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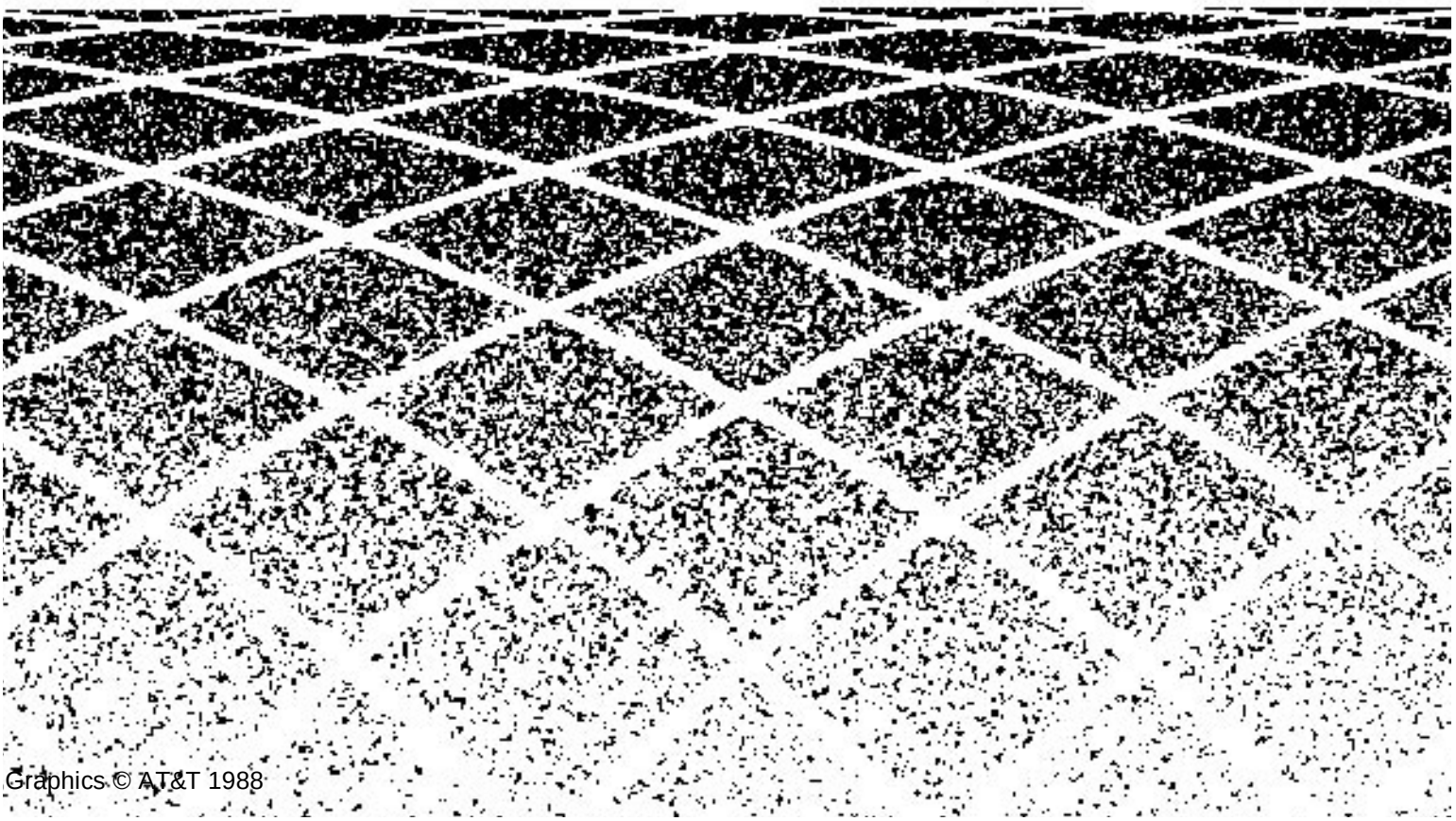
INTUITY Lodging Property Management System Specifications



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About This Book

This book provides information about AT&T Intuity™ Lodging and its integration with resident property management systems (PMSs).

Intended Audiences

This book is intended for AT&T Intuity Lodging system administrators and property management system vendors.

How This Book Is Organized

- Chapter 1, "Overview Of AT&T Intuity Lodging Integration with PMS Systems," presents an overview of attendant tasks in the integrated Property Management System AT&T Intuity Lodging environment.
- Chapter 2, "Internal Configuration," provides an introduction to the transparent mode link level protocol and its hardware link.
- Chapter 3, "Message Format," provides the various message format structures.
- Chapter 4, "Message and Process Codes," explains the messages and the process codes that are communicated over the AT&T Intuity Lodging/PMS interface.
- Chapter 5, "Database Synchronization," explains the basic features and procedures to synchronize the PMS and AT&T Intuity Lodging.
- Chapter 6, "Error Reporting," defines protocol errors, syntax errors, and invalid operation errors.
- Appendix A, "Feature Message Set Summary," provides a list of feature messages.

- Appendix B, "Message Data Ordering," explains the methods of transmitting data.

A list of abbreviations, a glossary and an index are included in this book following the appendices.

Related Resources

In addition to this book, you may need to reference the following documents:

Document	Document Number	Issue
INTUITY™ Release 3.0 System Description	585-310-232	1 or later
INTUITY™ Documentation Guide	585-310-540	2 or later
INTUITY™ New System Planning for Release 3.0	585-310-605	2 or later
INTUITY™ Release 3.0 Planning for Upgrades	585-310-653	1 or later
INTUITY™ Release 3.0 Planning for Migrations	585-310-652	1 or later
INTUITY™ Installation Checklist	585-310-161	2 or later
INTUITY™ MAP/5 Hardware Installation	585-310-146	2 or later
INTUITY™ MAP/40 Hardware Installation	585-310-138	2 or later
INTUITY™ MAP/100 Hardware Installation	585-310-139	2 or later
INTUITY™ Software Installation for Release 3.0	585-310-160	2 or later
INTUITY™ Release 3.0 Upgrade Procedures	585-310-164	2 or later
INTUITY™ Release 3.0 Migration Procedures	585-310-233	2 or later
INTUITY™ Platform Administration and Maintenance for Release 3.0	585-310-557	2 or later
INTUITY™ AUDIX® Release 3.3 Administration and Feature Operations	585-310-552	3 or later
INTUITY™ FAX Messaging Administration and Addenda	585-310-558	1 or later
INTUITY™ AUDIX® Digital Networking Administration	585-310-533	2 or later
AMIS Analog Networking	585-300-512	6 or later
INTUITY™ Lodging Administration and Feature Operations	585-310-559	1 or later

INTUITY™ Lodging Property Management System Specifications	585-310-234	1 or later
INTUITY™ Call Accounting System User Guide	585-310-728	1 or later
INTUITY™ Call Accounting System Quick Reference	585-310-729	1 or later
INTUITY™ Intro Voice Response and Addenda	585-310-716	1 or later
INTUITY™ Message Manager Release 2.0 User's Guide	585-310-731	1 or later
AUDIX® Administration and Data Acquisition Package	585-310-502	4 or later
INTUITY™ Integration with System 75 and DEFINITY® Communications System Generic 1 and Generic 3	585-310-214	4 or later
INTUITY™ Integration with System 85 and DEFINITY® Communications System Generic 2	585-310-215	2 or later
INTUITY™ Integration with MERLIN LEGEND® Communications System	585-310-231	2 or later
INTUITY™ Integration with the 5ESS® Switch	585-310-219	2 or later
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INTUITY™ Integration with Mitel™ SX-200® DIGITAL, SX-100®, and SX-200®	585-310-222	2 or later
INTUITY™ Integration with NEC® NEAX™	585-310-216	2 or later
INTUITY™ Integration with ROLM™ 8000, 9000, 9571	585-310-220	2 or later
INTUITY™ Lodging Artwork Package	585-310-739	1 or later
Voice Messaging Quick Reference	585-300-702	3 or later
A Portable Guide to Voice Messaging	585-300-701	3 or later
INTUITY™ Voice/FAX Messaging Quick Reference	585-310-734	1 or later
INTUITY™ Voice/FAX User Guide	585-310-733	1 or later
Multiple Personal Greetings Quick Reference	585-300-705	5 or later
Voice Messaging Wallet Card	585-304-704	2 or later
Voice Messaging Outcalling Quick Reference	585-300-706	1 or later
Voice Messaging Business Card Stickers	585-304-705	2 or later

INTUITY™ AUDIX® R3.3 Voice Messaging Subscriber Artwork Package	585-310-735	1 or later
INTUITY™ AUDIX® R3.3 Voice/Fax Messaging Quick Reference–Canadian French	585-310-734FRC	1 or later
INTUITY™ AUDIX® R3.3 Voice/Fax Messaging Quick Reference–British English	585-310-734ENB	1 or later
INTUITY™ AUDIX R3.3® Voice/Fax Messaging Quick Reference–Latin Spanish	585-310-734SPL	1 or later
INTUITY™ AUDIX R3.3® Voice/Fax Messaging Quick Reference–Greek	585-310-734GK	1 or later
INTUITY™ AUDIX R3.3® Voice/Fax Messaging Quick Reference–Mandarin	585-310-734CHM	1 or later
INTUITY™ AUDIX R3.3® Voice Messaging Subscriber Artwork Package British English	585-310-739ENB	1 or later
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INTUITY™ AUDIX® R3.3 Voice Messaging Subscriber Artwork Package Japanese	585-310-739JA	1 or later
INTUITY™ AUDIX® R3.3 Voice Messaging Subscriber Artwork Package U.S. English (A4 Sizing)	585-310-739A4	1 or later

Trademarks and Service Marks

The following trademarked products are mentioned in the books in the INTUITY library:

- AT™ is a trademark of Hayes Microcomputer Products, Inc.
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Overview Of AT&T Intuity Lodging Integration with PMS Systems

1

This chapter presents an overview of attendant tasks in the integrated Property Management System (PMS) AT&T Intuity Lodging environment, functionality in the integrated environment, and other features.

Administration in the Integrated Environment

The purpose of the interface between AT&T Intuity Lodging and the Property Management System (PMS) interface is to perform guest mailbox administration using a common set of messages and commands between the PMS and AT&T Intuity Lodging.

The AT&T Intuity Lodging/PMS interface allows the hotel to maintain mailboxes for its guests on AT&T Intuity Lodging using the PMS screens. This eliminates the need for the hotel attendants to go from the PMS terminal to the AT&T Intuity Lodging console to do the same administrative tasks during checkin and checkout.

