e-mail application)	Print Text Messages (produced in either Message Manager or a supported e-mail application)

Continued on next page

Table 7-6. New or Changed Features from DEFINITY AUDIX to Lucent INTUITY R4
— *Continued*

User Features	
Address Messages to Enhanced Lists (up to 1500 Users on One List)	Password Compliance Guidelines
Restrictions on Transfers	Additional Options for Addressing Messages
Undelete Last Message	Greater Touch Tone Input Time (to allow for rotary telephone conversion)
Priority Call Answer Messages	Language Options
Personal Greetings	Suite Mailboxes
Text and Fax message Tally	Moving Mailboxes
Administrative Features	
Customize Screen-Labeled Keys	Multiple Administrative Login Levels
Multiple Simultaneous Logins	Disk Mirroring
Administrative/User Password Aging	Can Administer Address Before Record
Fax	Outgoing Print Job Queue
Can Disable Call Answer	Quick Silence Disconnect
TCP/IP Lan Access	Change Extensions
TCP/IP Networking Administration	Print Screens
Multimedia Messaging Administration	Text-to-Speech Administration
Enhanced List Administration	Transfer Number Administration
Advance/Rewind Increment	

Features No Longer Available

The following administrative features are not available with the Lucent INTUITY R4 system:

- ADAP PC2AUDIX

The INTUITY AUDIX system supports only the command line interface of the AUDIX Administration and Data Acquisition Package (ADAP). It does not support the PC2AUDIX application of ADAP. If you are a heavy user of ADAP reports, additional work may be necessary for you to produce reports similar to those you used for DEFINITY AUDIX.

- Exceeded thresholds in the status line

The INTUITY AUDIX system does not have the thresholds field that appears in the status line of the DEFINITY AUDIX system. However, the Alarms field on the INTUITY AUDIX status line registers a warning when a threshold is exceeded and Lucent INTUITY records each event in the Administration Log.

Screens No Longer Available

The following DEFINITY AUDIX screens have no corresponding screens in the Lucent INTUITY R4 system:

- nightly:save
- switch-names (DP mode):audit
- system as&m:reset
- tape:add, :change, :display, :removed, :status, :test, :status

Migration Processes Overview

This section describes the migration processes and the data that is or is not migrated from the DEFINITY AUDIX system to the Lucent INTUITY system. Depending on the configuration of your DEFINITY AUDIX system, you may use one of two processes:

- Migration from control link (CL) mode
- Migration from digital port (DP) emulation mode

Migration from CL Mode

The DEFINITY AUDIX system in CL mode is replaced by the Lucent INTUITY system. However, you have the option of leaving the DEFINITY AUDIX system attached to the switch as a second voice messaging system. The replacement of the DEFINITY AUDIX system includes:

- Checking the integrity of DEFINITY AUDIX files
- Administering AMIS and digital networks on the Lucent INTUITY system
- Administering AMIS and digital networks on the switch
- Creating new voice ports
- Running voice port cables between Lucent INTUITY IVC6 cards to new switch ports

- Testing voice ports with ChanTran
- Replacing DEFINITY AUDIX voice ports
- Connecting IDI

Data Automatically Migrated. The migrated data from the DEFINITY AUDIX system in CL mode to the Lucent INTUITY system includes:

- User data
- User passwords
- Remote user data
- Class of Service data
- System parameters features data
- System parameters outcalling data
- System parameters sending restrictions data
- System parameters thresholds data
- Machine and machine profile data
- Automated attendants
- Bulletin boards
- Recorded messages
- Greetings
- Voiced names
- Mailing lists
- Automated attendant greetings
- Personal directories

Data Not Migrated. The Lucent INTUITY system does *not* transfer the following data from the DEFINITY AUDIX system in CL mode:

- Traffic report data
- ADAP data
- Customized announcements
- Switch time zone and clock data
- Activity log and administration log data
- Alarm data
- Switch administration data
- Error and event data

- Login data
- Message waiting indications (MWI)

**NOTE:**

New messages that are transferred to the Lucent INTUITY system do not activate user MWIs.

Migration from DP Mode

The DEFINITY AUDIX system in DP mode is completely replaced by the Lucent INTUITY system. The replacement of the DEFINITY AUDIX system includes:

- Checking the integrity of DEFINITY AUDIX files
- Administering AMIS and digital networks on the Lucent INTUITY system
- Administering AMIS and digital networks on the switch
- Installing a PI or PGATE circuit card
- Creating new voice ports
- Administering the data link
- Running voice port cables between Lucent INTUITY IVC6 cards to new switch ports
- Testing voice ports with ChanTran
- Replacing DEFINITY AUDIX voice ports

Data Automatically Migrated. The migrated data from the DEFINITY AUDIX system in DP mode to the Lucent INTUITY system includes:

- User data
- Users' passwords
- Remote user data
- Class of service data
- System parameters features data
- System parameters outcalling data
- System parameters sending restrictions data
- System parameters thresholds data
- Machine and machine profile data
- Automated attendants
- Bulletin boards
- Recorded messages
- Greetings
- Voiced names

- Mailing lists
- Automated attendant greetings
- Personal directories

Data Not Migrated. The Lucent INTUITY system does *not* transfer the following data from the DEFINITY AUDIX system in DP mode:

- Traffic report data
- ADAP data
- Customized announcements
- Switch time zone and clock data
- Activity log and administration log data
- Alarm data
- Switch administration data
- Error and event data
- Login data
- Message waiting indications

**NOTE:**

New messages that are transferred to the Lucent INTUITY system do not activate user MWIs.

Preparations for Migration

Preparing for a migration involves site preparations, system preparations, and preparing users for the change. Preparations need to start months in advance of the actual migration. *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, contains a detailed discussion of the tasks to consider and accomplish to ensure a successful migration.

Some high-level points of which a new R4 customer should be aware include:

- Distributing information to users 1 month and 1 week in advance of a:
 - DEFINITY AUDIX in CL Mode
 - DEFINITY AUDIX in DP Mode

Post-Migration Administration

Once the migration, switch administration, and acceptance testing of the system are complete, the customer must administer the Lucent INTUITY system. The type and number of tasks varies, depending on the system the Lucent INTUITY R4 system replaced. See *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, for the tasks customers must perform to ensure successful implementation of their new system.

Some high-level tasks include:

- Reviewing the list of transferred users
- Adding users who did not migrate
- Re-entering networking address ranges
- Administering new features

AUDIX Voice Power

See *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, for information on planning and implementing a migration from an AUDIX Voice Power system to a Lucent INTUITY R4 system.

Planning for an AUDIX Voice Power Migration

This section provides the following:

- A listing of Lucent INTUITY R4 system features that are new to users and administrators of an AUDIX Voice Power system
- Guidelines to prepare users for the migration to the Lucent INTUITY system
- Migration tasks the customer is responsible for completing

The following releases are supported when migrating user data from an AUDIX Voice Power system to a Lucent INTUITY R4 system:

- R2.0
- R2.1
- R2.1.1
- R3.0

Switch Connections

You can connect your Lucent INTUITY machine to almost all of the same switches connected to your AUDIX Voice Power system. However, the Lucent INTUITY system differs in the type of data communications hardware it uses.

See [Table 5-1](#) in [Chapter 5, “Switch Integration”](#), for a complete list of supported switches, including hardware and software requirements.

New Features and Functionality

Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations, 585-310-606, contains a complete listing and definition of all new features and existing features that now function differently. [Table 7-7](#) provides an abbreviated listing, with no descriptions.

Table 7-7. New or Changed Features from AUDIX Voice Power to Lucent INTUITY R4

User Features	
Fax Messaging	Non-English System Languages
System Announcements in Multiple Languages Simultaneously	Dual Language Greetings
Leave Word Calling	AMIS Analog Networking
Automatic Message Scan	Call Sender As Reply
Delivery Scheduling	Digital Networking
Directory Assistance	End-of-message Warning
Turn off AUDIX Call Answering	"0" Calls To Follow Coverage
Guest Password	Lucent INTUITY Message Manager
Undelete Key	Login Announcement
Priority Call Answer Messages	Loudness Controls
Online Help	Outgoing/filed Message Storage
Personal Directory	Priority Messages
Private Messages	Priority Outcalling
Relogin	Shared Extension
Speed Up/Slow Down Controls	Untouched Message
Send/Receive Messages from E-Mail Users	Integrate AUDIX and E-Mail Mailboxes
Listen to Text Messages (produced in either Message Manager or a supported e-mail application)	Print Text Messages (produced in either Message Manager or a supported e-mail application)
Address Messages to Enhanced Lists (up to 1500 Users on One List)	Password Compliance Guidelines
Restrictions on Transfers	Additional Options for Addressing Messages
Password Compliance Guidelines	
Administrative Features	
Customize Function Keys	ADAP
Multiple Administrative Login Levels	Alarm Notification
Multiple Simultaneous Logins	Message Sending Restrictions

Continued on next page

Table 7-7. New or Changed Features from AUDIX Voice Power to Lucent INTUITY R4
— *Continued*

User Features	
User and Administrative Password Aging	Fax Messaging
Windowing Between Switch and AUDIX Interfaces (System 75, G1, and G3 only)	Call Answer Disable
AMIS Analog, TCP/IP, and Digital Networking	Outgoing Print Job Queue
Address Before Record	TCP/IP LAN Access
Advance/Rewind Increment	Quick Silence Disconnect
Change Extensions	TCP/IP Networking Administration
TCP/IP Networking Administration	Print Screens
Multimedia Messaging Administration	Text-to-Speech Administration
Enhanced List Administration	Transfer Number Administration

Features No Longer Available

The following user features are not available with the Lucent INTUITY R4 system:

- General mailbox
- Name voiceback when transferring

Screens No Longer Available

The following AUDIX Voice Power screens have no corresponding screens in the Lucent INTUITY R4 system:

- Install Workspace
- Service Administrator Registration
- Subscribers Over Mailbox Limit Report
- Verify Workspace

Changes in Automated Attendant Capabilities and Administration

The Lucent INTUITY system differs from the AUDIX Voice Power system in the way automated attendants are administered and the capabilities the automated attendants offer. [Table 7-8](#) shows a comparison between the AUDIX Voice Power and the Lucent INTUITY automated attendants.

Table 7-8. Automated Attendant Capabilities

AUDIX Voice Power	Lucent INTUITY
Separate night and day attendant main menus using the same telephone number	Unlimited number of attendants using different telephone numbers or up to 25 telephone numbers, each with a scheduled day, night, and alternate attendant main menu
Nested attendants	Nested attendants
Option for touch-tone gate announcement	Must manually include a touch-tone option in the attendant and include instructions in the attendant prompts
Fax recognition and automatic transfer to a fax machine	No fax recognition or capability to handle faxes
Option for temporary closure message	No temporary closure option; a temporary closure message is possible using the multiple personal greetings feature with an attendant or by creating a temporary closure mailbox and inserting temporary closure as a holiday
Holiday and night attendant scheduling	Holiday and night attendant scheduling
Verification of complete automated attendant menu tree	Verification of complete automated attendant menu tree

[Table 7-9](#) shows a comparison of the administration of the AUDIX Voice Power and Lucent INTUITY automated attendants.

Table 7-9. Automated Attendant Administration

AUDIX Voice Power	Lucent INTUITY
You administer automated attendants using a series of windows and by copying and reinstalling workspace.	You create automated attendants using the Subscriber screen, pages 1, 2, and 3, and possibly the List Attendants and COS screens. You schedule automated attendants using Holiday Schedule, Business Schedule, and Routing Table Administration screens.
You record automated attendant announcements and menus on your telephone while simultaneously selecting these items on your computer.	You record attendant announcements after creating an attendant. The recording is simply assigned as the personal greeting to the specific attendant's mailbox.
After recording attendant menus and announcements, you must reinstall the workspace.	Recordings of attendant menus are in effect immediately after you approve them.

AUDIX Voice Power Migration Processes Overview

This section describes the migration process and the data that is or is not migrated from the AUDIX Voice Power system to the Lucent INTUITY system. The migration process assumes you want to:

- Have the same telephone number for users to call to get their messages on the AUDIX Voice Power system
- Temporarily keep your AUDIX Voice Power system available for users to access old messages

NOTE:

The tasks for a migration differ somewhat, depending on whether your switch is a System 75 or DEFINITY G1/G3 switch. For more information see *Lucent INTUITY Messaging Solutions Release 4 Migration Procedures*, 585-310-167.