Because AT&T Intuity Lodging/PMS Integration Software (IS) performs several internal procedures from the PMS to the AT&T Intuity Lodging database, attendants performing the following tasks enter the information only on the PMS terminal:

- Check in a guest mailbox
- Modify a guest mailbox
- Check out a guest mailbox
- Delete an extension from a database
- Display a mailbox

- Purge an old mailbox
- Activate an old mailbox
- Transfer a mailbox
- Swap mailboxes
- Add or remove text and fax notification
- Display a suite
- Create or modify a suite
- Delete a suite

NOTE:
The Message Waiting Indicator (MWI) notification is the only internal procedure initiated from AT&T Intuity Lodging to the PMS database.

Functionality in the Integrated Environment

The integration of AT&T Intuity Lodging with a PMS changes the functionality of the system in other ways that the AT&T Intuity Lodging system administrator should also note:

- Automatic database synchronization. Using the automatic database synchronization procedure, the PMS creates the complete guest database on AT&T Intuity Lodging when the PMS and AT&T Intuity Lodging are first linked. This saves attendants a significant amount of data entry work.
- Manual database update. A complete database update can be initiated manually at any time by the AT&T Intuity Lodging system manager or the attendants from the Command Menu screen.
- Mailbox administration using AT&T Intuity Lodging screens. The AT&T Intuity Lodging system manager is still able to complete all guest mailbox administration using the AT&T Intuity Lodging screens if the PMS link is down. Mailbox administration using AT&T Intuity Lodging screens is also useful if the PMS and AT&T Intuity Lodging databases do not synchronize automatically. This feature allows the manual resolution of database discrepancies if the PMS was unsuccessful in its attempts.
- Automatic message waiting indicator (MWI) update. When the PMS link is established, the MWI refresh mechanism brings the MWI up to date.
- Automatic transfer to the attendant. AT&T Intuity Lodging can be set up to automatically transfer the guest caller to the attendant when the PMS link is down. Even if the PMS link is down, guests can still retrieve messages. Also, attendants can take down text messages, turn the MWI on and off manually, and use the AT&T Intuity Lodging screens to notify the guest of text or fax messages.

Features

The AT&T Intuity Lodging/PMS Integration Software contains several features. However, develop only those features specifically requested by the customer.

- A language code and 7 reserved bytes section in the message packet and returned message packet. The language code feature allows the hotel attendant to enter the guest's choice of language for message retrieval. All prompts are then spoken in the guest's native or chosen language. The attendant can also modify the language code for a mailbox. See sections titled *The Check-in Message (50)* and *The Modify Message (51)* in Chapter 4, "Message and Process Codes," for further information.
- Additional information about which software version of AT&T Intuity Lodging is being used is provided in the status inquiry "heartbeat" message that the PMS sends to the AT&T Intuity Lodging system periodically. See the section titled *The Link Status Inquiry Management Message (60)* in Chapter 4, "Message and Process Codes," for further information.
- If a guest does not choose a password for his or her mailbox during checkin, the guest name is used for comparison during database synchronization. See the section titled *Forced Check-In Messages* in Chapter 5, "Database Synchronization," for further information.
- Display Group List. This feature allows you to display an existing group list that is saved in the system.
- Create/Modify Group List. This feature allows you to create a new group list and/or modify an existing group list.
- Delete Group List. This feature allows you to delete a group list that is no longer needed or was incorrect.

PMS Demarcation

PMS software that interacts with the AT&T Intuity Lodging system and resides on the PMS computer is developed and marketed by vendors other than AT&T. AT&T does not certify, troubleshoot, or warrant the operation of any PMS system or any PMS to AT&T Intuity Lodging application integration. The point of demarcation between the AT&T Intuity system and the Property Management System is the serial port into which the PMS link connects, or if an adapter directly connects to the AT&T Intuity system serial port to provide a 25-pin termination it was purchased from AT&T, the adapter is the demarcation point. The customer is responsible for providing the cable from the PMS to the INTUITY system demarcation point and any hardware such as a null modem that may be needed to connect the cable into the INTUITY serial port for the DTE to DTE connection. Any hardware or software located on the other side of the adapter from the INTUITY system is the responsibility of the customer. Installation

services will attach the cable to the serial port or the 25-pin connector during installation.

The customer is responsible for the cable from the PMS to the AT&T Intuity system demarcation point and any hardware such as adapters or null modems that may be needed to connect the cable into the AT&T Intuity serial port for the DTE to DTE connection. Any hardware or software located on the other side of the adapter from the AT&T Intuity system is the responsibility of the customer.

All PMS interfaces must conform to the protocol detailed in *Intuity Lodging Property Management Systems Specifications*, 585-310-234. Protocol that does not conform to these specifications will not operate with the AT&T Intuity system. For this release, AT&T has added a PMS communications log. This log records all transactions between AT&T Intuity Lodging and the PMS, records errors in communications, and allows vendors and customers to monitor or to test the PMS to AT&T Intuity interface.

In general, any PMS interface that operated with AUDIX Voice Power Lodging Release 1.0, 1.1, or 3.0 system will interface with the Intuity Lodging Release 1.0 application. However, many PMSs have undergone revision and re-release so that different versions of these programs exist. Early versions may not contain the necessary parameters to select optional guest languages to short-term subscribers. Customers should refer all questions about PMS operations, release numbers, and integrations to their PMS vendors.

If you have a PMS-AT&T Intuity Lodging interface and your system experiences operational difficulties, the AT&T Remote Support Center will attempt to isolate the trouble to the demarcation point. If the trouble is believed to be beyond the demarcation point, the remote support center will advise you to use the *Intuity Lodging Property Management Systems Specifications*, 585-310-234, book and contact your PMS vendor or in-house developer.

Because AT&T does not certify, warrant, or troubleshoot any PMS interface, AT&T is unable to recommend any particular PMS vendor. The following list of vendors are companies known to have a working, certified PMS interface to AUDIX Voice Power Lodging systems:

- ITC
- HIS
- APTECH
- CLS
- Rollin
- Encore
- Audetel
- Fidelio
- Precision Data Systems

- Lodging Systems

Customer personnel training in PMS administration for the AT&T Intuity Lodging application and any training related to the specific PMS product is the responsibility of the PMS vendor.

The PMS vendor is also responsible for providing all desired settings for the AT&T Intuity Lodging application's Property Management System Parameter Administration screen prior to the installation of the application. AT&T will administer these parameters on the system as a part of the standard installation, attach the PMS cable to the AT&T Intuity system, and check the system for the start of database synchronization. AT&T will neither troubleshoot nor adjust these settings as a part of troubleshooting to facilitate the operation of the PMS to AT&T Intuity Lodging application interface.

AT&T requires Joint Acceptance Testing (JAT) for the installation of the PMS interface. JAT policy requires that the customer arrange to have the in-house developer, a representative knowledgeable about the PMS integration implementation, or the PMS vendor on site during the installation of the PMS link. And also upon completion of the installation of the INTUITY Lodging application to the PMS demarcation point. This individual must be ready to perform troubleshooting procedures for the PMS interface should the database fail to synchronize. If the PMS interface fails at the time of connection to the INTUITY system, installation services will work for a limited period of time with the developer or vendor to isolate the problem to the AT&T equipment to the demarcation point or to the PMS equipment/interface. If the customer does not provide a representative for the PMS interface at the time of acceptance testing during the installation, installation services will consider the installation complete. If installation services is required to return in order to perform the acceptance testing when a PMS representative is available, installation services will require an additional service order and charge.

Internal Configuration

2

The following chapter is an introduction to the transparent mode link level protocol and its hardware link.

AT&T Intuity Lodging/PMS Integration Set Up

The Private Branch Exchange (PBX), the PMS, and AT&T Intuity Lodging are all nodes.

NOTE:
On some properties, the PBX and the PMS do not communicate or are not linked. The design of the PMS determines whether or not link B is present.

Transparent Versus Normal Mode

The transparent mode protocol is an upgrade from the normal mode protocol used between the AT&T PBX and the PMS. At the link level, this protocol upgrade allows ASCII data transmissions to include control characters as part of the message data by escaping such characters with the data link escape (DLE) character.

Hardware Link

The hardware link between the AT&T Intuity Lodging system and the PMS is an Electronic Industries Association (EIA) RS-232 serial data electrical interface. This link appears as a data communications equipment (DCE) unit with full duplex, 10-bit word frames (1 start bit, 8 data bits, 1 stop bit) and no parity

checks. This cable is to be no longer than 50 feet. If the systems are separated by more than 50 feet, you must physically move one of the systems closer to the other. This link is the customer's responsibility. Failure to meet EIA communication standards will cause errors.

Connectivity Diagrams

The following diagrams, Figure 2-1 and Figure 2-2, show connectivity details between AT&T Intuity Lodging and the PMS through a COM port or a port off the 8-port serial card.

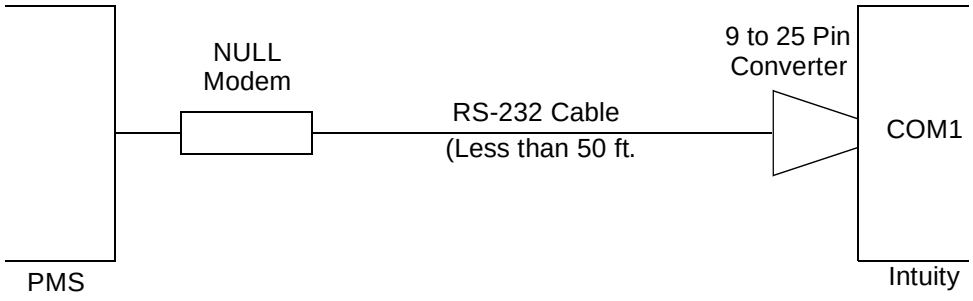


Figure 2-1. PMS Link Connectivity for COM1

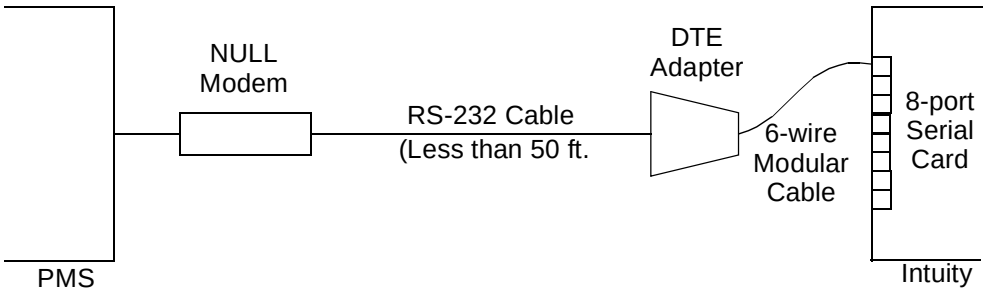


Figure 2-2. PMS Link Connectivity for 8-port Card

The NULL modem pin-outs are detailed in Figure 2-3 below.

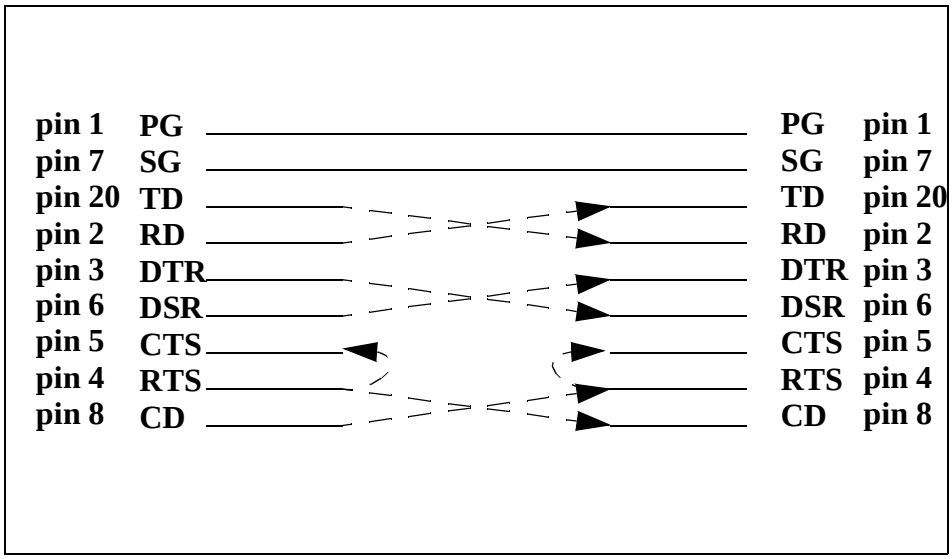
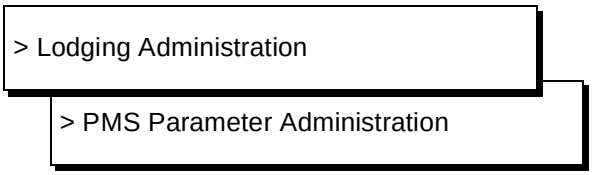


Figure 2-3. Pin-outs for RS-232 NULL Modem

Link Level Parameters

PMS link level parameters described below can be modified by selecting the following sequence from the Intuity (TM) Administration screen.



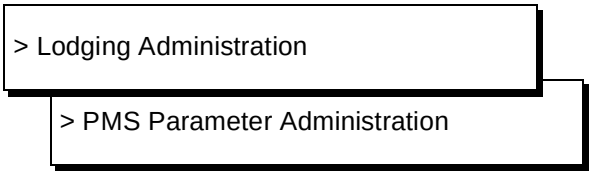
Parameter	Range	Default
tty device name	Several possible entries	tty00
Maximum protocol errors	0 to 50	50
Link acknowledgment timeout (LAT)	5 to 20 sec	10
Link idle timeout (LIT)[1]	5 to 99 sec	40

Parameter	Range	Default
Link maximum retransmissions (MR)	1 to 5	5
Link maximum retransmission requests (MRR)	1 to 5	5
Baud rate	1200 to 9600	9600

1. The link idle timeout (or equivalent) on the PMS side should be between 5 and 35 seconds *less* than the link idle timeout on the AT&T Intuity Lodging side.

Device Name

The PMS integration software will select an available serial port on the AT&T Intuity system during installation. This port will either be tty00 or a port on the serial ports card. The physical connection must be made to this port. The selected port may also be changed by selecting the following sequence from the Intuity (TM) Administration screen.



Software Link Control

In software link control, the PMS system is the master and AT&T Intuity Lodging is the slave. In order to keep the link between the PMS and AT&T Intuity Lodging alive, the PMS system initiates communication and maintains it.

The general steps for communication between the PMS/AT&T Intuity Lodging system are:

1. The sender (PMS or AT&T Intuity Lodging) sends a packet.
2. The receiver reads the packet.
3. The receiver sends an ACK.
4. The receiver processes the packet for correct format such as valid room numbers, valid process codes, valid Byte Check Codes, etc).
5. The receiver returns the same packet, but with a different Process code.
6. The original sender receives the packet with the different process code.
7. The original sender responds to the received packet with an ACK.

Under this system, there are three additional transmissions across the link for every correct original message sent: the ACK, the repeated message with a different process code, and another ACK to acknowledge the returned packet. If the format of the original message sent to AT&T Intuity Lodging is incorrect, AT&T Intuity Lodging sends a NAK. The NAK is also a request to the PMS to retransmit the message.

The only exception to the above process occurs when the PMS sends a (60,3) packet to start database synchronization or a (60,4) packet to end database synchronization. When this occurs, the AT&T Intuity Lodging sends only an ACK back. No packet with a different process code or the accompanying ACK is sent.

NOTE:
In this book, (x,y) is used to represent a data packet where x is the feature code, and y is the process code. The packet formats are described in detail in Chapter 3, "Message Format".

During the course of communication on the PMS link, the link can be placed in various states. The following is a state diagram of the PMS link level protocol.

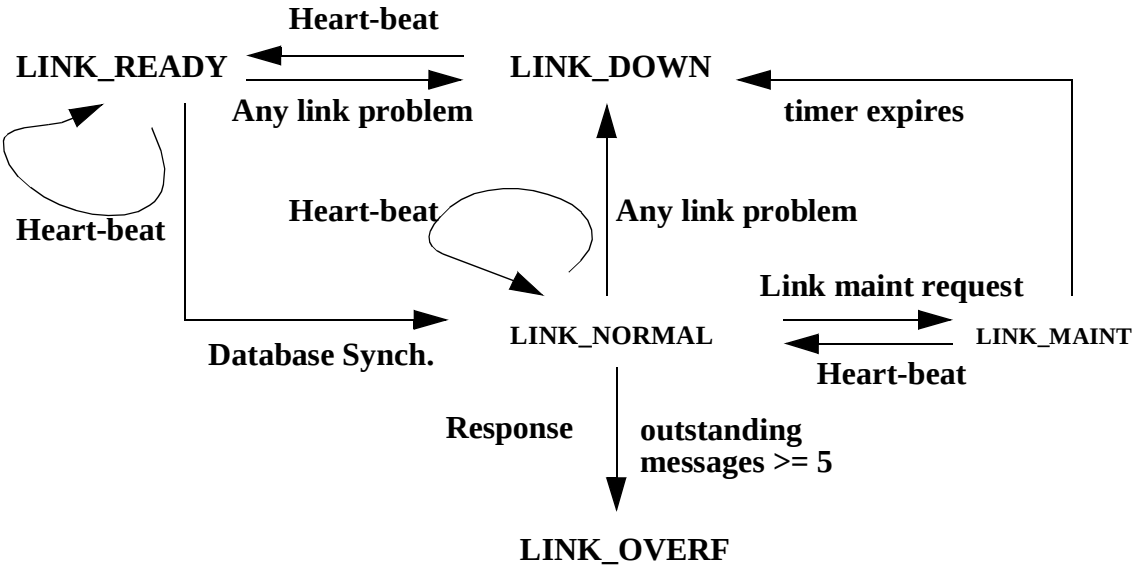


Figure 2-4. PMS Protocol State Diagram

The following legend describes the protocol states.

State	Description
LINK DOWN	The AT&T Intuity system responds only to heart-beat packets. The data-base synchronization procedure must be followed to bring the link back into the LINK NORMAL state
LINK NORMAL	This is the state in which all normal communication on the link is carried out. The link will fall into the LINK DOWN state if the Link Idle Time (LIT) exceeds the value administered on the PMS System Parameters. The link will also be taken into the link down state if there are 50 protocol errors, internal queues are filled, or the Maximum Retry Limit has been reached.
LINK READY	This is an intermediate state in which any heart beat received will cause the AT&T Intuity system to send a request to re-synchronize the PMS link.
LINK MAINT	The PMS can request to put the link into the LINK MAINT state, if the PMS needs to be taken down and cannot communicate on the link for the next half an hour. The AT&T Intuity system will not reply to any message from the PMS except a HEART-BEAT which will cause the link to go back to LINK NORMAL without performing a database re-synchronization.
LINK OVERF	The link will enter this state if more than 5 messages from the PMS have been received while the previous messages are being processed by the AT&T Intuity system. AT&T Intuity will continue to accept more messages but all message waiting updates will be with-held until after the link is no longer in the LINK OVERF state. Also a reply to ENQ (0x5) will be not be sent in this state.

Link Activate Procedure

When the AT&T Intuity Lodging/PMS link is down or the system is being put in place for the first time, the following scenario should take place:

1. The PMS sends the HEARTBEAT (60,0) packet.
2. AT&T Intuity Lodging receives the packet from the PMS. This heartbeat puts the link into the LINK READY state for AT&T Intuity Lodging.
3. If the packet was in the correct format, AT&T Intuity Lodging sends an ACK to the PMS and a (60,1) or (60,2) message, depending upon the state of the link before it got the heartbeat.
4. PMS responds to AT&T Intuity Lodging's (60,1) or (60,2) packet with a DATABASE START (60,3) packet.
5. AT&T Intuity Lodging receives the (60,3) packet from the PMS.
6. AT&T Intuity Lodging returns an ACK to the PMS. The state of the link should now be NORMAL.

7. PMS sends the CURRENT state of all rooms in the hotel to AT&T Intuity Lodging. This information consists of the CHECKINS and/or CHECKOUTS. If the state of the rooms has not changed go to Step 8.
8. PMS sends a DATABASE END (60,4) packet.
9. AT&T Intuity Lodging sends message waiting packets for all the rooms in the hotel to the PMS system.

AT&T Intuity Lodging System Parameters Screen

There are two additional application level parameters in the AT&T Intuity Lodging System Parameters screen:

- `Message Lamp Controlled by`
- `When PMS Is Down, Calls for Guests Handled by`

Message Indicator Controlled by

This parameter allows the Message Waiting Indicator (MWI) to be controlled by either AT&T Intuity Lodging or PMS. The default for this entry is LDG.

NOTE:
The System 75/DEFINITY G1 Communications System features Leave Word Calling (LWC) which also controls the MWI.

Choosing PMS to Control the MWI

Normally, the PMS is connected to the PBX. This is why we recommend that the PMS control the MWI for the messages. If the PMS is controlling the MWI, it is actually controlling the PMS component of the MWI. If the PMS normally activates the MWI for text and/or fax messages, it must be able to distinguish between these and messages to control the MWI effectively.

Choosing AT&T Intuity Lodging to Control the MWI

When AT&T Intuity Lodging controls the MWI for messages, it is actually controlling the AUDIX component of the MWI. In cases where the PMS is not connected to the PBX, AT&T Intuity Lodging can control the MWI for the messages. These components are independent. PMS cannot control the AUDIX component nor can AT&T Intuity Lodging control the PMS component of the MWI.

NOTE:
Although AT&T Intuity Lodging does not control the MWI for text or fax messages, it can be administered to give a message prompt, either through the AT&T Intuity Lodging or PMS screens, for text or fax message notification when a guest calls or logs in to into his or her mailbox.