Data Automatically Migrated. The migrated data from the AUDIX Voice Power system to the Lucent INTUITY system includes:

- Extension
- Name
- Mode of addressing
- Mailbox size (by COS)
- Personal operator
- Coverage service (call answer only)
- Outcalling allowed

Data Not Migrated. The Lucent INTUITY system does *not* transfer any other data from AUDIX Voice Power. Some examples are:

- User passwords
- User incoming and outgoing messages
- User personal greetings
- Voice mail prompts
- Call answer prompts
- Information service prompts
- Message drop prompts
- Automated attendant prompts
- Automated attendant menus
- User mailing lists
- User recorded names
- All other system administration data

Preparations for Migration

Preparing for a migration involves site preparations, system preparations, and user training. Preparations must start months in advance of the actual migration. See *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, for the tasks customers should consider and accomplish to ensure a successful migration.

Some high-level points of which a new R4 customer should be aware include:

- Distributing information to users 1 month and 1 week in advance of the migration
- Backing up data (strongly recommended)
- Administering a special automated attendant for users (for customers with a MERLIN LEGEND switch)

Post-Migration Administration

Once the migration, switch administration, and acceptance testing of the system is complete, the customer must administer the Lucent INTUITY system. The type and number of tasks vary, depending on the system the Lucent INTUITY R4 system replaced. See *Lucent INTUITY Messaging Solutions Release 4 Planning for Migrations*, 585-310-606, for the tasks customers must perform to ensure successful implementation of the new system.

Some high-level tasks include:

- Reviewing the list of transferred users
- Adding users who did not migrate
- Administering system parameters
- Recreating automated attendants



NOTE:

You may want to examine the automated attendants set-up. The Lucent INTUITY system allows the scheduling of attendants for holidays and for business hours and nonbusiness hours. See [“Additional Intuity AUDIX Automated Attendant Features”](#) above for more information.

- Administering custom announcements
- Administering fax messaging
- Readministering AUDIX Voice Power connection

Release History



Overview

This appendix contains a listing of all releases of INTUITY AUDIX previous to Release 4. This appendix lists those releases from Release 3.3 backward to Release 1.0.

Purpose

The purpose of this appendix is to provide a history of progression of features, functionality, capability, and capacities of the INTUITY AUDIX product.

What Is New with Release 3.3?

Compared to the INTUITY AUDIX 3.2, the INTUITY R3.3 system offers some new user and system administration features.

Fax Messaging Capability

A fax-messaging feature is new with AUDIX Version 3.3.

The fax-messaging feature gives you the ability to handle faxes using the powerful INTUITY messaging capabilities. Besides sending, receiving, and printing a fax, you can also forward a fax, annotate a fax with a voice message, send a fax, and broadcast faxes to multiple people.

The fax messaging feature combines the send and receive capabilities of a stand-alone fax machine or fax modem on a PC with the many capabilities of INTUITY AUDIX messaging. You can send, receive, annotate, forward, broadcast, and otherwise handle a fax message just as you do a voice message.

The existing capabilities of the INTUITY AUDIX application are extended to handle the delivery and receipt of faxes:

- Sending a fax to another user (internal fax) is similar to sending a voice message.
- Sending a fax to a nonuser (external fax) uses message delivery.
- Receiving both *internal and external faxes* works the same as receiving voice messages or call answer calls in your mailbox.
- Printing a fax from your mailbox transmits the fax to a *fax endpoint* such as a fax machine, a PC with fax modem, or a fax-enabled system such as another INTUITY system.

Report Printing Capability

You can now prefix the **display** and **list** commands with a **print** command. Use this command to print information on your system printer (the one connected to the Lucent INTUITY hardware).

For example, if you enter **print display system-parameters features**, the system printer prints a copy of all four of the *features* pages. To print a list of extensions and their users, enter **print list extensions**. You can also print the data from any AUDIX screen by pressing **F9** any time the cursor is *not* on the command line.

End User Enhancements

Address Before Record	The Address Before Record option can be enabled as a system feature on AUDIX Version 3.3 systems. If enabled, the feature can be activated or deactivated by each user. If the option is activated, the user is prompted to address a message before recording it. The user can ignore the prompt, however, so that with this option active. The user is free to edit the address list before or after the message has been created.
Call Answer Disable	<p>If the Call Answer Disable option is enabled by the system administrator for an AUDIX Version 3.3 system, it can be activated individually by each user (in the greeting administration menu). If activated, callers hear the user's greeting, but are not be able to leave a message. The user is responsible for recording appropriate instructions for personal greetings.</p> <p>Call Answer Disable does not interfere with incoming messages, only with incoming calls.</p>

Administrative Features

The INTUITY AUDIX system offers the following features to help maintain and monitor the system.

- Traffic reports

The INTUITY AUDIX traffic reports collect information about calls made to AUDIX and voice mail sent through AUDIX. These reports depict how the system is being used, including data about features, users, communities, data port loads, and remote message traffic.
- Automated backups

The INTUITY AUDIX system, via the Lucent INTUITY messaging system software, automatically backs up *crucial* data to tape to enable your system to run. Thus, should a problem result in a loss of data, you can restore enough data to bring your system back to an operational state.
- Activity Log, Administrator's Log, and Alarm Log

The INTUITY AUDIX system, by itself or via the Lucent INTUITY messaging system software, monitors its own activity. System activities and errors are recorded in logs that are stored on disk.

 - The Activity Log lists user events and helps with diagnosing problems that users might have.

- The Administrator's Log lists problems with system operation about which the administrator should know and take action. Also listed are potential security violations (toll fraud, mailbox break-in attempts, and so on).
 - The Alarm Log lists active and resolved alarms. Alarms indicate system errors that should be corrected immediately.
- Alarm origination

The INTUITY AUDIX system, via the Lucent INTUITY messaging system software, notifies your Lucent remote service center of all major and minor alarms if they remain unresolved within 5 minutes. This allows services personnel to fix your system quickly when alarms occur.
 - Community sending restrictions

The INTUITY AUDIX system lets you create a group (community) of users and restrict them from sending (or receiving) voice mail messages to another group of users. Thus, if a user in a restricted community tries to send a message to an unauthorized destination, the INTUITY AUDIX system plays a message explaining the restriction.
 - Class of service

There are 12 different classes of service that can be defined in the INTUITY AUDIX system. Each class of service is a packaged set of feature or capacity permissions that you can assign to users. These classes of service provide a quick, convenient way to administer groups of users with similar needs.
 - Administration and Data Acquisition Package (ADAP)

The AUDIX Administration and Data Acquisition Package (ADAP) is a program installed on a personal computer (PC) connected to the INTUITY AUDIX system. ADAP includes a set of programmer-oriented DOS-level commands that can modify user data directly in the AUDIX database and also download selected data from the AUDIX database to the PC.

No reporting capability is included. It is left to the customer to develop reporting applications on the PC or to upload the data to a host computer for further analysis.

What Is New with Release 3.2?

Compared to the INTUITY AUDIX 2.0, the INTUITY R3.2 system offers some new user and system administration features.

MERLIN LEGEND Switch Connections

INTUITY AUDIX 3.2 connects to the MERLIN LEGEND switch (R2.1 and 3.0). This connection uses the following:

- The standard IVC6 card voice ports and 885A translator for both voice and data transmission.
- The MERLIN LEGEND switch and the Lucent INTUITY system send information back and forth via mode codes. Mode codes are streams of touch-tone signals that tell the Lucent INTUITY such things as call type, calling party, called party, and on/off signals for message waiting lamps.

A MERLIN LEGEND switch supports up to 20 voice ports and low-speed digital networking only.

End User Features/Enhancements (Compared to an INTUITY AUDIX 2.0 System)

Multiple languages
simultaneously

The INTUITY AUDIX R3.2 system offers the capability of up to nine simultaneously active announcement sets. Thus, more than one language can be active at one time, and users can work in AUDIX in the language of their choice.

Additional languages available on INTUITY AUDIX 3.2 are always under development. Contact your Lucent sales representative for the latest list of available languages.

Each language is purchased separately.

Undelete key

In the INTUITY AUDIX R3.2 system, a user can press to recover a message just deleted.

60-digit outcalling
numbers with # as a digit

On the INTUITY AUDIX R3.2 system, a user can set up the outcalling feature with an outcalling number of up to 60 digits. The user can also include pound (#) signs within the number, which is a common requirement for pagers.

Dual language greetings

The INTUITY AUDIX 3.2 system with the multilingual feature can allow users to have two personal greetings in different languages. Any prompts are also in the selected languages.

A Release History

What Is New with Release 3.2?

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Lucent INTUITY Message Manager

Lucent INTUITY Message Manager is an optional software package loaded on a personal computer. Message Manager allows a user to access, store, and generally manage AUDIX messages using a graphical user interface. The INTUITY AUDIX 3.2 system communicates with Message Manager via a local area network and coordinates Message Manager activity with the user's voice terminal. Message Manager PC software is available per user. Message Manager server software on the INTUITY AUDIX system is available per system for a right-to-use fee.

 **NOTE:**

The Message Manager feature also requires the purchase and installation of an Ethernet card.

Priority call answer messages

When leaving a call answer message in a user's mailbox, a caller can designate the message to be a priority message. (This capability is turned on or off system-wide.)

Escape from Reply to Sender

In the INTUITY AUDIX R2.0 system, a user might, while getting messages, press [1] to immediately respond to a message from a non-user. Since responding via AUDIX to a non-user is not possible, the user could only hang up or return (with [*R] or [*7]) to the main menu. With the INTUITY AUDIX R3.2 system, a user who inadvertently gets into the Reply to Sender deadend can press [#] to return to the getting messages.

Greater touch-tone input time to allow for rotary telephone conversion

The INTUITY AUDIX 3.2 system lets the administrator extend the length of time (up to 12 seconds) the system will wait for touch-tone inputs from a caller. This additional time permits more effective use of a pulse-to-touchtone converter on AUDIX systems accepting calls from rotary telephone users.

Retention of nonaddressed messages

On the INTUITY AUDIX 2.0 system, a message that a user recorded is lost if the user fails to enter an address for the message before approving delivery. On the INTUITY AUDIX 3.2 system, the user receives a prompt to enter an address after the first failure to do so. However, the message is still lost on the second failure.

Reminder during message addressing

On the INTUITY AUDIX 3.2 system, a user who addresses a message but fails to enter any other touch-tone signals within the next 5 seconds receives a message. This message reminds the user to continue addressing or to approve the addressee list.

Administration Features

Password aging	The INTUITY AUDIX system lets you set a length of time after which a user's password expires. The user must then change the password.
Advance/rewind increment	The INTUITY AUDIX system lets you set the advance and rewind increment (the number of seconds the system jumps ahead or backward in a message when you press [6] or [5] respectively). The increment can be 4 seconds or 10 seconds and can be set separately.
TCP/IP LAN access for Message Manager	The Message Manager feature requires LAN access to the INTUITY AUDIX system, which you must administer via the TCP/IP networking windows.

Automated Attendant

The INTUITY AUDIX R3.2 system offers additional automated attendant features compared to those of the INTUITY AUDIX R2.0 system ([Table A-1](#)).

Table A-1. Automated Attendant Enhancements

Holiday schedule	The INTUITY AUDIX 3.2 system lets you define holidays and assign specific automated attendants to operate on those holidays.
Business week schedule	The INTUITY AUDIX 3.2 system lets you define business hours and assign specific automated attendants to operate during business hours and other attendants for nonbusiness hours.
Day/night schedule based on switch night service	The INTUITY AUDIX 3.2 system works with the MERLIN LEGEND switch, which offers night service scheduling. Therefore, INTUITY AUDIX automated attendants can be synchronized with the MERLIN LEGEND switch's night service.
Verification of complete automated attendant definition	The INTUITY AUDIX system offers a verification utility that checks for missing elements of an automated attendant. This ensures that the automated attendant handles calls properly.

What Is New with Release 2.0?

New features that may be operated on the Lucent INTUITY system Release 2.0 include:

- INTUITY AUDIX Release 3.2—Multilingual feature, undelete message capability, expanded outcalling number length, password aging, priority on Call Answer, and enhanced Automated Attendant
- Lucent INTUITY Message Manager—operates with INTUITY AUDIX to allow subscribers to control messaging from their PCs
- Lucent INTUITY Call Accounting System—provides customized report generation from CDR/SMDR data for up to 500 stations for DEFINITY G1 or G3 or MERLIN LEGEND switches
- INTUITY Call Accounting System's HackerTracker—notifies the system administrator or other designated individual of abnormal calling activities that may indicate attempts to break into your system and commit toll fraud
- Integration with the MERLIN LEGEND
- MERLIN LEGEND System Programming and Maintenance Utility—allows the MERLIN LEGEND to be administered from the INTUITY system terminal

What Is Release 1.0?