After taking down a text message or receiving a fax message for a particular guest, the attendant should manually turn the MWI on for the guest mailbox. The attendant should then either use the PMS screen or the AT&T Intuity Lodging administration screen to inform AT&T Intuity Lodging about turning on the text and fax message notification.

When PMS Is Down, Calls for Guests Handled by

This second parameter addition allows AT&T Intuity Lodging to automatically transfer the guest caller to the attendant when the PMS link is down. The default for this entry is LDG.

Choosing the Attendant to Handle Calls

If AT&T Intuity Lodging transfers the guest caller to the attendant, the attendant takes down text messages and turns on the MWI manually. The guest is still allowed to retrieve messages.

This option facilitates better database synchronization when the PMS link is down and reduces discrepancies between the AT&T Intuity Lodging and the PMS databases.

This option is discussed further in Chapter 5, "Database Synchronization".

Choosing AT&T Intuity Lodging to Handle Calls

AT&T Intuity Lodging will continue to handle calls when the PMS link is down if this option is chosen.

CAUTION:
This option can cause discrepancies between the AT&T Intuity Lodging and the PMS databases.

Message Format

3

Message packets of variable-length bytes are transmitted as the start-of-text (STX - 0x02) character followed by message text followed by the end-of-text (ETX - 0x03) character and the byte-check code (BCC). The DLE (0x10) character must precede any control character (0x00 - 0x1F, nonprintable characters) in the message text—that is, any character between the STX and the ETX.

Since an STX can be part of a message text, escaping it with a DLE character differentiates this STX from the beginning STX of a message packet. Message packet length ranges from 6 to 760 bytes (not including the DLE characters).

Message Format Structure

Figure 3-1 shows the general format of a message packet as defined in the *DEFINITY® Communications System Generic 1 and System 75 Property Management System Interface Specifications* book, 555-200-925:

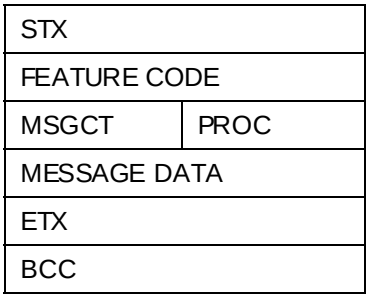


Figure 3-1. General Format of a Message Packet

The following information explains the components of the message format in Figure 3-1:

STX (start of text)	Indicates the beginning of the message packet.
FEATURE CODE	Specifies which of the possible variable-length feature message formats applies to the message data. See Chapter 4, "Message and Process Codes,", for a description of valid values.
PROC (process code)	Consists of the least significant 4-bit nibble of the third byte of the message packet. This code represents a specific action or process for that feature code. The (FEATURE CODE, PROC) notation is used in this document to represent a specific action or processing for that feature message.
MSGCT (message count)	Consists of a 4-bit message counter ranging from 0x2 to 0xB, relative to the originator. This is the high 4-bit nibble of the third byte of the message packet. The message counter eliminates the acceptance of duplicate messages. It is reset to a value of 2 at the beginning of a database synchronization.
MESSAGE DATA	Consists of two 4-bit encoded digits per 8-bit character or may contain ASCII characters. If all 4 bits in the nibble are 1's, the field is null. The symbol NULL is used for these fields, which are used to pad out frames with only one 4-bit information digit. This means that the null pads are the most significant 4-bit field. The padding character for ASCII data is the space (0x20). For example, name characters or room-name characters are left justified in their respective MESSAGE DATA fields and padded with space characters if there are extra characters that can be filled out. The range of ASCII characters includes all printable ASCII characters (0x20 - 0x7E). It is optional for the PMS to fill up the ASCII fields with useful data. If no useful data is available, all these fields are spaces.

ETX (end of text)	Indicates the end of the message packet.
BCC (byte check code)	Consists of an 8-bit octet that always follows an ETX. The BCC is an exclusive OR of all octets following the STX through and including ETX (the STX is not included in the BCC calculation).

Message Data Ordering

Many of the feature messages require an extension to be specified. To be consistent with the PMS/PBX interface document (*DEFINITY Communications System Generic 1 and System 75 Property Management System Interface Specifications*), the maximum number of extension digits is limited to five. Each of these digits occupies a nibble in the message text.

Extensions digits/nibbles are transmitted from the least significant to the most significant digit. An extension like 35789 maps to EXTN5, EXTN4, EXTN3, EXTN2, and EXTN1 as mentioned in the message descriptiions in . It is transmitted as nibbles containing 9, 8, 7, 5, and 3 in that order. This is known as "backwards ordering."

Any message data other than the extension—such as room-name characters, name characters, or passwords—are ordered in the way they are spelled. This is known as "forwards ordering." If a password of 1234 is used, it maps to PASSWD1, PASSWD2, PASSWD3, and PASSWD4.

See Chapter B, "Message Data Ordering," for further information about message data ordering.

Message and Process Codes

4

This section explains the messages and the process codes that are communicated over the AT&T Intuity Lodging/PMS interface. The *message* is that which is sent to AT&T Intuity Lodging from the PMS or from the PMS to AT&T Intuity Lodging. The MWI notification is the only status message initiated from AT&T Intuity Lodging to the PMS. The *process codes* are the responses received that indicate if the command sent was successful.

The receiver of the message text checks the BCC to ensure that the complete packet of data was received. If the check zone is not valid, the receiver returns a negative acknowledgment (NAK) and requests that the message be sent again. If the check zone is valid, the receiver returns a positive acknowledgment (ACK) and goes on to validate the fields of the message. If the receiver determines that any of the fields are invalid, it returns the entire message packet with the most significant bit of feature code set to 1. If all fields are valid, the contents of the message are processed.

AT&T Intuity Lodging uses the guest extension as its primary database key. If you plan to convert guest room numbers to guest extensions when communicating with AT&T Intuity Lodging, keep the following in mind:

- Some guest extensions do not match the room numbers.
- Room number-to-extension conversions must be made in both directions of transmission: data going to AT&T Intuity Lodging and data coming from AT&T Intuity Lodging.

The Check-in Message (50)

The check-in message is used to check in new guests. This message packet is sent from the PMS to AT&T Intuity Lodging whenever the attendant completes the PMS check-in form by entering the new guest information.

Figure 4-1 shows the message format for a check-in message. Table 4-1 shows the associated process codes.

STX	
5	0
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
NAME CHAR 1 through	
NAME CHAR 15	
PASSWD2	PASSWD1
PASSWD4	PASSWD3
LANGUAGE CODE	
7 RESERVED BYTES	
ETX	
BCC	

Figure 4-1. Format for the Checkin Message

Table 4-1. Process Codes for the Check in Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Checkin guest
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failed to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room already checked in

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Table 4-1. Process Codes for the Check in Message — *Continued*

Process Code	Message Direction	Indications
6	Intuity Lodging-->PMS	This action cannot be done on the administrator's extension
7	Intuity Lodging-->PMS	This action cannot be done on a suite member extension
8	Intuity Lodging-->PMS	This action cannot be done on the attendant's extension
9	Intuity Lodging-->PMS	AT&T Intuity Lodging agrees with PMS during database synchronization regarding check-in status and guest password; mailbox has no mail messages
A	Intuity Lodging-->PMS	AT&T Intuity Lodging agrees with PMS during database synchronization regarding check-in status and guest password; mailbox has mail messages
B	Intuity Lodging-->PMS	AT&T Intuity Lodging disagrees with PMS during database synchronization regarding check-in status—that is, PMS claims mailbox is checked in while AT&T Intuity Lodging claims otherwise; AT&T Intuity Lodging checks in the mailbox successfully
C	Intuity Lodging-->PMS	AT&T Intuity Lodging disagrees with PMS during database synchronization regarding guest password; AT&T Intuity Lodging checks out its old guest and checks in the new guest; old guest has no mail messages

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Table 4-1. Process Codes for the Check in Message — *Continued*

Process Code	Message Direction	Indications
D	Intuity Lodging-->PMS	AT&T Intuity Lodging disagrees with PMS during database synchronization regarding guest password; AT&T Intuity Lodging checks out its old guest and checks in the new guest; old guest has mail messages
E	Intuity Lodging-->PMS	Language package is not installed; The system default language is used.

Note the additional byte field for guest language. This field ranges from 0x20-0xff, which maps to 223 language codes. Seven extra bytes are reserved for future use for Class of Service and other feature enhancements.

NOTE:
The preallocation of these fields also ensures that compatibility is not an issue for future releases.

The nibbles of these 7 bytes are set to NULL (0xF) as they are not used at the present time. The (50,E) return message indicates to the PMS that the language package selected is not installed and the system default language is to be used as the language for this guest. When interfacing with PMS systems running with older versions, the absence of the language field causes AT&T Intuity Lodging/PMS IS to use the default system language as the preferred language.

The guest mailbox password must be exactly four digits. If the fields PASSWD1 through PASSWD are NULL, AT&T Intuity Lodging will not prompt for the guest password. From the message format shown above in Table 4-1, the following are explanations of fields in the message not previously encountered.

The last five process codes (9, A, B, C, and D) are explained further in Chapter 5, "Database Synchronization."

ROOM CHAR 1-6 — Represents 6 bytes of room-name ASCII information. This is an optional informational field to identify the room. In most properties, room name and extension number will match. If the room number is less than six characters, the remaining bytes must be filled with the ASCII space character (0x20).

NAME CHAR 1-15 — Represents 15 bytes of guest name ASCII information. If the name is less than 15 characters, the remaining bytes must be filled with the ASCII space character (0x20).

PASSWD1-PASSWD4 — Represents that the guest mailbox password should be exactly four digits. If the fields PASSWD1-4 are NULL, AT&T Intuity Lodging will not prompt for the guest password.

LANGUAGE CODE — Ranges from 0x20 -0xff, which maps to 223 language codes. The lower limit for this field is 0x20 because an extra DLE character is needed for transmitting this field according to the link level protocol. If a language code is not installed, the default language is used as language the great. The following table illustrates the two-digit language codes used to specify a specific guest language.

Language Code	Language	Transmit
00	American English	0x20
01	Japanese	0x21
02	Spanish	0x22
03	Greek	0x23
04	Mandarin	0x24
05	Hindi*	0x25
06	UK English	0x26
07	Canadian French	0x27
* This language is not yet available, however the code has been reserved for this language.		

7 RESERVED BYTES — The nibbles of these 7 bytes are set to NULL (0xf) since the reserved bytes are not used at this time.

An example of the format message of a checkin is given in Figure 4-2. This checkin is of guest Gary Johnson in room 12345 with extension 12345 and password 1234. Mr. Johnson has selected American English as the preferred guest language.

STX	
5	0
3	1
4	5
2	3
NULL	1
1	
2	
3	
4	
5	
2	0
G	
A	
R	
Y	
2	0
J	
O	
H	
N	
S	
O	
N	
2	0
2	0
2	0
2	1
4	3
2	0
NULL	NULL
NULL	NULL
NULL	NULL
NULL	NULL
NULL	NULL
NULL	NULL
NULL	NULL
ETX	
BCC	

Figure 4-2. Message Format of a Sample Guest Checkin

The Modify Message (51)

The modify message changes the information of the guest whose name or extension is entered. This message packet is sent from the PMS to AT&T Intuity Lodging whenever the attendant modifies a guest mailbox.

Figure 4-3 shows the message format for a modify message. Table 4-2 shows the associated process codes. Note that the guest mailbox password must be exactly four digits.

STX	
5	1
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
NAME CHAR 1 through	
NAME CHAR 15	
PASSWD2	PASSWD1
PASSWD4	PASSWD3
LANGUAGE CODE	
7 RESERVED BYTES	
ETX	
BCC	

Figure 4-3. Format for the Modify Message

Table 4-2. Modify Process Codes

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Modify
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failed to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room not checked in
6	Intuity Lodging-->PMS	This action cannot be done on the administrator's extension
7	Intuity Lodging-->PMS	This action cannot be done on a suite member extension
8	Intuity Lodging-->PMS	This action cannot be done on the attendant's extension
E	Intuity Lodging-->PMS	Language package not installed; system default language will be used.

The Check-out Message (52)

The check-out message checks out the guest whose extension is entered. The guest mailbox is deactivated and any leftover mail messages are moved into the old mailbox.

Figure 4-4 shows the format for a check-out message. Table 4-3 shows the associated process codes.

STX	
5	2
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ETX	
BCC	

Figure 4-4. Format for a Check-Out Message

Table 4-3. Checkout Message Process Codes

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Checkout guest
2	Intuity Lodging-->PMS	Mailbox has no mail messages; AT&T Intuity Lodging checks out mailbox successfully
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room not checked in
6	Intuity Lodging-->PMS	This action cannot be done on the administrator's extension
7	Intuity Lodging-->PMS	This action cannot be done on a suite member extension
8	Intuity Lodging-->PMS	This action cannot be done on the attendant's extension
9	Intuity Lodging-->PMS	Mailbox has new or saved mail messages; AT&T Intuity Lodging checks out mailbox successfully

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Table 4-3. Checkout Message Process Codes — *Continued*

Process Code	Message Direction	Indications
A	Intuity Lodging-->PMS	AT&T Intuity Lodging agrees with PMS during database synchronization regarding checkout status
B	Intuity Lodging-->PMS	AT&T Intuity Lodging disagrees with PMS during database synchronization regarding check-out status—that is, PMS claims mailbox is checked out while AT&T Intuity Lodging claims otherwise; mailbox has no mail messages; AT&T Intuity Lodging checks out the mailbox successfully
C	Intuity Lodging-->PMS	AT&T Intuity Lodging disagrees with PMS during database synchronization regarding checkout status—that is, PMS claims mailbox is checked out while AT&T Intuity Lodging claims otherwise; mailbox has mail messages; AT&T Intuity Lodging checks out the mailbox successfully
E	Intuity Lodging-->PMS	Guest is retrieving messages; try again later

Three of the process codes (A, B, and C) are explained in more detail in Chapter 5, "Database Synchronization."

A response like (52,9) or (52,C) indicates to the PMS that the MWI should be turned off. The PMS can send the MWI-off message to the switch at this time or wait for the Voice Message Notification command (5E,1) from AT&T Intuity Lodging and send the message then. The (5E,1) immediately follows the response (52,9) or (52,C).

The Voice Message Notification command is described later in this chapter.

When a guest who is part of a group list checks out, the extension of that guest is removed from the group list. If a group list becomes empty through guest

checkouts, the group list id is removed from the AT&T Intuity Lodging database. It is recommended that the PMS perform these same group list updates.

The Delete Extension Message (53)

The delete extension message deletes a mailbox extension number from the database. If the extension is a suite member, this message is not successful. This message should be used if there is an incorrect extension or no need for a mailbox for that room, in the AT&T Intuity Lodging system.

Figure 4-5 shows the message format for the delete extension message. Table 4-4 shows the associated process codes.

STX	
5	3
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ETX	
BCC	

Figure 4-5. Format for the Delete Extension Message

Table 4-4. Process Codes for the Delete Extension Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Delete extension from database
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room checked in
6	Intuity Lodging-->PMS	This action cannot be done on the administrator's extension

Table 4-4. Process Codes for the Delete Extension Message

Process Code	Message Direction	Indications
7	Intuity Lodging-->PMS	This action cannot be done on a suite member extension
8	Intuity Lodging-->PMS	This action cannot be done on the attendant's extension
9	Intuity Lodging-->PMS	Old mailbox has messages and needs to be purged

The Display Mailbox Message (54)

The display mailbox message is used to display all guest status information for the entered extension number. Figure 4-6 shows the message format for a display mailbox message. Table 4-5 shows the associated process codes.

STX	
5	4
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ETX	
BCC	

Figure 4-6. Format for the Display Mailbox Message

Table 4-5. Process Codes for the Display Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Display mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room not checked in
6	Intuity Lodging-->PMS	This action cannot be done on the administrator's extension

If the display command is successful, AT&T Intuity Lodging returns the message shown in Figure 4-7 to the PMS (process code 2).

STX	
5	4
MSGCT	2
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
NAME CHAR 1 through	
NAME CHAR 15	
PASSWD2	PASSWD1
PASSWD4	PASSWD3
LANGUAGE CODE	
7 RESERVED BYTES	
VOICE	
FAX	TEXT
MBXUSG2	MBXUSG1
NULL	MBXUSG3
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
ETX	
BCC	

Figure 4-7. Format for the Returned Display Mailbox Message

From the message format shown above, the following are explanations of fields in the message not previously encountered.

LANGUAGE CODE	Ranges from 0x20-0xFF, which will map to 223 language codes. The lower limit for this field is 0x20 because an extra DLE character is needed for transmitting this field according to the link level protocol. If a language code is not installed, American English is used as the default language. See the table in the section titled *The Check-in Message (50)* earlier in this chapter for the two-digit language code and its associated language.
7 RESERVED BYTES	The nibbles of these 7 bytes are set to NULL (0xF) since the reserved bytes are not used at this time.
VOICE	Ranges from 0x00 to 0xFF (decimal 255) indicating the number of messages in the guest mailbox. If the number is between 0x00 and 0x19, it will be delimited by DLE.
TEXT and FAX	Indicates if there are any messages of that type for this guest. The following values are chosen to avoid any possibility of an extra DLE character transmission. A value of 0x2 in the nibble indicates that there are no messages of that type. A value of 0x3 in the nibble indicates that there exists messages of that type for this guest.
MBXUSG	Represents the mailbox capacity usage percentage. A value of 83% usage is represented as 0x00 in the MBXUSG1 field, 0x08 in the MBXUSG2 field, and 0x03 in the MBXUSG3 field. Three nibbles for mailbox capacity usage are needed. This is because it is possible to have capacity usage greater than 100% as AT&T Intuity Lodging allows a complete maximum message length recording when a mailbox is almost full. MBXUSG2 and MBXUSG1 byte may be delimited by DLE if number is between UX00 and UX19.
SUITE	Represents the suite extension if this extension is part of a suite. If the extension is not part of a suite, all these fields/nibbles are NULL (0x0F).

The Purge Old Mailbox Message (55)

The purge old mailbox message is used to manually delete an old mailbox from the databases. This message packet is sent from the PMS to AT&T Intuity Lodging whenever the attendant wants to delete an old mailbox before the message purge time has expired.

Figure 4-8 shows the message format for a purge old mailbox message. Table 4-6 shows the associated process codes.

STX	
5	5
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ETX	
BCC	

Figure 4-8. Format for the Purge Old Mailbox Message

Table 4-6. Process Codes for the Purge Old Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Purge old mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failed to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Old mailbox has no messages

If the guest extension fields EXTN1 through EXTN5 are all NULL, all old mailboxes must be purged. Do this only when AT&T Intuity Lodging has reached its maximum mail storage capacity due to the presence of several full mailboxes and several old mailboxes with a lot of unretrieved messages. The first indication that capacity has been reached is that many callers are unable to leave mail and their calls are transferred by AT&T Intuity Lodging to the front desk for text messages.

The AT&T Intuity Lodging system administrator should generate usage reports on AT&T Intuity Lodging periodically to monitor usage and thus prevent this problem.

NOTE:
The fact that a few guest mailboxes are full does not necessarily mean that the system capacity has been reached.

The Activate Old Mailbox Message (56)

The activate old mailbox message is used to reactivate an old mailbox extension. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to reactivate an old mailbox extension. This is most useful when a previous guest checks back into the hotel.

Figure 4-9 shows the message format for the activate old mailbox message. Table 4-7 shows the associated process codes.

STX	
5	6
MSGCT	PROC
TO_EXTN2	TO_EXTN1
TO_EXTN4	TO_EXTN3
NULL	TO_EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
FROM_EXTN2	FROM_EXTN1
FROM_EXTN4	FROM_EXTN3
NULL	FROM_EXTN5
ETX	
BCC	

Figure 4-9. Format for the Activate Old Mailbox Message

Table 4-7. Process Codes for the Activate Old Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Activate Old Mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Room has no old mailbox
6	Intuity Lodging-->PMS	Room activating to is the administrator's extension
7	Intuity Lodging-->PMS	Room activating to is a suite member extension
8	Intuity Lodging-->PMS	Room activating to is an attendant's extension
9	Intuity Lodging-->PMS	Room activating to is checked in

The following are explanations for fields not already encountered:

TO_EXTN	The extension number the guest is activating to.
FROM_EXTN	The extension number the guest is activating from.

The Display Old Mailbox Message (57)

The display old mailbox message is used to display all guest status information for the extension number entered in the message packet. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to view all guest status information for an entered extension.

Figure 4-10 shows the message format for the displaying an old mailbox message. Table 4-8 shows the associated process codes.

STX	
5	7
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ETX	
BCC	

Figure 4-10. Format for the Display Old Mailbox Message

Table 4-8. Process Codes for the Display Old Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Display mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room has no old mailbox

If the display command is successful, AT&T Intuity Lodging returns the message shown in Figure 4-11 to the PMS (process code 2).