The INTUITY AUDIX Voice Messaging feature package provides the means to record and exchange voice messages over the telephone when direct communication may be inconvenient or unnecessary. It contains stored voice prompts that guide users in creating, sending, retrieving, answering, saving, or forwarding spoken messages. It also answers calls for personnel who are busy or unavailable. Messages can be sent across the hall or across the world with INTUITY AUDIX Digital Networking and Audio Messaging Interchange Specification (AMIS) Analog Networking feature packages. Because it captures the tone and inflection of a spoken message, INTUITY AUDIX Voice Messaging provides the personal interaction that written messages lack.

Lucent INTUITY Intro Voice Response is a set of tools which allow *you* to create unique applications that automate telephone transactions in your business environment. Using recorded speech, Lucent INTUITY Intro Voice Response applications can respond to, request from, and return information to callers. Lucent INTUITY Intro Voice Response applications allows either full or partial automation of transactions with callers that would otherwise be performed by a person. The Lucent INTUITY Intro Voice Response tools allow you to create applications that can do something simple: a caller requests specific information and the Lucent INTUITY Intro system responds with the information. Or Lucent INTUITY Intro Voice Response can be programmed to do something more complex.

1. A caller requests for specific information.
2. In response, the Lucent INTUITY Intro application asks for more information from the caller.
3. Using the information it has gathered, the Lucent INTUITY Intro application accesses its own database or another Lucent INTUITY feature package, such as INTUITY AUDIX Voice Messaging and uses that information to respond to the caller.

The co-residency of the INTUITY AUDIX Voice Messaging and Lucent INTUITY Intro Voice Response feature packages on the same platform allows them to share computer resources, such as hard disk space and maintenance utilities. Equally important, software integration allows these feature packages to interact and to use the information stored in each other's databases.

The MAP/40 meets customer needs with a wide range of mid-sized installations including single location and multilocation customers.

- MAP/40 chassis with power supply and cooling
- Monitor and keyboard
- 25-MHz 486-SX CPU
- Two serial ports, one parallel printer port
- Remote maintenance board (RMB)
- UNIX 4.2 operating system
- Maximum of 42 voice ports (without networking), 4 ports standard
- Maximum of two digital networking boards (four ports each)
- 32 Mbytes of RAM
- Floppy drive, tape drive
- SCSI controller card
- Maximum of 360 hours of unmirrored voice storage, 5 hours standard
- Languages available: American English, British English, French Canadian, and Latin American Spanish

The MAP/100 is the maximum-capacity Lucent INTUITY system. It has been designed for the largest single location or multilocation customers.

- MAP/100 chassis with power supply and enhanced cooling
- Monitor and keyboard
- 50-MHz 486 CPU
- Two serial ports, one parallel printer port
- Remote maintenance board (RMB)
- Uninterruptable power supply

- UNIX 4.2 operating system
- Maximum of 64 voice ports, 8 ports standard
- Maximum of three digital networking boards (four ports each)
- 64 Mbytes of RAM
- Floppy drive, tape drive
- SCSI controller card
- Maximum of 1050 hours of unmirrored voice storage, 15 hours standard
- Languages available: American English, British English, French Canadian, and Latin American Spanish

Lucent INTUITY AUDIX Voice Messaging

The Lucent INTUITY R1 system offers a friendly, easy-to-use message handling system that allows you to record, distribute, and receive spoken messages.

INTUITY AUDIX Voice Messaging R2.0 subscribers can create a verbal message, address it, and then send it to other INTUITY AUDIX Voice Messaging subscribers on your local machine or networked Lucent INTUITY R1 systems or AUDIX R1 machines across the city, the country, or the globe.

INTUITY AUDIX Voice Messaging uses a high quality voice encoding algorithm called code-excited linear prediction (CELP). CELP captures the nuances and subtle inflections of the human voice, which is an integral part of person-to-person communication. You give instructions to INTUITY AUDIX Voice Messaging by pressing the keys on your touch-tone telephone, and the system “talks” you through each step of a task using detailed voice prompts.

Basic INTUITY AUDIX Voice Messaging Features

Basic INTUITY AUDIX Voice Messaging features are those most commonly used by subscribers. They are easy to use and require little training, administration, or maintenance.

- The Voice Mail feature enables you to send messages to other subscribers, listen to received messages, forward messages received with comments attached, and reply to messages.
- When you are unavailable to answer your telephone, INTUITY AUDIX Voice Messaging’s Call-Answer feature records messages.
- You can create personal greetings that INTUITY AUDIX Voice Messaging uses when answering your telephone.
- Callers who reach INTUITY AUDIX Voice Messaging can redirect their call to a live attendant at any time by pressing zero.

- You can create mailing lists made up of several INTUITY AUDIX Voice Messaging subscriber's addresses. This is a convenient way to send messages to many people who need the same information.
- With the Bulletin Board feature, you can create a general-interest message that callers from inside or outside the company can hear when they dial your bulletin board number. For example, you could post a schedule, update product or service information, broadcast current rates, or call attention to new regulations.

Advanced INTUITY AUDIX Voice Messaging Features

Advanced INTUITY AUDIX Voice Messaging features are more complex than basic features and, therefore, usually require a little more work to understand and implement. Note that these advanced features are part of the standard INTUITY AUDIX Voice Messaging feature package at no additional cost.

- The Automated Attendant feature offers you a way to customize the routing of outside calls to your company through a menu of choices.
- Outcalling lets INTUITY AUDIX Voice Messaging automatically place a call to you when you have messages waiting. You specify the outcalling telephone number. It may be an office, home, car, or pager number.
- The INTUITY AUDIX Voice Messaging feature package is provided with a set of standard speech announcements that you can customize to suit your business.
- When the INTUITY AUDIX system answers calls, subscribers can instruct the system to greet their callers with a personal messages, as an answering machine does. With the Multiple Personal Greetings feature, subscribers can record up to nine different personal greetings and have the system play a single greeting for all calls or play a specific greeting for different types of calls, for example, internal and external, busy and no answer, or out-of-hours.

INTUITY AUDIX Digital Networking is an optional feature package that provides the ability to exchange voice messages with users on other Lucent INTUITY and AUDIX R1 machines. The remote system may be collocated with or geographically distant from the local Lucent INTUITY system. INTUITY AUDIX Digital Networking uses the proprietary AUDIX digital protocol to exchange voice messages, subscriber profiles, and message status information with other machines. [Table A-2](#) provides networking configuration information.

Table A-2. INTUITY System Capacities

Component	MAP/40	MAP/100
Maximum number of voice messaging channels	<ul style="list-style-type: none"> ■ 42 without networking ■ 30 with networking (8 networking channels) 	<ul style="list-style-type: none"> ■ 64 without networking ■ 64 with networking
ACCX card	Optional; maximum of two	Optional; maximum of two
Maximum number of networking channels <ul style="list-style-type: none"> ■ DCP ■ RS-232 ■ Total (DCP and RS-232) 	<ul style="list-style-type: none"> ■ 8 ■ 4 ■ 8 	<ul style="list-style-type: none"> ■ 12 ■ 4 ■ 12
Modems	Optional	optional

Subscribers who want to send INTUITY AUDIX Digital Networking messages to recipients on administered remote systems can take advantage of the following features.

- **Address-By-Name.** Local subscribers can address INTUITY AUDIX Digital Networking messages using name addressing only for administered remote recipients. Administered refers to remote subscribers that have been entered in the local Lucent INTUITY system's database.
- **Mailing Lists.** Local subscribers can include remote recipients on any system administered for INTUITY AUDIX Digital Networking in their personal mailing lists. Administered remote recipients can be included by name or telephone number; nonadministered remote recipients can be included only by telephone number.
- **Name Voiceback.** Local subscribers hear the name of administered remote recipients they are addressing or looking up in a directory *only* if the system administrator has voiced-in the name of that remote recipient. Otherwise, they hear the remote mailbox ID.
- **Names-and-Numbers Directory.** Local subscribers can look up administered remote subscribers on systems administered for INTUITY AUDIX Digital Networking using the local system's names-and-numbers directory (* * (N)).

- Personal Directory. Local subscribers can assign aliases to any remote recipients on systems administered for INTUITY AUDIX Digital Networking. Administered remote recipients can be included by name or telephone number. Nonadministered remote recipients can be included only by telephone number.
- Reply to Sender. Local subscribers can respond to incoming INTUITY AUDIX Digital Networking messages using the Reply to Sender feature to supply automatic addressing. This feature works for all administered remote subscribers.

The INTUITY AUDIX Digital Networking feature package provides different types of network connections using Digital Communication Protocol (DCP) or Electronic Industries Association (EIA) RS-232 protocol. Data connections serve both local networking and remote networking, depending on your system configuration. The following list briefly describes the different types of network connections.

DCP mode 1	A connection using a data rate of 56 Kbps. To use DCP mode 1, the Lucent INTUITY system must connect to a digital switch with DCP capabilities such as System 75, System 85, or DEFINITY Communication Systems Generic 1, 2, or 3.
DCP mode 3	A connection using a data rate of 64 Kbps. To use DCP mode 3, the Lucent INTUITY system must connect to a digital switch with DCP capabilities such as System 75, System 85, or DEFINITY Communication Systems Generic 1, 2, or 3. Use DCP Mode 3 to create a stacked arrangement.
RS-232 high speed	A synchronous RS-232 connection using data rates of 56 Kbps and 64 Kbps. Use high-speed RS-232 to connect two or more machines directly and create a stacked arrangement when DCP facilities are not available.
RS-232 low speed	An asynchronous or synchronous RS-232 connection using data rates of 9.6 Kbps or 19.2 Kbps. Use low-speed RS-232 connections when DCP switch facilities are not available.

The type of data connection you use depends on the facilities at your site and how you plan to connect with remote sites. You do not have to use the same type of data connection for all networking channels. Each channel can have a different type of data connection.

For example, you may dedicate channel 1 for a local stacking arrangement. Channel 3 could be used as an RS-232 channel for connecting to a remote machine that does not have a digital switch with DCP capabilities.

The Lucent INTUITY system supports 12 networking channels. It allows combinations of DCP and RS-232 in two-channel increments through the ACCX card. Each ACCX card terminates four data channels in one of the following combinations:

- Two DCP ports, each providing two I-channels for data. Depending on the version of the switch you have, you may only be able to use one of the two I-channels of each DCP port as shown in the following list:
 - System 75 R1V3, DEFINITY G1 R1V4, and DEFINITY G3i, G3s, or G3vs Version 1 only support one I-channel per DCP port
 - DEFINITY G3i, G3s, and G3vs Version 2 can use both of the I-channels. The option must be purchased, installed, and administered on the switch before Lucent INTUITY system administration is performed. Contact your sales representative for more information on the I-channel option for the INTUITY AUDIX Digital Networking feature package.
- Four RS-232 ports
- One DCP port (two I-channels) and two RS-232 ports

The AMIS Analog Networking feature permits subscribers to exchange voice mail messages with voice messaging systems anywhere in the world, provided those systems also have AMIS Analog Networking capabilities. Messages can be exchanged with subscribers on Lucent INTUITY systems that have not been digitally networked. Messages also can be exchanged with users on remote voice messaging systems, with AMIS Analog Networking capabilities, made by vendors other than Lucent Technologies.

Message Delivery is an optional feature that permits subscribers to send recorded messages to any touch-tone telephone, anywhere in the world (including someone's home), as long as that telephone number is in the range of allowable numbers defined by the system administrator. This feature is an extension of the AMIS Analog Networking feature and is automatically available when the AMIS Analog Networking feature is activated. For more information on the Message Delivery feature, see AMIS Analog Networking, 585-310-512.

Both features are sold together in a single package. The AMIS Analog Networking and Message Delivery features must be activated by Lucent Technologies personnel before customers can implement them.

Lucent INTUITY Intro Voice Response

The Lucent INTUITY Intro Voice Response R1.0 feature package is a set of tools that allow you to automate telephone transactions in your business. Using recorded speech, applications created with the Lucent INTUITY Intro Voice Response feature package can respond to, request from, and return information to callers.

The Lucent INTUITY Intro Voice Response feature package allows the creation of unique applications that either fully or partially automate transactions with callers that would otherwise be performed by a person. These automated transactions are referred to as applications. You design and develop applications to meet

specific needs within your company. An application script is a set of instructions written for the Lucent INTUITY system on how to carry out the automated transaction. Scripts define the flow of the call and determine when a caller is prompted with a particular phrase.

Lucent INTUITY Intro provides introductory level voice response tools that allow customers to create voice response applications and scripts. The Lucent INTUITY Intro tools include the following.

- Lucent INTUITY Intro Voice Response applications are created by choosing commands from an easy-to-use menu-driven programming interface called Script Builder.
- Lucent INTUITY Intro Voice Response applications can retrieve information from and write information to local databases.
- Customized speech can be recorded and edited using a telephone.

**NOTE:**

Lucent INTUITY Intro Voice Response speech is encoded using the sub-band algorithm, not CELP.

- Custom professional speech can be purchased from Lucent Technologies. If you are interested, ask your sales representative.
- Once speech is recorded, it can be used by multiple applications with just a few administration steps.
- The Lucent INTUITY Intro Voice Response tools offer several reports, which aid in application troubleshooting and call data collection.
- Several Lucent INTUITY Intro Voice Response commands provide interfaces to the INTUITY AUDIX Voice Messaging feature package allowing, for example, access to mailboxes and subscriber data. The following is a brief description of those commands.
 - VM_Getmsg: The Voice Mail Get Message action step allows callers to retrieve a message from an INTUITY AUDIX subscriber's mailbox.
 - VM_Mail: Invoke Voice Mail action step terminates the current application and starts the INTUITY AUDIX Voice Messaging script for the caller.
 - VM_Sendmsg: Voice Mail Send Message action step allows callers to record a message using INTUITY AUDIX Voice Messaging and send it to a single subscriber or a predefined mailing list of subscribers.
 - VM_Subinfo: Voice Mail Subscriber Information action step allows you to obtain information about a particular INTUITY AUDIX Voice Messaging subscriber, such as extension, spoken name phrase, or spoken greeting phrase.

Administrative Interfaces

Local administration access to the Lucent INTUITY system is supported using its dedicated monitor and keyboard.

AUDIX Administration Screens

You administer most aspects of INTUITY AUDIX Voice Messaging using AUDIX administration screens. How to use these screens is described in the following sections.

Logins

Access to the Lucent INTUITY system can be accomplished through a number of logins. Each login provides varying levels of access to the features and capabilities of the system. This layered login approach limits access to particularly powerful features and helps when delegating system administrator responsibilities.

- The vm INTUITY AUDIX Voice Messaging login permits administration of the INTUITY AUDIX Voice Messaging feature package and access to some maintenance logs.
- The sa Lucent INTUITY system administrator login permits administration of all the Lucent INTUITY feature packages, including Lucent INTUITY Intro Voice Response, administration of system-wide features, and access to some maintenance logs.
- The craft Lucent services login permits administration of all the Lucent INTUITY feature packages, including Lucent INTUITY Intro Voice Response, administration of system-wide features, and access to all maintenance logs.

Voice Administration

Some Lucent INTUITY system administration tasks are performed using the telephone. These tasks include recording subscribers' names, networked machine names, and automated attendant menus.

The composition of specific announcements is also administrable. An announcement fragment is a recorded voice segment and an announcement is a set of rules for determining the specific fragments to be played. Announcement administration allows the administrator to manipulate and/or customize specific announcements. Announcements and their fragments are documented in detail in *Lucent INTUITY Announcement Customization* guides.

There is a separate announcement customization book for each language supported by INTUITY AUDIX Voice Messaging.

Help

Help is available at all levels in the Lucent INTUITY system. When at the computer or terminal, help is accessed by pressing the function key labeled HELP. When performing INTUITY AUDIX Voice Messaging administration tasks over the telephone, help is accessed by pressing  .

Multi-User Feature Package and Remote Access

The optional Multi-User feature package allows more than two people to simultaneously access the Lucent INTUITY system.

Local administration access to the Lucent INTUITY system is supported using its dedicated monitor and keyboard.

There are two types of remote access: customer and Lucent services. Lucent services remote access is accomplished through the asynchronous port and modem resident on the standard RMB. This makes the second communications port (COM2) unavailable. The customer can access the Lucent INTUITY system remotely through a terminal and modem to the first serial port on the CPU or to the multi-port serial card. Remote access capabilities are a standard Lucent INTUITY system feature.

NOTE:

Although local and remote access is available to the customer as part of the standard configuration, only one person (of customer status) may be logged in at a time, either locally or remotely but not both. The customer should not occupy two login sessions simultaneously. If two login sessions are active, the RMB can still send an alarm out to the remote service center. However, the remote service center will be unable to access the Lucent INTUITY system to correct the problem.

The optional Multi-User feature package allows more than two people to simultaneously access the Lucent INTUITY system. This package involves software and additional asynchronous RS-232 ports provided by a multi-port serial card.

With the Multi-User feature package, the Lucent INTUITY system can accommodate up to four simultaneous logins.

Additional Administration Tools

This section describes the AUDIX Administration and Data Acquisition Package (ADAP) and several other Lucent products that are available to enhance the Lucent INTUITY system administrative environment.

ADAP

The AUDIX Administration and Data Acquisition Package (ADAP) is a collection of software programs installed on a personal computer (PC). These programs allow INTUITY AUDIX Voice Messaging, DEFINITY AUDIX, and AUDIX customers to download traffic data, subscriber data, and other system data from the voice messaging database files to the PC for further processing.

ADAP for INTUITY AUDIX Voice Messaging uses a command line language interface for programmers. This command line language provides a set of commands that can be used to modify subscriber information directly in the voice messaging database and also to download selected raw data from the voice messaging database files to the PC for use in customer-developed applications.

The PC on which ADAP software resides is connected to the Lucent INTUITY system either directly to an RS-232 port (COM1 or the multi-port serial card) or using remote access capabilities (see "Multi-User Feature Package" in this chapter). You log in to the voice messaging system to access the database from your PC using an ADAP-supplied login command.

Except for database modification commands and the system attendant reports, ADAP does not work directly with *live* data in the voice messaging database. *Live* data is the information maintained by the voice messaging system and stored on the Lucent INTUITY system itself. In retrieving data, ADAP obtains copies of this data for possible storage on the PC. Changing the data stored on the PC this does not change the information stored on the voice messaging system. With the command-line language, you can send data directly to your PC, to a printer, or to a file for further processing.

Retrieved data can then be processed on the PC or ported to a mainframe for further processing.

**NOTE:**

To use ADAP, you may have to add some components to your standard configuration.

Logs

The Lucent INTUITY system uses a series of logs as the central collection point for information flowing from all of the Lucent INTUITY features and feature packages. Therefore, these logs provide a system-wide view of activities, errors, and alarms.

Messages in the logs can range in importance from informational to critical. The logs vary based on audience (who can access them) and information type. The Lucent INTUITY system uses four logs: Activity Log, Administrator's Log, Alarm Log, and Maintenance Log.

- **Activity Log.** A list of INTUITY AUDIX mailbox-related events (for example, log ins, message creation/receipt/deletion) are recorded in the activity log. This log is useful for responding to subscriber-reported problems. It is accessible to the vm, sa, craft logins.
- **Administrator's Log.** Informational messages which may require some action by the Lucent INTUITY system administrator are recorded in the administrator's log. These messages may simply log a successful nightly backup or they may alert the system administrator that the system is low on disk space. The administrator's log is accessible to the vm, sa, craft logins.
- **Alarm Log.** Lucent INTUITY system alarms signal a problem that either affects service or has the potential to do so. Major, minor, and warning alarms generated by the Lucent INTUITY system are recorded in the alarm log. A Lucent Technologies remote service center is notified of all major and minor alarms. The customer is responsible for resolving all warning alarms. The alarm log is accessible to the vm, sa, and craft.
- **Maintenance Log.** Error occurrences, error resolutions, and informational events which may help Lucent Technologies services troubleshoot an Lucent INTUITY alarm are recorded in the maintenance log. It is accessible to the craft login.

Alarming

The alarm log is the starting point for troubleshooting the system because its contents represents all of the significant problems the system has detected.

Errors found by the system are recorded in the maintenance log. The system attempts to diagnose and isolate problems that are recorded in the maintenance log and may send an alarm to the alarm log if the error cannot be corrected automatically.

The alarm log holds entries for active alarms and resolved alarms. Active alarms are the current problems in the system. Resolved alarms are alarms that have been corrected either automatically or through a repair procedure. When an active alarm is corrected, its status is changed from active to resolved.

Mirroring

Disk mirroring is an optional feature package available on the MAP/40 and MAP/100.

Security

Your Lucent INTUITY system is designed to be very secure. The following is a list of some of the Lucent INTUITY system's security features.

- Subscriber passwords. All INTUITY AUDIX Voice Messaging mailboxes are protected by passwords. The INTUITY AUDIX system offers password and password time-out mechanisms that can help restrict unauthorized users. Subscribers can have passwords up to 15 digits for maximum security, and you can specify the minimum length required.
- Limited login attempts. AUDIX callers are given three attempts in one call to correctly enter their mailbox before they are automatically disconnected. You can also specify how many consecutive invalid attempts are allowed before a voice mailbox is locked.
- Computer logins and passwords. Access to the Lucent INTUITY system can be accomplished through a number of logins. Each login has its own unique password and provides varying levels of access to the features and capabilities of the system. This layered login approach limits access to particularly powerful features and helps when delegating system administrator responsibilities.
- Enhanced call transfer. With Enhanced Call Transfer, the INTUITY AUDIX system uses a digital control link message to initiate the transfer and the switch verifies that the requested destination is a valid extension in the dial plan. The INTUITY AUDIX system verifies that the digits entered contain the same number of digits as administered on AUDIX for extension lengths. When callers request a name addressing transfer, the name must match the name of an INTUITY AUDIX subscriber (either local or remote) whose extension number is in the dial plan. Enhanced call transfer is available with Lucent Technologies DCIU switch integration only.
- Switch administration. The Lucent INTUITY documentation set includes detailed instructions on how to administer your switch to prevent toll fraud.
- Outcalling: When outcalling is used for INTUITY AUDIX subscribers who are off-site (often the message notification is forwarded to a call pager number), three options exist to minimize toll fraud:
 - The outcalling ports can be assigned to a toll-restricted COR that allows calling only within a local area.
 - The outcalling numbers can be entered into an unrestricted calling list for either ARS or Toll Analysis.
 - Outcalling numbers can be limited to 7 or 10 digits.
- Automatic backups. The Lucent INTUITY system nightly automatic backup contains all of the information necessary to bring the system back to working order should problems occur. Although, the unattended backup alone cannot completely restore the system to its previous state, it can bring the system back to an operational state.

Additional Maintenance Tools

This section discusses several other Lucent products that are available to enhance the Lucent INTUITY system maintenance environment.

Trouble Tracker

The Lucent INTUITY system has remote alarming capabilities described earlier in this section. The Lucent INTUITY system can remotely alarm to any place or device given a telephone number. The receiving end must simply understand the format in which the alarm information is sent. Most Lucent INTUITY system configurations will alarm to a remote service center. However, as an option, the Lucent INTUITY system can alarm to a Trouble Tracker system. Trouble Tracker is a Lucent Technologies product that uses databases to monitor a network. For more information on Trouble Tracker, see *Introduction to Trouble Tracker*, 585-225-021.

Security

B

Overview

This appendix describes ways customers can minimize the possibility of telecommunications toll fraud on the Lucent INTUITY R4 system.

Purpose

This chapter offers planning and administrative safeguards that make it harder for a criminal to penetrate a Lucent INTUITY R4 system. This appendix discusses options and administrative considerations to make your system as secure as possible. This appendix also lists some methods of detecting fraud and includes Lucent's Statement of Direction concerning the theft of customer services.

Introduction

There are several ways criminals might breach a customer's system:

- Unauthorized system use

An intruder accesses your system and creates a mailbox or uses AUDIX functionality.

- Unauthorized mailbox use

An intruder discovers how to access a particular mailbox, perhaps by:

- Finding the password
- Trying all the common variations of passwords
- Buying the password from a computer "hacker" who breached the UNIX interface and logged in as an administrator

- Unauthorized use of the Outcalling or AMIS ANalog Networking Call Delivery features

An intruder uses your system to send an AMIS message or a fax to a distant number.