STX	
5	7
MSGCT	2
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
NAME CHAR 1 through	
NAME CHAR 15	
PASSWD2	PASSWD1
PASSWD4	PASSWD3
LANGUAGE CODE	
7 RESERVED BYTES	
MONTH1	MONTH2
DAY1	DAY2
YEAR1	YEAR2
HOUR1	HOUR2
MIN1	MIN2
VOICE	
MBXUSG2	MBXUSG1
NULL	MBXUSG3
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
ETX	
BCC	

Figure 4-11. Format for the Returned Display Old Mailbox Message

The following are explanations of fields in the message shown above:

LANGUAGE CODE	Ranges from 0x20-0xFF, which maps to 223 language codes. The lower limit for this field is 0x20 because an extra DLE character is needed for transmitting this field according to the link level protocol. If a language code is not installed, the system default language is used.
7 RESERVED BYTES	The nibbles of these 7 bytes are set to NULL (0xF) since the reserved bytes are not used at this time.
MONTH1-2	Represents the nibbles for the month (range 01-12)
DAY1-2	Represents the nibbles for the day (range 01-31)
YEAR1-2	Represents the nibbles for the year (range 00-99)
HOUR1-2	Represents the nibbles for the hour (military time with the range 00-23)
MIN1-2	Represents the nibbles for the minutes of the checkout time (range 00-59)
VOICE	Ranges from 0x00 to 0xFF (decimal 255) indicating the number of messages in the old mailbox.
MBXUSG1-MBXUSG3	Represents the old mailbox capacity usage percentage. A value of 83% usage is represented as 0x00 in the MBXUSG1 field, 0x08 in the MBXUSG2 field, and 0x03 in the MBXUSG3 field. Three nibbles are needed for mailbox capacity usage. This is because it is possible to have capacity usage greater than 100% as Intuity Lodging allows a complete maximum message length recording when a mailbox is almost full.
SUITE1-SUITE5	Represents the suite extension if this extension is part of a suite. If the extension is not part of a suite, all these fields/nibbles are NULL (0x0F).

The Transfer/Merge Mailbox Message (58)

The transfer or merge mailbox message is used if a guest transfers from one room to another. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to transfer the guest's mailbox.

Figure 4-12 shows the message format for the transfer or merge mailbox message. Table 4-9 shows the associated process codes.

STX	
5	8
MSGCT	PROC
TO_EXTN2	TO_EXTN1
TO_EXTN4	TO_EXTN3
NULL	TO_EXTN5
ROOM CHAR 1 through	
ROOM CHAR 6	
FROM_EXTN2	FROM_EXTN1
FROM_EXTN4	FROM_EXTN3
NULL	FROM_EXTN5
ETX	
BCC	

Figure 4-12. Format for the Transfer/Merge Mailbox Message

Table 4-9. Process Codes for the Transfer/Merge Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Transfer/merge mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Room moving into is checked in
6	Intuity Lodging-->PMS	Room moving into is the administrator's extension
7	Intuity Lodging-->PMS	Room moving into is a suite member extension
8	Intuity Lodging-->PMS	Room moving into is an attendant's extension
9	Intuity Lodging-->PMS	Room moving out of is the administrator's extension
A	Intuity Lodging-->PMS	Room moving out of is a suite member extension
B	Intuity Lodging-->PMS	Room moving out of is an attendant's extension
C	PMS-->Intuity Lodging	Merge mail with room moving into if it is already checked in; otherwise perform the regular transfer
D	Intuity Lodging-->PMS	Room moving out of is not checked in
E	Intuity Lodging-->PMS	Guest is retrieving messages from moving into room
F	Intuity Lodging-->PMS	Guest is retrieving messages from moving out of room

The (58,C) command from PMS requests the transfer with merge operation if the room the guest is moving into is checked in.

NOTE:
AT&T Intuity Lodging allows the mailbox to exceed its capacity because of this merge operation. If the mailbox becomes full, further calls to the guests sharing the room are transferred to the front desk.

NOTE:
The Transfer/Merge Mailbox command does not update mailing lists to the newly assigned mailbox. Updates to mailing lists must be made individually.

The following are explanations for the fields in the transfer/merge mailbox message:

TO_EXTN1-5	Extension number the guest is moving to
FROM_EXTN1-5	Extension number the guest is moving from

The Swap Mailbox Message (59)

The swap mailbox message is used if guests exchange or swap rooms. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to change the mailboxes.

Figure 4-13 shows the message format for the swap mailbox message. Table 4-10 shows the associated process codes.

STX	
5	9
MSGCT	PROC
FIRST_EXTN2	FIRST_EXTN1
FIRST_EXTN4	FIRST_EXTN3
NULL	FIRST_EXTN5
SECOND_EXTN2	SECOND_EXTN1
SECOND_EXTN4	SECOND_EXTN3
NULL	SECOND_EXTN5
ETX	
BCC	

Figure 4-13. Format for the Swap Mailbox Message

Table 4-10. Process Codes for the Swap Mailbox Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Swap mailbox
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Second extension/room is not checked in
6	Intuity Lodging-->PMS	Second extension/room is the administrator's extension
7	Intuity Lodging-->PMS	Second extension/room is a suite member extension
8	Intuity Lodging-->PMS	Second extension/room is an attendant's extension
9	Intuity Lodging-->PMS	First extension/room is the administrator's extension
A	Intuity Lodging-->PMS	First extension/room is a suite member extension
B	Intuity Lodging-->PMS	First extension/room is an attendant's extension
C	Intuity Lodging-->PMS	First extension/room is not checked in
E	Intuity Lodging-->PMS	Guest is retrieving messages from first extension room
F	Intuity Lodging-->PMS	Guest is retrieving messages from second extension room

NOTE:
The Swap Mailbox command does not update mailing lists to the newly assigned mailbox. Updates to mailing lists must be made individually.

The Add/Remove Text/Fax Notification Message (5A)

The add/remove text/fax notification message is used to add or deliver text or fax messages for guests. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to add or remove text or fax messages for the guest.

Figure 4-14 shows the message format for the add/remove text/fax notification message. Table 4-11 shows the associated process codes.

STX	
5	A
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
ADD/REM	TXT/FAX
ETX	
BCC	

Figure 4-14. Format for the Add/Remove Text/Fax Notification Message

Table 4-11. Process Codes for the Add/Remove Text/Fax Notification Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Add/remove text/fax message notification
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Guest extension/room not checked in

The following are explanations of fields in the message from the message format shown above. These values are chosen for the fields to avoid any possibility of an extra DLE character transmission.

ADD/REM	Represents addition or removal of the text or fax notification. A value of 0x2 means add and a value of 0x3 means remove.
TXT/FAX	Represents the text or fax notification. A value of 0x2 means text, a value of 0x3 means fax, and a value of 0x4 means both.

NOTE:
The value 0x4 is used only for remove. You cannot add both text and fax messages simultaneously. Two separate messages are needed to add text and fax messages to a guest mailbox.

The Display Suite Message (5B)

The display suite message is used to display group extensions given the suite extension number. This message is sent from the PMS to AT&T Intuity Lodging when the attendant wants to find out what extension numbers are connected to a specific suite number.

Figure 4-15 shows the message format for the display suite message. Table 4-12 shows the associated process codes.

STX	
5	B
MSGCT	PROC
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
ETX	
BCC	

Figure 4-15. Format for the Display Suite Message

Table 4-12. Process Codes for the Display Suite Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Display suite
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	There is no suite for this extension

If the display command is successful, the AT&T Intuity Lodging returns the following message to the PMS (process code 2), as shown in Figure 4-16.

STX	
5	B
MSGCT	PROC
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
TEN SUITE	
MEMBER EXTNS	
NULL	NULL
ETX	
BCC	

Figure 4-16. Format for the Returned Display Suite Message

The TEN SUITE MEMBER EXTNS are the 10 6-nibble groups of SUITE1 through SUITE5 for the 10 suite member extensions. If there are less than 10 extensions, the other extensions/nibbles are padded as NULLs.

The Create/Modify Suite Message (5C)

The create/modify suite message is used to make any necessary changes to the extensions numbers contained in the suite mailbox. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant wants to create or modify a suite mailbox.

Figure 4-17 shows the message format for create/modify suite message. Table 4-13 shows the associated process codes.

STX	
5	C
MSGCT	PROC
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
TEN SUITE	
MEMBER EXTNS	
NULL	BAD_EXTN_INDEX
ETX	
BCC	

Figure 4-17. Format for the Create/Modify Suite Message

Table 4-13. Process Codes for the Create/Modify Suite Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Create/modify suite
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failed to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Extension pointed by BAD_EXTN_ INDEX is checked in
6	Intuity Lodging-->PMS	Extension pointed by BAD_EXTN_ INDEX is administrator's extension
7	Intuity Lodging-->PMS	Extension pointed by BAD_EXTN_ INDEX is part of another suite
8	Intuity Lodging-->PMS	Extension pointed by BAD_EXTN_ INDEX is an attendant

The Ten Suite Member Extns field should be entered in "sorted order;" that is, lowest extension to highest—for example, 1000, 1001, 1002. This is because the BAD_EXTN_INDEX flag that AT&T Intuity Lodging returns to the PMS is based on the sorted list and, if an error occurs when the TEN SUITE MEMBER EXTNS is not in sorted order, this flag may not point to the invalid extension.

When a modify is done (after a display or otherwise), the BAD_EXTN_INDEX nibble is used as a return code for the index to bad extension in the extension list, in addition to the process code return value.

If the BAD_EXTN_INDEX is NULL, it refers to the suite extension. It ranges from 0x00 to 0x09 to refer to 1 of the 10 suite member extensions. If 1 or more of the 10 suite member extensions is invalid, this command fails.

NOTE:
An extension is classified as "bad" if it is already checked in, is part of another suite, or belongs to the system administrator or an attendant.

The Delete Suite Message (5D)

The delete suite message is used to check out a suite mailbox. This message packet is sent from the PMS to AT&T Intuity Lodging when the attendant enters the main suite extension.

Figure 4-18 shows the message format for a delete suite message. Table 4-14 shows the associated process codes.

STX	
5	D
MSGCT	PROC
SUITE2	SUITE1
SUITE4	SUITE3
NULL	SUITE5
ETX	
BCC	

Figure 4-18. Format for the Delete Suite Message

Table 4-14. Process Codes for the Delete Suite Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Delete suite
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	There is no suite for this extension
6	Intuity Lodging-->PMS	Suite is checked in

The Voice Message Notification Message (5E)

Any time a new message is deposited in the guest mailbox, a message to turn the MWI on is sent on the link to the PMS.

Turning off the MWI depends on the LAMP ON FOR NEW MESSAGES ONLY option specified in the System Parameters Administration window. If yes is chosen as the option and the guest listens to all of the new messages, a message to turn the MWI off is sent to the PMS. If no is chosen as the option and

the guest deletes all of the messages in the mailbox, a message to turn the MWI off is sent to the PMS.

Figure 4-19 shows the message format for a voice message notification message. Table 4-15 shows the associated process codes.

STX	
5	E
MSGCT	PROC
EXTN2	EXTN1
EXTN4	EXTN3
NULL	EXTN5
NULL	VOICE
ETX	
BCC	

Figure 4-19. Format for the Voice Message Notification Message

The VOICE flag value is 0x2 for no mail messages in the mailbox and 0x3 for change from zero mail messages to one. These values are chosen to be consistent with similar flags in other message packets.

Table 4-15. Process Codes for the Voice Message Notification Message

Process Code	Message Direction	Indications
1	Intuity Lodging-->PMS	Voice message notification
2	PMS-->Intuity Lodging	Command successful; MWI turned on or off depending on VOICE flag (see below)
3	PMS-->Intuity Lodging	System failure to execute command successfully
4	PMS-->Intuity Lodging	Extension is not checked in; cannot turn MWI on
5	PMS-->Intuity Lodging	Extension is a suite member

Depending on the AT&T Intuity Lodging command, the PMS should turn on or off the MWI for the guest extension/mailbox by sending a command to the switch. If the PMS is not controlling the MWI, these messages serve as status messages.

The PMS will return process code (5E,2) if the MWI has been turned on when the VOICE flag is 0x3 for checked-in rooms or if the MWI has been turned off when the VOICE flag is 0x2 (no messages) for any room checked in or checked out.

NOTE:
The PMS should take necessary actions to update its database regarding the MWI status for the guest mailbox and control the MWI status on the switch.

The Link Status Inquiry Management Message (60)

The link status inquiry message is used to check database synchronization between the PMS and AT&T Intuity Lodging. For additional information, see Chapter 2, "Internal Configuration."

Figure 4-20 shows the message format for a link status inquiry message. Table 4-16 shows the associated process codes.

STX	
6	0
MSGCT	PROC
NULL	PROTOCOL
ETX	
BCC	

Figure 4-20. Format for the Link Status Inquiry Message

Table 4-16. Process Codes for the Link Status Inquiry Message

Process Code	Message Direction	Indications
F	PMS-->Intuity Lodging	Heartbeat message
0	Intuity Lodging-->PMS	Acknowledgement of heartbeat message; AT&T Intuity Lodging and PMS are in an idle (no data to send) state
1	Intuity Lodging-->PMS	Acknowledgement of heartbeat message; AT&T Intuity Lodging is starting fresh (for the first time or after a power failure); start database synchronization
2	Intuity Lodging-->PMS	Acknowledgement of heartbeat message; the PMS or link failed and came back up; start database synchronization
3	PMS-->Intuity Lodging	Start of database synchronization (complete database update)
4	PMS-->Intuity Lodging	End of database synchronization (sent when the PMS finishes a complete databaseupdate)
5	PMS-->Intuity Lodging	Release of the data link requested for maintenance
6	PMS-->Intuity Lodging	Release of the data link granted
7	Intuity Lodging-->PMS	AT&T Intuity Lodging demands database synchronization be started; AT&T Intuity Lodging expects a (60,3) response; the "dbsync" command is being executed on the AT&T Intuity Lodging

The (60,F) with PROC value of 0xF is the heartbeat "Are you alive?" message from the PMS. This packet has the PROTOCOL version number (nibble) for the PMS Vendor Interface Protocol between the PMS and AT&T Intuity Lodging. The PROTOCOL field is 0x0 for AT&T Intuity Lodging/PMS IS. Since extra reserved fields have been allocated in the check-in message, this protocol version number will not change for future releases until all these reserved fields have been utilized.

The PBX Link Restart Message (61)

The PBX link restart message packet sent from PMS to AT&T Intuity Lodging requests a restart of the link between the switch and AT&T Intuity Lodging.

Figure 4-21 shows the message format for a PBX link restart message. Table 4-17 shows the associated process codes.

STX	
6	1
MSGCT	PROC
NULL	NULL
ETX	
BCC	

Figure 4-21. Format for the PBX Link Restart Message

Table 4-17. Process Codes for the PBX Link Restart Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	PBX link restart
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure

The Display Group List Message (62)

The display group list message is used to display all group list information for the entered group list id. Figure 4-22 shows the message format for a display group list message. Table 4-18 shows the associated process codes.

STX	
6	2
MSGCT	PROC
LISTID2	LISTID1
LISTID4	LISTID3
LISTID6	LISTID5
ETX	
BCC	

Figure 4-22. Format of the Display Group List Message

Table 4-18. Process Codes for the Display Group List Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Display group list
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	There is no group list for this list id

The LISTID1 through LISTID6 fields represent the 6-digit group list id in the forwards ordering scheme (see Appendix B, *Message Data Ordering,* for further information). If the group list is invalid (that is, if each LISTID nibble is not in the range 0x0 through 0x9), the entire message packet is returned with the same process code and the protocol violation bit set. If the display command is successful, AT&T Intuity Lodging returns the message shown in Figure 4-23 to the PMS (process code 2).

STX	
6	2
MSGCT	PROC
LISTID2	LISTID1
LISTID4	LISTID3
LISTID6	LISTID5
NO. OF ENTRIES	
LIST_ EXTN2	LIST_ EXTN1
LIST_ EXTN4	LIST_ EXTN3
NULL	LIST_ EXTN5
(REPEATED FOR	
NO. OF ENTRIES)	
BAD_EXTN_INDEX	
ETX	
BCC	

Figure 4-23. Format for the Returned Display Group List Message

The LIST_EXTN1 through LIST_EXTN5 fields represent the 5-digit group member extension in the backwards ordering scheme (like the one used for the extension field). The BAD_EXTN_INDEX is not used for display group list. This byte is set to NULL (0xff). The NO. OF ENTRIES field tells PMS the total number of group list member extensions in the message packet. This field ranges from 1 to 250.

The Create/Modify Group List Message (63)

The create or modify group list message allows you to create a new group list in your system or modify an existing group list.

Figure 4-24 shows the message format for the create/modify group list message. Table 4-19 shows the associated process codes.

STX	
6	3
MSGCT	PROC
LISTID2	LISTID1
LISTID4	LISTID3
LISTID6	LISTID5
NO. OF ENTRIES	
LIST_EXTN2	LIST_EXTN1
LIST_EXTN4	LIST_EXTN3
NULL	LIST_EXTN5
(REPEATED FOR	
NO. OF ENTRIES)	
BAD_EXTN_INDEX	
ETX	
BCC	

Figure 4-24. Format for the Create/Modify Group List Message

Table 4-19. Process Codes for the Create/Modify Group List Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Create/modify group list
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	Extension pointed by BAD_EXTN_ INDEX is not checked in

The LISTID1 through LISTID6 fields represent the 6-digit group list id in the forwards ordering scheme (see Appendix B, *Message Data Ordering*, for further information). If the group list is invalid (that is, if each LISTID nibble is not in the range 0x0 through 0x9), or if 1 or more of the 10 group list member extensions is

invalid, the entire message packet is returned with the same process code with the protocol violation bit set.

When a create/modify is done (after a display or otherwise), the BAD_EXTN_ INDEX byte is used as a return code for the index to the empty room/mailbox extension in the member extension list. This is in addition to the process code of 5 as the return value. The BAD_EXTN_INDEX ranges from 0x00 to 0xF9 to refer to one of the 250 group list member extensions. The NO. OF ENTRIES field tells AT&T Intuity Lodging the total number of group list member extensions in the message packet. This field ranges from 1 to 250.

The Delete Group List Message (64)

The delete group list message allows you to delete a group list from your system. Figure 4-25 shows the message format for the delete group list message. Table 4-20 shows the associated process codes.

STX	
6	4
MSGCT	PROC
LISTID2	LISTID1
LISTID4	LISTID3
LISTID6	LISTID5
ETX	
BCC	

Figure 4-25. Format for the Delete Group List Message

Table 4-20. Process Codes for the Delete Group List Message

Process Code	Message Direction	Indications
1	PMS-->Intuity Lodging	Delete group list
2	Intuity Lodging-->PMS	Command successful
3	Intuity Lodging-->PMS	System failure to execute command successfully
4	Intuity Lodging-->PMS	Messaging system is not running
5	Intuity Lodging-->PMS	There is no group list for this list id

If the group list is invalid (that is, if each LISTID nibble is not in the range 0x0 through 0x9), the entire message packet is returned with the same process code with the protocol violation bit set.

Database Synchronization

5

The AT&T Intuity Lodging and PMS databases include check-in, check-out, and MWI information. The main objective of the database synchronization procedure is to synchronize the PMS and AT&T Intuity Lodging databases quickly with little human intervention.

Interface Basic Features

The following features are provided by AT&T Intuity Lodging for database synchronization:

- Using the database synchronization procedure, the PMS has the capability to create or populate the complete guest database on AT&T Intuity Lodging when it comes up the very first time. This saves the attendants a significant amount of data entry work on AT&T Intuity Lodging.
- If for some reason the databases do not synchronize using the database synchronization procedure, AT&T Intuity Lodging still allows the AT&T Intuity Lodging system administrator to do the guest mailbox administration and use the AT&T Intuity Lodging screens to resolve discrepancies manually.

  NOTE:
  When administering guest mailboxes, it is the responsibility of the AT&T Intuity Lodging administrator and the attendants to exercise caution so as not to create database discrepancies.

- The attendants are allowed to turn the text or fax message notification on or off for a particular guest during PMS down times.

- A database synchronization command is provided in the command-menu on the AT&T Intuity Lodging system to facilitate manual initiation of a complete database update by the system administrator or the attendants. This command (**dbsync**) is used in cases where the databases go out of synchronization even though both systems are up running. It forces AT&T Intuity Lodging to initiate a database synchronization procedure by sending a (60,7) to the PMS.

  NOTE:
  PMS vendors should also provide a similar command in their user interface. In fact, this command is more useful from the PMS screens as the attendants do not need to use the AT&T Intuity Lodging screens at all.

- Because the database synchronization takes care of synchronizing the MWI status information on both systems, the AT&T Intuity Lodging system throws away "stale" MWI status messages that accumulate during PMS downtime.
- AT&T Intuity Lodging can automatically transfer the guest caller to the attendant when the PMS link is down. The guest will still be allowed to retrieve messages. The attendant can take down text messages and turn the MWI on and off manually. This feature reduces the possibility of database synchronization errors. If it is not used, messages for a new guest checked in during link failure might be moved into the old mailbox during database synchronization because the guest information between AT&T Intuity Lodging and PMS does not match.

Guest Information Synchronization

A PMS vendor can choose any one of the following three specific procedures for guest information synchronization depending on the development constraints and the features needed:

- Shut down AT&T Intuity Lodging completely when the PMS system goes down
- Have PMS send a display/lookup command to each AT&T Intuity Lodging extension
- Have PMS send each record to AT&T Intuity Lodging for update

It is recommended that the PMS vendor follow one of the last two methods listed above.

NOTE:
Regardless of which method is used, guest information packets should be sent in alphnumeric order for efficient synchronization.

Simply put, these procedures involve a series of guest information exchange packets—such as display/checkin/checkout—between the (60,3) and (60,4) envelope sent by the PMS. The PMS performs the synchronization when it receives a (60,1) or a (60,2) from AT&T Intuity Lodging. If the PMS knows that the databases did not change during the downtimes, it can, upon receiving these messages, choose to send (60,3) immediately followed by a (60,4) with no messages in between.