- Fraudulent call transfer

An intruder makes use of the Transfer to Extension feature by transferring to the first few digits of a Trunk Access Code.

Unauthorized System Use

You can minimize the risk of unauthorized people gaining access to your system by complying with the following guidelines for your voice mail (vm) and AUDIX system administrator (sa) passwords, including the password aging feature.

Release 4 introduces the trusted server. The trusted server has direct access to AUDIX and its functionality. The same strict adherence to guidelines of trusted server passwords as with the vm and sa passwords is strongly recommended.

Administration Passwords

Your INTUITY AUDIX system comes equipped with administrative password features and options that you control to assist you in securing your system. These include:

- Change default administrator password
- Administrator password standards
- Administrator password aging

Change Default Administrator Password

When you first get your system, both the sa (system administrator) and vm (voice mail administrator) logins come with a default password. You are required to change this password immediately. See *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564, for procedures.

Administrator Password Standards

There are passwords must follow certain minimum standards to comply with the system's standards:

- Use 6–11 alphanumeric characters. The password must include at least 1 numeric and 2 alpha characters.



NOTE:

The system *does not allow* the password to be:

- A sequential alpha or numeric string, for example, 123456
- A repetitive string, such as bbbbbb
- The same number as the user's extension, for example, extension 34555 and password 34555

Additionally, the following are minimum standards for ensuring password security:

- Do not put the password on a programmable function key.
- Never use obvious or trivial passwords, such as a telephone extension, room number, employee identification number, social security number, or easily guessed numeric or letter combinations (for example, denver or audix).
- Do not post, share, print, or write down passwords.
- Change the password periodically at least once per month. You can administer your system to age the password and notify you that a new password is required. See *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564, for procedures.

Administration Password Aging

You can administer several parameters of the password aging feature to enhance the level of security the system maintains. Password aging ensures that administration passwords are changed at reasonable intervals. Use the Password Expiration feature for administrative logins to reduce the danger of unauthorized system access.

Some people may change a password when they must, but then shortly afterward change it back to the old familiar password. Administering the Minimum Age Before Changes feature makes it inconvenient for the user to do this.

Three new items were added to the Lucent INTUITY menu system to define the limits associated with password aging. They are listed below:

- Password expiration
- Minimum age before changes
- Expiration warning

These items can be located by selecting the Customer/Services Administration option from the main menu. The items and their operation are described in detail in *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Trusted Server Security

A trusted server is a computer or a software application in a domain outside of INTUITY AUDIX. A truster server uses its own login and password to launch a Lucent INTUITY Messaging Applications Programming Interface (IMAPI) LAN session and access AUDIX mailboxes. Examples of trusted servers include:

- Synchronizer software running on an e-mail server
- Enhanced List Application (ELA) software running as a server on the Lucent INTUITY

Trusted servers can access and manipulate an AUDIX message just as the AUDIX application can do. (See *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564, for in-depth discussions and definitions of trusted servers, domains, and integration of e-mail and other trusted server software with AUDIX.)

When securing a system that allows access from another domain, you must consider both internal and external security. External security involves administration to prevent access from an unauthorized source, such as a trusted server or trusted server administrator. Internal security focuses on preventing or recovering from damage if a breach occurs, for example, if a computer virus is transmitted in a message component such as an attached software file.

External Security for Trusted Servers

The trusted server is empowered to do everything to a user mailbox an AUDIX user can do. You must administer a password that the trusted server application uses to request a connection to the AUDIX server. Additionally, to prevent unauthorized access through IMAPI into your system from an external source such as a trusted server, you can administer an IMAPI password that the trusted

server must also use when connecting to AUDIX. This IMAPI password prevents an unauthorized source from starting an IMAPI session and is used as a secondary layer of security in addition to the required trusted server password.

While administration of the IMAPI password is optional, it is *strongly recommended*. If you choose to administer this password, it is further recommended that you change it on a regular basis, for example, monthly. (If you have your administrator's password set to age automatically, you could also use the system prompt telling you that your password must be changed as a reminder to change the IMAPI password.)

Two new trusted server screens have been added for Release 4, the Trusted-Server Profile and IMAPI-Password screens. Instructions for their administration are in *INTUITY Messaging Solutions Release 4 Administration, 585-310-564*.

Internal Security

INTUITY AUDIX R4 allows the transmission between domains of two new message components, text (e-mail) and binary (software) file attachments. Within the AUDIX system, Message Manager also supports these message components. With these new components come new security considerations, namely the inadvertent delivery of a computer virus be embedded in a file attachment. This can occur in *any* system that supports the delivery of binary files. While the AUDIX machine cannot be infected with viruses embedded in these software files, client machines can become infected when a user launches the application associated with the software file.

AUDIX does not perform any virus detection. The customer should carefully evaluate the security risks of file attachments and make provisions for virus detection software on PCs running an e-mail application or Message Manager. The customer's PC/LAN administrator is most likely experienced in the detection and prevention of the transmission of software viruses. This individual will also have minimum requirements that the AUDIX server and e-mail server must meet to be allowed on the company network, and should therefore be involved when planning for e-mail security.

At a minimum, advise system users to detach (*not* launch) file attachments and scan them for viruses before use.

Unauthorized Mailbox Use

One type of voice mail fraud occurs when a hacker takes over a mailbox and uses it to communicate with other hackers. This can be expensive if access is gained to the voice mail system via an 800 number. Typically a hacker hacks the mailbox password and changes both it and the greeting.

Mailbox Administration

- To block break-in attempts, administer your system so that the number of consecutive unsuccessful attempts to log in to a mailbox is low. Administer this on the System-Parameters Features screen.
- Deactivate unassigned mailboxes. When an employee leaves the company, remove the user profile and, if necessary, reassign the mailbox.
- Do not create mailboxes before they are needed.
- The INTUITY AUDIX system offers password length and password aging mechanisms that can help restrict unauthorized users. Users can have passwords up to 15 digits for maximum security, and you can specify the minimum length required. Use a minimum of five digits, and a length at least one digit greater than the extension number length.

User Mailbox Security

To minimize the risk of unauthorized people accessing AUDIX mailboxes and using them for toll fraud, comply with the following guidelines for AUDIX passwords.

- When password protection into voice mailboxes is offered, require the maximum number of digits allowed, or a minimum of five digits. The password length should be at least one digit longer than the extension length.
- Make sure users change the default password the first time they log in to the AUDIX system. This ensures that only the user has access to his or her mailbox, not someone else who enters a user's extension number, then enters [#]. (The use of only a [#] — indicating the lack of a password — is well-known by telephone hackers.) To ensure that your users change their passwords immediately, administer the default password to be fewer digits than the minimum password length.
- Administer Password Aging on the System Parameters Features screen. Password Aging requires users to change their password at a predefined interval. Password Aging enhances overall system security and helps protect against toll fraud by making the INTUITY AUDIX system less vulnerable to break-ins.
- Never allow a user's personal greeting to state that the called extension will accept third-party billed calls. This makes it possible for unauthorized individuals to charge calls to your company.
- Never use obvious or trivial passwords, such as a room number, employee identification number, social security number, or easily guessed numeric combinations. (In AUDIX Release 4, the system prohibits the use of sequential numbers such as 12345, repeated numbers such as 33333, and the user's extension number.)

B Security*Unauthorized Use of Outcalling/ AMIS Analog Networking Call Delivery*

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- Discourage the practice of writing down passwords, storing them, or sharing them with others. If a user must write down a password, advise the user to keep it in a secure place and never discard it while it is active.
- Never program passwords onto auto-dial buttons.
- If a user receives any strange AUDIX messages or reports that his or her personal greeting has been changed, or if for any other reason you suspect that your AUDIX facilities are being used by someone else, contact Lucent Network Corporate Security.

Unauthorized Use of Outcalling/ AMIS Analog Networking Call Delivery

The previous discussion concerned how to prevent someone from breaking into your system. This section discusses how to minimize the risk of someone who is in your system from making unauthorized calls. In this case, the unauthorized usage could be from an employee, or from someone who has breached your system security and gained access.

Outcalling Security (AUDIX Provisions)

When outcalling is enabled for users who are off-site (often the message notification is forwarded to a call pager number), three options exist to minimize toll fraud:

- The AUDIX voice ports can be assigned to a toll-restricted COR that allows calling only within a local area.
- The outcalling numbers can be entered into an unrestricted calling list for either ARS or Toll Analysis.
- Outcalling numbers can be limited to 7 or 10 digits.

On the Subscriber screen, turn off outcalling by using the proper COS for each user. On the System Parameters Outcalling form, limit the number of digits that can be dialed for outcalling.

⇒ NOTE:

If outcalling to a pager is allowed, additional digits may be required.

Restrict Outward Dialing (Switch Provisions)

The measures you can take to minimize the security risk of outcalling depend on how it is used. When outcalling is enabled only to alert on-premises users who do not have AUDIX message indicator lamps on their phones, you can assign an outward-restricted Class of Restrictions (COR) to the AUDIX voice ports.

- For G1, G3, and System 75:
 - Use **change cor** to display the Class of Restriction screen, and then create an outward-restricted COR by entering **outward** in the Calling Party Restriction field.
 - Assign the outward restricted COR to the voice ports.
- For G2 and System 85:
 - Use **P010 W3 F19** to assign outward restriction to the voice mail ports' Class of Service (COS).
- For the MERLIN LEGEND:
 - A voice port with outward restriction cannot make any outside calls unless an allowed number list is used for specific area codes and/or exchanges that can be called. Outward restriction prevents or limits outcalling, AMIS networking, and FAX call delivery.

Analog Networking Call Delivery

To increase security for AMIS analog networking, including the Message Delivery service and FAX call delivery, restrict the number ranges that may be used to address messages. Be sure to assign all the appropriate PBX outgoing call restrictions on the AUDIX voice ports. If your switch is a MERLIN LEGEND, also use an allowed number list.

Fax Call Delivery

There are no fax-specific security issues. However, since Lucent INTUITY Fax Messaging requires that Analog Networking be turned on, be sure that outgoing AUDIX voice ports have the appropriate PBX calling restrictions. Such restrictions are discussed below following [“Switch Administration”](#) and in [“Intuity AUDIX Administration”](#).

Fraudulent Transfers

Once thieves transfer to dial tone, they may dial a Trunk Access Code (TAC), Feature Access Code (FAC), or extension number. If the system is not properly secured, thieves can make fraudulent long distance calls or request a company employee to transfer them to a long distance number.

Fraudulent transfers can be minimized by administering features and options in AUDIX and on the switch.

INTUITY AUDIX Administration

To minimize the risk of unauthorized people using the INTUITY AUDIX system to make toll calls, you can administer the AUDIX system in any of the following ways.

Basic Call Transfer (5ESS, DMS-100, MERLIN LEGEND, and Non-Lucent Switches)

With Basic Call Transfer, after an AUDIX caller enters ***8**, the AUDIX system, the following occurs:

1. The AUDIX system verifies that the digits entered contain the same number of digits as administered on the AUDIX system for extension lengths.

If call transfers are restricted to users, the AUDIX system also verifies that the digits entered match the extension number for an administered user.

2. If Step 1 is successful, the AUDIX system performs a switch-hook flash, putting the caller on hold.

If step 1 is unsuccessful, the AUDIX system plays an error message and prompts the caller for another try.

3. The AUDIX system sends the digits to the switch.
4. The AUDIX system completes the transfer.

With Basic Call Transfer, a caller can dial any number, provided the number of digits matches the length of a valid extension. So, if an unauthorized caller dials an access code followed by the first digits of a long distance telephone number, such as 91809, the AUDIX system passes the numbers on to the switch. (This example shows a 5-digit plan.) The switch interprets the first digit (9) as an access code, and the following digits as the prefix digit and area code. The caller then enters the remaining digits of the telephone number to complete the call.

If call transfers are restricted to users, a caller cannot initiate a transfer to an off-premises destination unless the digits entered match an administered user's mailbox identifier (for example, 91809). To ensure the integrity of the "user" restriction, do not administer mailboxes that start with the same digits as a valid switch trunk access code.

Enhanced Call Transfer (System 75, System 85, G1, G2, G3)

With Enhanced Call Transfer, the AUDIX system uses a digital control link message to initiate the transfer, and the switch verifies that the requested destination is a valid station in the dial plan. With Enhanced Call Transfer, when AUDIX callers enter ***8** followed by digits (or ***2** for name addressing) and **#**, the following steps are performed:

1. The AUDIX system verifies that the digits entered contain the same number of digits as administered on the AUDIX system for extension lengths.

If call transfers are restricted to users, the AUDIX system also verifies that the digits entered match the extension number for an administered user.

 **NOTE:**

When callers request a name addressing transfer, the name must match the name of an AUDIX user (either local or remote) whose extension number is in the dial plan.

2. If Step 1 is successful, the AUDIX system sends a transfer control link message containing the digits to the switch.

If Step 1 is unsuccessful, the AUDIX system plays an error message to the caller and prompts for another try.

3. The switch verifies that the digits entered match a valid extension in the dial plan.

4. If Step 3 is successful, the switch completes the transfer, disconnects the AUDIX voice port, and sends a "successful transfer" control link message to the AUDIX system.

If Step 3 is unsuccessful, the switch leaves the AUDIX voice port connected to the call, and sends a "fail" control link message to the AUDIX system. The AUDIX system then plays an error message requesting another try.

Controlled Transfer out of AUDIX

Your INTUITY AUDIX system, like all voice messaging and automated attendant systems, is subject to unauthorized long distance call attempts (toll fraud). Most such attempts occur as a caller attempts to transfer out of the AUDIX system.

Call transfers out of AUDIX can be controlled by administration. This administrative control is designed to encompass all of the numbers to which a caller may transfer.

Allowed Numbers Menu

To transfer out of the INTUITY AUDIX system, the user presses , the digits of the extension to which he or she wants to transfer, and . If the pattern of the number dialed corresponds to a pattern the administrator has permitted on the Allowed Numbers menu, the INTUITY AUDIX system initiates the transfer. The switch then verifies that it is allowed to transfer to the requested destination.

Before you enable transfer out of the AUDIX system, you should have restricted such transfers as described in *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564. Within this menu system, you can specify extensions to which a caller may transfer.

Denied Numbers Menu

Callers may not transfer to extensions expressly denied on the Denied Numbers menu. You may want, for example, to forbid call transfer to extensions beginning with "9" if this number causes access to an outside line.

If a caller enters an extension that is an allowed transfer, the switch completes the transfer, disconnects the INTUITY AUDIX system, and sends a "disconnect — successful transfer" message to the system. If the number is *not* valid, the switch leaves the system connected to the caller and sends a "fail" message to the INTUITY AUDIX system. Then the system plays an error message to the caller and prompts for further activity.

Transfer Restriction — System-Parameters Features Screen

If you administer your system to allow transfers (that is, if you activate the Call Transfer option on the System-Parameters Features screen), the risk of toll fraud attempts can be minimized by setting the `Transfer Restriction` field on the System-Parameters Features screen to **subscribers** and administering allowed and denied numbers as described under "Controlling Call Transfers" in *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564. In this case, if the pattern of the number dialed corresponds to a pattern you have permitted on the Transfer Security menu system, and if the number is a valid extension number for an administered user (either local or remote), transfer will be permitted.

The `Transfer Restriction` field also can be set to `digits`. In this case, the destination telephone number must correspond to a pattern you have permitted and administered in the Transfer Security menu system and must have the same number of digits as extension numbers (in other words, mailbox identifiers) within the INTUITY AUDIX system. Since this option does not minimize toll fraud, it is administered only by Lucent Technologies and only as a special service to customers who want the *digits* option.

Restricting call transfers to administered users is the more secure of the two options. It virtually eliminates the fraudulent use of call transfer since the INTUITY AUDIX system can verify that the specified destination is an administered number. If digits are specified, on the other hand, the caller might find a way to access the switch and to use switch features and functions to complete fraudulent long distance calls.

CAUTION:

If you assign nonresident users (users with a mailbox but no telephone on the switch) to extension numbers that start with the same digit or digits as switch trunk access codes (such as 9), you must administer the restrictions using the Transfer Restrictions menu carefully.

Auto-Attendant Security

Auto-attendants are used by many companies to augment or replace a switchboard operator. When an auto-attendant answers, the caller is generally given several options. A typical greeting is: "Hello, you've reached XYZ Bank. Please press 1 for Auto Loans, 2 for Home Mortgages. If you know the number of the person you are calling, please enter that now."

In some switches, button 9 is used to access dial tone. In addition, when asked to enter an extension, the hacker enters 9180 or 9011. If the system is not properly configured, the auto-attendant passes the call back to the switch. The switch reacts to 9 as a request for a dial tone. The 180 becomes the first numbers of a 1-809 call to the Dominican Republic. The 011 is treated as the first digits of an international call. The hacker then enters the remaining digits of the telephone number and the call is completed at the expense of the owner of the switch. This scenario works the same way with a voice mail system.

Before you set up an auto-attendant, restrict transfer out of the AUDIX system as described under "Controlling Call Transfers" in *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Switch Administration

The measures you can take to minimize the security risk of owning a telecommunications system depend on how the telecommunications system is used and how any associated voice messaging or automated attendant system is used.

To minimize the risk of unauthorized persons using the voice messaging or automated attendant systems to make toll calls, administer the voice ports on your switch in any of the following ways.

Assign Low Facilities Restriction Level (FRL)

The switch treats all the switch ports used by voice mail systems as stations. Therefore, each voice mail port can be assigned a COR/COS with an FRL associated with the COR/COS. FRLs provide eight different levels of restrictions for Automatic Alternate Routing (AAR), Automatic Route Selection (ARS), or World Class Routing (WCR) calls. They are used in combination with calling permissions and routing patterns and/or preferences to determine where calls can be made. FRLs range from 0 to 7, with each number representing a different level of restriction (or no restrictions at all).

The FRL is used for the AAR/ARS/WCR feature to determine call access to an outgoing trunk group. Outgoing call routing is determined by a comparison of the FRLs in the AAR/ARS/WCR routing pattern to the FRL associated with the COR/COS of the call originator.

The higher the FRL number, the greater the calling privileges. For example, when voice mail ports are assigned to a COR with an FRL of 0, outside calls are disallowed. If that is too restrictive, the voice mail ports can be assigned to a COR with an FRL that is higher, yet low enough to limit calls to the calling area needed.

 **NOTE:**

Voice Messaging ports that are outward restricted via COR cannot use AAR/ARS/WCR trunks. Therefore, the FRL level does not matter since FRLs are not checked.

FRLs can be assigned to offer a range of calling areas. Choose the one that provides the most restricted calling area that is required. [Table B-1](#) provides suggested FRL values.

Table B-1. Suggested Values for FRLs

FRL ¹	Suggested Value
0	No outgoing (off-switch) calls permitted.
1	Allow local calls only; deny 0+ and 1-800 calls.
2	Allow local calls, 0+, and 1-800 calls.
3	Allow local calls plus calls on FX and WATS trunks.
4	Allow calls within the home NPA.
5	Allow calls to certain destinations within the continental U.S.
6	Allow calls throughout the continental U.S.
7	Allow international calling. Assign attendant console FRL 7. Be aware, however, if Extension Number Portability is used, the originating endpoint is assigned FRL 7.

1. FRLs 1 through 7 include the capabilities of the lower FRLs. For example, FRL 3 allows private network trunk calls and local calls in addition to FX and WATS trunk calls.

- To set FRLs on G1, G3 and System 75:
 - Use change cor for the voice mail ports (vs. subscribers) to display the Class of Restriction screen.
 - Enter the FRL number (0 through 7) in the FRL field. Assign the lowest FRL that will meet the outcalling requirements. The route patterns for restricted calling areas should have a higher FRL assigned to the trunk groups.

- Use change route-pattern to display the Route Pattern screen.
- Use a separate partition group for ARS on the outcalling ports and limit the numbers that can be called.

**NOTE:**

For G3, the Restricted Call List on the Toll Analysis Table can also be used to restrict calls to specified areas.

- To set FRLs on G2 and System 85:
 - Use **P010 W3 F23** to assign FRLs for use with AAR/ARS/WCR trunks. Assign higher FRLs to restricted patterns in **P309** than the FRL in the COS for the voice mail ports.
 - For G2.2, do not use **P314** to mark disallowed destinations with a higher FRL value. **P314 W1** assigns a Virtual Nodepoint Identifier (VNI) to the restricted dial string. **P317 W2** maps the VNI to the pattern, and **P317 W2** shows the pattern preference, with the FRL in field 4.
 - For earlier releases, use **P313** to enter disallowed destinations in the Unauthorized Call Control table.

Restrict Toll Areas

An alternate strategy to preventing calls is to allow outbound calls only to certain numbers. For G1 and System 75, you must specify both the area code and the office code of the allowable numbers. For G3, you can specify the area code or telephone number of calls you allow.

- For G1 and System 75:
 - Use **change ars fnpa xxx** to display the ARS Foreign Numbering Plan Area (FNPA) Table, where xxx is the NPA that will have some unrestricted exchanges.
 - Route the NPA to a Remote Home Numbering Plan Area (RHNPA) table (for example, **r1**).
 - Use **change rhnpa r1:xxx** to route unrestricted exchanges to a pattern choice with an FRL equal to or lower than the originating FRL of the voice mail ports.
 - If the unrestricted exchanges are in the Home NPA, and the Home NPA routes to **h** on the FNPA Table, use **change hnnpa xxx** to route unrestricted exchanges to a pattern with a low FRL.

**NOTE:**

If assigning a low FRL to a pattern preference conflicts with requirements for other callers, use ARS partitioning to establish separate FNPA/HNPA/RHNPA tables for the voice mail ports.

- For G2 and System 85:
 - Use **P311 W2** to establish six-digit translation tables for foreign NPAs, and assign up to 10 different routing designators to each foreign NPA (area code).
 - Use **P311 W3** to map restricted and unrestricted exchanges to different routing designators.
 - If the unrestricted toll exchanges are in the Home NPA, use **P311 W1** to map them to a routing designator.
 - If the Tenant Services feature is used, use **P314 W1** to map routing designators to patterns. If Tenant Services is not used, the pattern number will be the same as the routing designator number.
 - Use **P309 W3** to define the restricted and unrestricted patterns.
 - For G2.2:
 - Use **P314 W1** to assign a VNI to the unrestricted dial string. Map the VNI to a routing pattern in **P317 W2**, and assign a low FRL to the pattern in **P318 W1**. If you permit only certain numbers, consider using Network 3, which contains only those numbers.
 - For G3:
 - Use **change ars analysis** to display the ARS Analysis screen.
 - Enter the area codes or telephone numbers that you want to allow and assign an available routing pattern to each of them.
 - Use **change routing pattern** to give the pattern preference an FRL that is equal to or lower than the FRL of the voice mail ports.
-  **NOTE:**
For G3, the Unrestricted Call List (UCL) on the Toll Analysis Table can be used to allow calls to specified numbers through ARS/WCR. The COR for the voice mail ports should show “all-toll” restriction and access to at least one UCL.
- For MERLIN LEGEND:
 - A voice port with toll restriction cannot make toll calls, but it can still make local calls. Toll restriction may prevent or limit outcalling, AMIS networking and FAX call delivery. An allowed number list can be used for specific area codes and/or exchanges that can be called.

Block Subscriber Use of Trunk Access Codes (G2, System 85 Only)

Station-to-trunk restrictions can be assigned to disallow stations from dialing specific outside trunks. By implementing these restrictions, callers cannot transfer out of voice mail to an outside facility using Trunk Access Codes (TACs).

For G2 and System 85, if TACs are necessary for certain users to allow direct dial access to specific facilities such as tie trunks, use the Miscellaneous Trunk Restriction feature to deny access to others. For those stations and all trunk-originated calls, always use ARS/AAR/WCR for outside calling.



NOTE:

Allowing TAC access to tie trunks on your switch may give the caller access to the Trunk Verification feature on the next switch.

Create Restricted Number Lists (G1, G3, and System 75 Only)

The Toll Analysis screen allows you to specify the toll calls you want to assign to a restricted call list (for example, 900 numbers) or to an unrestricted call list (for example, an outcalling number to a call pager). Call lists can be specified for CO/FX/WATS, TAC, and ARS calls, but not for tie TAC or AAR calls.

Create Disallowed Number Lists (MERLIN LEGEND Only)

When a voice port is unrestricted, or has no toll restriction, a disallowed number list can be used to prevent calls to specific numbers or specific exchanges within all area codes. There can be a maximum of eight disallowed lists in the MERLIN LEGEND system with a maximum of 10 numbers on each list. Each voice port can be assigned any or all of the disallowed number lists.

See *Lucent INTUITY Integration with MERLIN LEGEND Communications System*, 585-310-231, for complete MERLIN LEGEND security information.

Create Allowed Number Lists (MERLIN LEGEND Only)

When a voice port is outward or toll restricted, an allowed number list can be used to allow calls to specific area codes and/or exchanges. When outcalling or AMIS networking is required, using outward or toll restriction in combination with an allowed number list limits the risk of unauthorized persons using the voice messaging or automated attendant systems to make toll calls because calls can only be made to the specified area codes and/or exchanges. There can be a maximum of eight allowed lists in the MERLIN LEGEND system with a maximum of 10 numbers on each list. Each voice port can be assigned any or all of the allowed number lists.

See *Lucent INTUITY Integration with MERLIN LEGEND Communications System*, 585-310-231, for complete MERLIN LEGEND security information.

Detecting Voice Mail Fraud

[Table B-2](#) shows the reports that help determine if your voice mail system is being used for fraudulent purposes.

Table B-2. Reports and Monitoring Techniques for the AUDIX System

Monitoring Technique	Switch
Call Detail Recording (or SMDR)	All
Traffic Measurements and Performance	All except the MERLIN LEGEND
Automatic Circuit Assurance	All except the MERLIN LEGEND
Busy Verification	All except the MERLIN LEGEND
Call Traffic Report	All except the MERLIN LEGEND
Trunk Group Report	G1, G3, and System 75 only
AUDIX Traffic Reports	All

Call Detail Recording (or SMDR)

With Call Detail Recording (CDR) activated for the incoming trunk groups, you can find out details about the calls made into your voice mail ports. This feature is known as Station Message Detail Recording (SMDR) on some switches including MERLIN LEGEND.

NOTE:

Lucent's optional Call Accounting System (CAS) may be installed on the Lucent INTUITY system, allowing you to create customized reports with your G1, G3, or MERLIN LEGEND CDR/SMDR data. The optional Lucent HackerTracker program works in conjunction with CAS Plus Version 3 to alert you to abnormal calling activities. Call 800 521-7872 for more information.

Most other call accounting packages discard valuable security information. If you are using a call accounting package, check to see if this information can be stored by making adjustments in the software. If it cannot be stored, be sure to check the raw data supplied by the CDR.

Review CDR for the following symptoms of voice messaging abuse:

- Short holding times on any trunk group where voice messaging is the originating endpoint or terminating endpoint
- Calls to international locations not normally used by your business
- Calls to suspicious destinations
- Numerous calls to the same number
- Undefined account codes

**NOTE:**

For G2 and System 85, since CDR only records the last extension on the call, internal toll abusers transfer unauthorized calls to another extension before they disconnect so the CDR does not track the originating station. If the transfer is to your voice messaging system, it could give a false indication that your voice messaging system is the source of the toll fraud.

- For G1, G3, and System 75:
 - Use **change system-parameters features** to display the Features-Related System Parameters screen.
 - Administer the appropriate format to collect the most information. The format depends on the capabilities of your CDR analyzing and recording device.
 - Use **change trunk-group** to display the Trunk Group screen.
 - Enter **y** in the *SMDR/CDR Reports* field.
- For G2:
 - Use **P275 W1 F14** to turn on the CDR for incoming calls.
 - Use **P101 W1 F8** to specify the trunk groups.

Call Traffic Report

This report provides hourly port usage data and counts the number of calls originated by each port. By tracking normal traffic patterns, you can respond quickly if an unusually high volume of calls begins to appear, especially after business hours or during weekends, which might indicate hacker activity.

For G1, G3, and System 75, traffic data reports are maintained for the last hour and the peak hour. For G2 and System 85, traffic data is available via Monitor I which can store the data and analyze it over specified periods.

Trunk Group Report

This report tracks call traffic on trunk groups at hourly intervals. Since trunk traffic is fairly predictable, you can easily establish over time what is normal usage for each trunk group. Use this report to watch for abnormal traffic patterns, such as unusually high off-hour loading.

SAT, Manager I, and G3-MT Reporting

Traffic reporting capabilities are built-in and are obtained through the System Administrator Tool (SAT), Manager I, and G3-MT terminals. These programs track and record the usage of hardware and software features. The measurements include peg counts (number of times ports are accessed) and call duration. Traffic measurements are maintained constantly and are available on demand. However, reports are not archived and should therefore be printed to monitor a history of traffic patterns.

- For G1, G3, and System 75:
 - To record traffic measurements:
 - Use **change trunk-group** to display the Trunk Group screen.
 - In the *Measured* field, enter **both** if you have a Basic Call Management System (BCMS) and a Call Management System (CMS), **internal** if you have only BCMS, or **external** if you have only CMS.
 - To review the traffic measurements, use **list measurements** followed by a measurement type (**trunk-groups**, **call-rate**, **call-summary**, or **outage-trunk**) and timeframe (**yesterday-peak**, **today-peak**, or **arrestor**).
 - To review performance, use **list performance** followed by a performance type (**summary** or **trunk-group**) and timeframe (**yesterday** or **today**).

ARS Measurement Selection

The ARS Measurement Selection can monitor up to 20 routing patterns (25 for G3) for traffic flow and usage.

- For G1, G3, and System 75:
 - Use **change ars meas-selection** to choose the routing patterns you want to track.
 - Use **list measurements route-pattern** followed by the timeframe (**yesterday**, **today**, or **last-hour**) to review the measurements.
- For G2:
 - Use Monitor I to perform the same function.

Automatic Circuit Assurance

This monitoring technique detects a number of short-holding-time calls or a single long-holding-time call which may indicate hacker activity. Long holding times on trunk-to-trunk calls can be a warning sign. The ACA feature allows you to set time limit thresholds defining what is considered a short holding time and a long holding time. When a violation occurs, a designated station is visually notified.

When an alarm occurs, determine if the call is still active. If toll fraud is suspected (for example, a long-holding-time alarm occurs on a trunk-to-trunk call), you may want to use the busy verification feature (see [“Busy Verification”](#) below) to monitor the call in progress.

- For G1, G3, and System 75:
 - Use **change system-parameters features** to display the Features-Related System Parameters screen.
 - Enter **y** in the Automatic Circuit Assurance (ACA) Enabled field.
 - Enter **local**, **primary**, or **remote** in the ACA Referral Calls field. If **primary** is selected, calls can be received from other switches. **Remote** applies if the PBX being administered is a DCS node, perhaps unattended, where ACA referral calls go to an extension or console at another DCS node.
 - Use **change trunk group** to display the Trunk Group screen.
 - Enter **y** in the ACA Assignment field.
 - Establish short holding times and long holding times. The defaults are 10 seconds (short holding time) and 1 hour (long holding time).
 - To review, use **list measurements aca**.
- For G2 and System 85:
 - Use **P285 W1 F5** and **P286 W1 F1** to enable ACA system wide.
 - Use **P120 W1** to set ACA call limits and number of calls thresholds.
 - Choose the appropriate option:
 - To send the alarms and/or reports to a designated maintenance facility, use **P497 W3**.
 - To send the alarms and/or reports to an attendant, use **P286 W1 F3**.

Busy Verification

When toll fraud is suspected, you can interrupt the call on a specified trunk group and monitor the call in progress. Callers will hear a long tone to indicate the call is being monitored.

- For G1, G3, and System 75:
 - Use **change station** to display the Station screen for the station that will be assigned the Busy Verification button.
 - In the `Feature Button Assignment` field, enter **verify**.
 - To activate the feature, press the **Verify** button and then enter the trunk access code and member number to be monitored.
- For G2 and System 85:
 - Administer a Busy Verification button on the attendant console.
 - To activate the feature, press the button and enter the trunk access code and the member number.

AUDIX Traffic Reports

The INTUITY AUDIX system tracks traffic data over various time spans. Reviewing these reports on a regular basis helps to establish traffic trends. If increased activity or unusual usage patterns occur, such as heavy call volume on ports assigned to outcalling, they can be investigated immediately. In addition, the AUDIX Administration and Data Acquisition Package (ADAP) uses a PC to provide extended storage and analysis capabilities for the traffic data. You can also use the AUDIX Administration Log and Activity Log to monitor usage and investigate possible break-in attempts. For more information on running and using reports, see *INTUITY Messaging Solutions Release 4 Administration*, 585-310-564.

Lucent's Statement of Direction

The telecommunications industry is faced with a significant and growing problem of theft of customer services. To aid in combating these crimes, Lucent intends to strengthen relationships with its customers and its support of law enforcement officials in apprehending and successfully prosecuting those responsible.

No telecommunications system can be entirely free from risk of unauthorized use. However, diligent attention to system management and to security can reduce that risk considerably. Often, a trade-off is required between reduced risk and ease of use and flexibility. Customers who use and administer their systems make this trade-off decision. They know best how to tailor the system to meet their unique needs and are therefore in the best position to protect the system

from unauthorized use. Because the customer has ultimate control over the configuration and use of Lucent services and products it purchases, the customer properly bears responsibility for fraudulent uses of those services and products.

To help customers use and manage their systems in light of the trade-off decisions they make and to ensure the greatest security possible, Lucent commits to the following:

- Lucent products and services will offer the widest range of options available in the industry to help customers secure their communications systems in ways consistent with their telecommunications needs.
- Lucent is committed to develop and offer services that, for a fee, reduce or eliminate customer liability for PBX toll fraud, provided the customer implements prescribed security requirements in its telecommunications systems.
- Lucent's product and service literature, marketing information and contractual documents will address, wherever practical, the security features of our offerings and their limitations, and the responsibility our customers have for preventing fraudulent use of their Lucent products and services.
- Lucent sales and service people will be the best informed in the industry on how to help customers manage their systems securely. In their continuing contacts with customers, they will provide the latest information on how to do that most effectively.
- Lucent will train its sales, installation and maintenance, and technical support people to focus customers on known toll fraud risks; to describe mechanisms that reduce those risks; to discuss the trade-offs between enhanced security and diminished ease of use and flexibility; and to ensure that customers understand their role in the decision-making process and their corresponding financial responsibility for fraudulent use of their telecommunications system.
- Lucent will provide education programs for customers and our own people to keep them apprised of emerging technologies, trends, and options in the area of telecommunications fraud.
- As new fraudulent schemes develop, we will promptly initiate ways to impede those schemes, share our learning with our customers, and work with law enforcement officials to identify and prosecute fraudulent users whenever possible.

We are committed to meeting and exceeding our customers' expectations, and to providing services and products that are easy to use and are of high value. This fundamental principle drives our renewed assault on the fraudulent use by third parties of our customers' communications services and products.

Lucent Security Offerings

Lucent has developed a variety of offerings to assist in maximizing the security of your system. These offerings include:

- Security Audit Service of your installed systems
- Fraud Intervention Service
- Individualized Learning Program, a self-paced text that uses diagrams of system administration screens to help customers design security into their systems. The program also includes a videotape and the *BCS Products Security Handbook*.
- Call Accounting package that calls you when preset types and thresholds of calls are established.
- Remote Port Security Device that makes it difficult for computer hackers to access the remote maintenance ports.
- Software that can identify the exact digits passed through the voice mail system.

For more information about these services, see the *BCS Product Security Handbook*, 555-025-600.

Lucent Toll Fraud Crisis Intervention

If you suspect you are being victimized by toll fraud or theft of service and need technical support or assistance, call one of the following numbers immediately.

DEFINITY/System 75/System 85 — Lucent BCS Technical Service Center (TSC)	800 242-2121
MERLIN LEGEND — Lucent BCS National Service Assistance Center (NSAC)	800 628-2888
Lucent Corporate Network Security	800 821-8235
AUDIX Help Line	800 562-8349
BCS Technical Service Center Toll Fraud Intervention Hotline	800-643-2353

NOTE:

These services are available 24 hours a day, 365 days a year. Consultation charges may apply.

Lucent Corporate Security

Whether or not immediate support is required, please report all toll fraud incidents perpetrated on Lucent services to Lucent Corporate Security. In addition to recording the incident, Lucent Corporate Security is available for consultation on product issues, investigation support, law enforcement, and education programs.

Glossary

5ESS Switch

A central office switch manufactured by Lucent 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).

ACD

See [automatic call distribution \(ACD\)](#).

activity menu

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

ADAP

See [administration and data acquisition package \(ADAP\)](#).

address

INTUITY AUDIX user identification, containing the user's extension and machine, that indicates where the system needs to deliver a message. An address may include several users 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 user, maintenance, or traffic data from an INTUITY AUDIX system to a personal computer (PC).

ADU

See [asynchronous data unit \(ADU\)](#).

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 \(ALT\)](#).

American wire gauge (AWG)

A standard measuring gauge for nonferrous conductors.

AMIS

See [Audio Messaging Interchange Specification \(AMIS\)](#).

AMIS prefix

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

ampere (amp)

The unit of measurement of electric current. One volt of potential across one ohm causes a current flow of one amp.

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 \(API\)](#).

application

A computer software program.

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.

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 users to exchange messages with any messaging system that also has AMIS Analog Networking capabilities. Messages can be exchanged with users on Lucent INTUITY systems as well as with users on remote messaging systems made by vendors other than Lucent.

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 \(AUDIX\)](#).

autodelete

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

automated attendant

A Lucent INTUITY system feature that allows users 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 users and users to the system. See also [call-distribution group](#).

automatic message scan

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

autoscan

See [automatic message scan](#).

AWG

See [American wire gauge \(AWG\)](#).

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.

baud

A unit of measurement that describes the speed of transferred information.

baud rate

Transmission signaling speed.

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 *basic rate access*.

binary digit (bit)

Two-number notation that uses the digits 0 and 1. Low-order bits are on the right (for example, 0001=1, 0010=2, and so forth). Four bits make a nybble; eight bits make a byte.

binary synchronous communications (BSC)

A character-oriented synchronous link protocol.

BIOS

See [basic input/output system \(BIOS\)](#).

bit

See [binary digit \(bit\)](#).

bits per second

The number of binary units of information (1s or 0s) that can be transmitted per second. *Mbps* refers to a million bits per second; *Kbps* refers to a thousand bits per second.

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.

bps

See [bits per second](#).

BRI

See [basic rate interface \(BRI\)](#).

broadcast messaging

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

BSC

See [binary synchronous communications \(BSC\)](#).

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 may be busied out if they appear faulty or when maintenance tests are run.

byte

A unit of storage in the computer. On many systems, a byte is 8 bits (binary digits), the equivalent of one character of text.

C

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 user is unavailable. Callers can be redirected to the system through the call coverage or call forwarding switch features. INTUITY AUDIX users can record a personal greeting for these callers.

call-answer language choice

The capability of user 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 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 may be placed at the end of a coverage path to handle redirected calls through call coverage, send all calls, go to cover, etc.

call delivery

See *message delivery*.

call-distribution group

The set of analog port cards on the switch that connects switch users 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 \(ACD\)](#) and [uniform call distribution \(UCD\)](#).

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 accounting system \(CAS\)](#).

CED tone

See [called tone \(CED tone\)](#).

CELP

See [code excited linear prediction \(CELP\)](#).

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.

CICS

See [Customer Information Control Center](#).

class of service (COS)

The standard set of INTUITY AUDIX features given to users when they are first administered (set up with a voice mailbox).

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 example a user's PC running Message Manager is the client. See also [server](#).

CMS

See [call management system \(CMS\)](#).

CNG tone

See [calling tone \(CNG tone\)](#).

CO

See [central office \(CO\)](#).

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. Each comcode is a nine-digit number that represents a specific piece of hardware, software, or documentation.

command

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

community

A group of telephone users 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 \(COS\)](#).

coverage path

The sequence of alternate destinations to which a call to a user on a Lucent INTUITY system is automatically sent when it is not answered by the user. 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 \(CPU\)](#).

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 \(CSI\)](#).

CTS

See [clear to send \(CTS\)](#).

Customer Information Control Center

D

DAC

See [dial access code \(DAC\)](#).

data base

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 base processor (DBP)

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 Intuity system connections. The 2600 or 2700 series may also be used; these support diagnostic testing and the DATAPHONE 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.

data terminal ready (DTR)

A control signal sent from the data terminal equipment (DTE) to the data communications equipment (DCE) that indicates the DTE is on and ready to communicate.

DBP

See [data base processor \(DBP\)](#).

DCE

See [data communications equipment \(DCE\)](#).

DCIU

See [data communications interface unit \(DCIU\)](#).

DCP

See [digital communications protocol \(DCP\)](#).

DCS

See [distributed communications system \(DCS\)](#).

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 users 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 users defined on that system.

default print number

The user-administered extension to which autoprinted faxes are redirected upon their receipt into the user's mailbox. This default print destination is also provided as a print option when the user 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 access code (DAC)**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 \(DID\)](#).

digital

Discrete data or signals such as 0 and 1, as opposed to analog continuous signals.

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 \(DIP\) 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 user'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 \(DMA\)](#).

DNIS

See [dialed number identification service \(*DNIS_SVC\)](#).

domain

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

DSP

See [digital signal processor \(DSP\)](#).

DSU

See [data service unit \(DSU\)](#).

DTE

See [data terminal equipment \(DTE\)](#).

DTMF

See [dual tone multifrequency \(DTMF\)](#).

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 users 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 user 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*.

electrostatic discharge (ESD)

Discharge of a static charge on a surface or body through a conductive path to ground. ESD can be damaging to integrated circuits.

electronic mail

See [e-mail](#).

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 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 serial data interface

A software- 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 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 user who encounters a problem trying to respond to a message. To escape, the user presses [#].

escape to attendant

An INTUITY AUDIX feature that allows users 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 \(ESD\)](#).

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**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 endpoint 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 user 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 \(FIFO\)](#).

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 \(F key\)](#).

FOOS

See [facility out-of-service \(FOOS\)](#).

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.

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.

G**Generic 1, 2, or 3**

Lucent switch system software releases, designed for serving large communities of System 75 and System 85 users.

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 \(GOS\)](#).

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 users to leave messages on the system by dialing a user's extension and entering a system-wide guest password.

H

hard disk drive

A high-capacity data storage/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](#).

hertz (Hz)

A measurement of frequency in cycles per second. A hertz is 1 cycle per second.

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.

Hz

See [hertz \(Hz\)](#).

I

I/O

Input/output.

IDI

See [isolating data interface \(IDI\)](#).

IMAPI

See [Lucent INTUITY messaging application programming interface \(IMAPI\)](#).

INADS

See [initialization and administration system \(INADS\)](#).

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 users on the same AUDIX system, or to administered remote AUDIX systems and users. Users 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 users. See also [digital networking](#).

INTUITY Message Manager

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

Lucent INTUITY messaging application programming interface (IMAPI)

A software function-call interface that allows INTUITY AUDIX to interact with INTUITY Message Manager.

I/O address

input/output address.

IRQ

See [interrupt request \(IRQ\)](#).

ISDN

See [integrated services digital network \(ISDN\)](#).

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**Kbps**

Kilobits per second; one thousand bits per second.

Kbyte

Kilobytes per second; 1024 thousand bytes per second.

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 \(LAN\)](#).

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 \(LCD\)](#).

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 \(LED\)](#).

LIFO

See [last-in/first-out \(LIFO\)](#).

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 INTUITY Message Manager requires that the INTUITY AUDIX system and the users' PCs be on a LAN.

local AUDIX machine

The Lucent INTUITY system where a user's INTUITY AUDIX mailbox is located. All users on this home machine are called *local users*.

local installation

A switch, adjunct, or peripheral 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 user 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 users to create a mail message that is automatically played to all INTUITY AUDIX users 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 \(LWC\)](#).

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 user for creating and storing outgoing and incoming messages.

mailing list

A group of user addresses assigned a list ID# and public or private status. A mailing list may be used to simplify the sending of messages to several users.

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 \(MANOOS\)](#).

manually out-of-service (MANOOS)

State of operation during which a unit has been intentionally taken out of service.

MAP

See [multi-application platform \(MAP\)](#).

mean time between failures (MTBF)

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.

megabyte

A unit of memory equal to 1,048,576 bytes (1024 x 1024). It is often rounded to 1 million.

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. Users 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 users' 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 users 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 users 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 \(MWI\)](#).

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.

mode code

A string of touch-tones from a MERLIN LEGEND switch. 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-versa.

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 may 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 \(MPDM\)](#).

MTBF

See [mean time between failures \(MTBF\)](#).

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 users can hear prompts in the language of their choice.

MWI

See [message-waiting indicator \(MWI\)](#).

MWL

See [message waiting lamp \(MWL\)](#).

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 user's mailbox is full.

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 \(OS\)](#).

OSI

See [open systems interconnection \(OSI\)](#).

outcalling

A Lucent INTUITY system feature that allows the system to dial users' numbers to inform them they have new messages.

outgoing mailbox

A storage area on the Lucent INTUITY system where users 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 user 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 user's AUDIX password or the administrator's system password expires. The user or administrator must then change the password.

PBX

See [private branch exchange \(PBX\)](#).

PC

See [power converter](#).

PDM (processor data module)

See [modular processor data module \(MPDM\)](#).

PEC

See [price element code \(PEC\)](#).

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 user to create a private list of customized names.

personal fax extension

See [secondary extension](#).

pinouts

The signal description per pin number for a particular connector.

PMS

See [property management system \(PMS\)](#).

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.

power converter

POST

See [power on self test \(POST\)](#).

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.

price element code (PEC)**priority call answer**

An INTUITY AUDIX feature that allows users 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 users 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 user who owns it can access.

private messaging

A feature of INTUITY AUDIX that allows a user 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 \(F key\)](#).

property management system (PMS)**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 user can use if that user 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 tones. This device allows callers to use rotary telephones to access options in a Lucent INTUITY user's mailbox or in an automated attendant.

R

RAM

See [random access memory \(RAM\)](#).

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 communications (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 users

INTUITY AUDIX users whose mailboxes reside on a remote INTUITY AUDIX Digital Networking machine.

REN

See [ringer equivalence number \(REN\)](#).

reply loop escape

An INTUITY AUDIX feature that allows a user the option of continuing to respond to a message after trying to reply to a nonuser message.

reply to sender

An INTUITY AUDIX feature that allows users 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 users 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 users 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 user'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 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 \(ROM\)](#).

RS-232

See [EIA interface](#).

RTS

See [request to send \(RTS\)](#).

S**SCA**

See [switch communications adapter \(SCA\)](#).

scan

To automatically play mail messages, headers, or both.

scheduled delivery time

A time and/or date that an INTUITY AUDIX user 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 user input in the form of a command from the `enter` command: prompt.

SCSI

See [small computer systems interface \(SCSI\)](#).

secondary extension

A second, fax-dedicated extension that directs incoming faxes directly into a user'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 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 \(SID\)](#).

SIMM

See [single in-line memory module \(SIMM\)](#).

simplified message service interface (SMSI)

Type of data link connection to an integrated 1A ESS or 5ESS switch in the Lucent INTUITY system.

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.

SMSI

See [simplified message service interface \(SMSI\)](#).

subscriber

A Lucent INTUITY user 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

See [switch integration](#).

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 communications adapter (SCA)**switch hook**

The device at the top of most telephones which 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 users. 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 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 \(TCP/IP\)*](#).

TDD

See [*telecommunications device for the deaf \(TDD\)*](#).

TDM

See [*time division multiplexing \(TDM\)*](#).

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 user 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 sounds.

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 users.

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 user and is empowered to do everything to a user message that INTUITY AUDIX can do.

U**UCD**

See [uniform call distribution \(UCD\)](#).

Undelete

An INTUITY AUDIX feature that allows users to restore the last message deleted by pressing * U.

undelivered message

A message that has not yet been sent to an INTUITY AUDIX user'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.

uniform call distribution (UCD)

The type of call-distribution group (or hunt group) of analog port cards on some switches that connects users 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 user 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 \(UPS\)](#).

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 users 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 INTUITY Message Manager.

user population

A combination of different types of users on which Lucent INTUITY configuration guidelines are based.

V**vector**

A customized program in the switch for processing incoming calls.

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 users.

voicing

1. Speaking a message into the Lucent INTUITY system during recording. 2. Having the system play back a message or prompt to a user.

volt

The unit of electromotive force required to produce a current of 1 ampere through a resistance of 1 ohm.

W**WAN**

See [wide area network \(WAN\)](#).

watt

The unit of electrical power required to maintain a current of 1 amp under the pressure of 1 volt.

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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