A Simplified Approach

To simplify guest information synchronization and reduce PMS development, a hotel may choose to shut down AT&T Intuity Lodging during PMS downtime or change the call coverage path for the guests to go to the live attendants instead of AT&T Intuity Lodging. In either case, the caller cannot leave mail messages for the guest. If AT&T Intuity Lodging is shut down, the guest cannot retrieve mail messages during link downtimes.

The objective here is to eliminate the need for guest information synchronization. The PMS should send (60,3) immediately followed by a (60,4) with no messages in between as it does not have any synchronization procedure.

Also, the PMS cannot create the guest mailbox database on AT&T Intuity Lodging the first time it comes up, due to the lack of synchronization messages. This data entry work has to be to done manually by the attendants the first time using the PMS screens or by the AT&T Intuity Lodging administrator using the AT&T Intuity Lodging screens.

Complete Database Update

Another method of synchronizing the databases is to have the PMS send a display/look-up command to AT&T Intuity Lodging on every extension. This is very time consuming.

Depending on the AT&T Intuity Lodging data for a guest extension/room, the PMS can issue further commands like checkin/modify/checkout to solve discrepancies and synchronize the databases. The PMS knows which database is current and can do the synchronization accordingly as it has the knowledge whether the PMS went down or the AT&T Intuity Lodging went down. All these commands should be sent within the (60,3) and (60,4) envelope.

If AT&T Intuity Lodging goes down, the attendants can continue to do their check-in and check-out activities on the PMS. The PMS will not be able to administer guest mailboxes, however, because of link failure. In this case, the PMS initiates the database synchronization when AT&T Intuity Lodging comes up—that is, when the PMS receives a (60,1). The PMS knows that its own database is current.

If the PMS goes down, the AT&T Intuity Lodging administrator can use the AT&T Intuity Lodging screens to administer guest mailboxes. In this case, the PMS will get a (60,2) from the AT&T Intuity Lodging system after it comes up telling the PMS to start the database synchronization and that the AT&T Intuity Lodging database is current.

The PMS must decide how to synchronize the guest information. Therefore, it may take time for this procedure to do the update for properties over 1000 rooms. Also, a complete database update must be done if either system went down and there were few database changes.

Complete Database Update Similar to PBX<-->PMS Procedure

NOTE:
Most PMS developers use the following procedure when updating the databases using database synchronization.

In the existing PMS<-->AT&T PBX database synchronization procedure, the PMS always uses the most current database. Using this approach for database synchronization, the PMS dictates to AT&T Intuity Lodging what the current database should be doing. The PMS will not update its database using the AT&T Intuity Lodging database by doing look-ups even if it is current.

When the PMS goes down and comes up, all changes like checkin, checkout, and transfer should be entered by the attendants on the PMS after it comes up. The PMS will start using the AT&T Intuity Lodging interface only after collecting these database changes and coming with up two bundles of database records:

- A list of current checked-in extensions
- A list of current checked-out extensions

The PMS queues all these records and sends them one at a time to AT&T Intuity Lodging for AT&T Intuity Lodging to update its records. The PMS initiates the database synchronization by sending a (60,3). The PMS then sends these records followed by a (60,4). AT&T Intuity Lodging accepts all the valid feature code messages during the database synchronization. If any of the forced check-in or check-out messages results in a failure, the same return process codes used for the normal checkin or checkout is sent back to the PMS. For example, a forced checkin on a suite member extension will result in a failure (50, 7).

In contrast to the forced check-in messages, the synchronization decisions here are left to the rules built in to AT&T Intuity Lodging. However, these rules need not be exercised by AT&T Intuity Lodging because the PMS takes control—that is, does a checkout or a modify—depending on the information it gets using the display command.

It can also take time for this procedure to do the update for properties over 1000 rooms. Also, a complete database update has to be done on the AT&T Intuity Lodging by the PMS even if there are only a few database changes (taken down by the attendants) during link failure.

Forced Check-In Messages

Some check-in messages become forced check-in messages if there is a mismatch on the password. If the guest does not choose a password, the guest name is used for the comparison. AT&T Intuity Lodging performs a checkout followed by a checkin in case of a mismatch.

Whenever such built-in rules are enforced, an audible beep is provided on the AT&T Intuity Lodging system console in addition to error logging. The attendant or the administrator has the responsibility to look at the database discrepancy errors using the AT&T Intuity Lodging reports screen.

When the guest has chosen a password, that password is used for database matching instead of the name. This is because it is possible to have two people staying in a room using the same guest extension/mailbox and password. If one of these guests checks out of the room during link failure, a forced checkout on the mailbox and a checkin on the name mismatch is performed.

If this forced checkout happens, messages for the person continuing to stay are put into the old mailbox. (An alternative rule could be to use the name for matching and, upon a mismatch, execute a modify command, but AT&T Intuity Lodging will not do this).

The (50,1) within a (60,3) and (60,4) envelope will be treated as a forced checkin if password or name do not match. The following are the responses taken from Table 4-1:

- Response (50,9) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging agrees with the PMS during database synchronization regarding check-in status and guest password. The mailbox has no mail messages.
- Response (50,A) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging agrees with the PMS during database synchronization regarding check-in status and guest password. The mailbox has mail messages.
- Response (50,B) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging disagrees with the PMS during database synchronization regarding check-in status— that is, the PMS claims the mailbox is checked in while AT&T Intuity Lodging claims otherwise. AT&T Intuity Lodging checks in the mailbox successfully.
- Response (50,C) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging disagrees with the PMS during database synchronization regarding the guest password. AT&T Intuity Lodging checks out its old guest and checks in the new guest. The old guest has no mail messages.

- Response (50,D) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging disagrees with the PMS during database synchronization regarding the guest password. AT&T Intuity Lodging checks out its old guest and checks in the new guest. The old guest has mail messages.

NOTE:
If the PMS is in control of the MWI, it should send a command to the switch to update its database regarding the MWI status for the guest mailbox and controlling the MWI status on the switch.

Forced Check-Out Messages

The (52,1) within a (60,3) and (60,4) envelope is treated as a forced checkout. The following are the responses taken from Table 4-3:

- Response (52,A) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging agrees with the PMS during database synchronization regarding checkout status.
- Response (52,B) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging disagrees with the PMS during database synchronization regarding checkout status—that is, the PMS claims the mailbox is checked out while AT&T Intuity Lodging claims otherwise. The mailbox has no mail messages. AT&T Intuity Lodging checks out the mailbox successfully.
- Response (52,C) from AT&T Intuity Lodging indicates that AT&T Intuity Lodging disagrees with the PMS during database synchronization regarding checkout status—that is, PMS claims the mailbox is checked out while AT&T Intuity Lodging claims otherwise. The mailbox has mail messages. AT&T Intuity Lodging checks out the mailbox successfully.

  NOTE:
  If the PMS is in control of the MWI, it should send a command to the switch to update its database regarding the MWI status for the guest mailbox and controlling the MWI status on the switch.

Although a response like (52,C) indicates to the PMS that the MWI should be turned off, the PMS can send the MWI-off message to the switch at this time or wait for the Voice Message Notification command (5E,1) from AT&T Intuity Lodging and send the message at that time. The (5E,1) will immediately follow the response (52,C).

MWI Synchronization

AT&T Intuity Lodging automatically initiates a MWI synchronization procedure following guest information synchronization (60,3 to 60,4). Because MWI messages are not saved or sent to the PMS during guest information synchronization, AT&T Intuity Lodging sends a room-by-room (extension) status of the MWI to the PMS.

AT&T Intuity Lodging sends a (5E,1) to the PMS for each room in its guest database. AT&T Intuity Lodging waits for a response from the PMS after each (5E,1) sent, then goes to the next room.

For MWI off-status messages, AT&T Intuity Lodging sends a (5E,1) with the VOICE field equal to 0x2. PMS is expected to complete the following procedure:

1. Respond with a (5E,2) for any extension.
2. Check the validity of the extension.
3. If the extension is in the PMS database, the PMS turns the MWI off if it is controlling the MWI. At this point, AT&T Intuity Lodging and PMS are synchronized for this extension and the procedure is completed.
4. If the extension is not in the PMS database, PMS sends a DEL_EXTN (53,1) to AT&T Intuity Lodging.
5. If the extension is an administrator or an attendant extension, AT&T Intuity Lodging responds with a (53,6) or (53,8). PMS should accept this message without error and turn the MWI off if it is controlling the MWI.
6. If AT&T Intuity Lodging returns a (53,2), AT&T Intuity Lodging and the PMS are synchronized for this room.

For MWI-on status messages, AT&T Intuity Lodging sends a (5E,1) with the VOICE field equal to 0x3. PMS is expected to complete the following procedure:

1. Respond with a (5E,2) for any extension.
2. Check the validity of the extension.
3. If the extension is in the PMS database, the PMS turns the MWI on if it is controlling the MWI. At this point, AT&T Intuity Lodging and PMS are synchronized for this extension and the procedure is completed.
4. If the extension is not in the PMS database, PMS sends a check-out message (52,1) and a DEL_EXT (53,1) to AT&T Intuity Lodging.
5. If the extension is an administrator or an attendant extension, AT&T Intuity Lodging responds with a (52,6) or (52,8). PMS should accept this message without error and turn the MWI on if it is controlling the MWI.
6. If AT&T Intuity Lodging returns a (52,2), AT&T Intuity Lodging and the PMS are synchronized for this room.

NOTE:
A check-out message automatically generates a MWI-off message from AT&T Intuity Lodging to PMS. This message is processed as described in the procedure for MWI-off status messages, where the extension is deleted.

Error Reporting

6

The AT&T Intuity Lodging/PMS integration features the following types of error reporting:

- Protocol errors
- Message text/content syntax errors
- Invalid operation errors

Protocol Errors

Each system should keep track of protocol errors and drop the link if the total number of those errors reaches 50. The counter is incremented by one for any of the following events:

- A control character received without a DLE in front of it
- A noncontrol character received outside of the STX/ETX frame
- An ETX received when a message was not being received
- An incorrect MSGCT value
- An invalid BCC
- Several similar protocol-related errors as detailed in the *DEFINITY® Communications System Generic 1 and System 75 Property Management System Interface Specifications*, 555-200-925.

A negative acknowledgement (NAK - 0x15) is transmitted back to the sender if a message with an invalid BCC is received. The sender must resend the packet.

When a good message is received, the protocol errors counter is decreased by one.

Message Text Content/Syntax Errors

The receiver of a message packet can set the most significant bit of the FEATURE CODE to a logical 1 when content errors as invalid encoding for characters interpreted as nibbles, invalid feature codes, invalid process codes, invalid extensions, invalid passwords, and invalid characters for fields interpreted as ASCII exist in the message.

The receiver sends back the message packet with this bit set to the sender. The sender of the invalid feature message has the responsibility of appropriately logging the individual violation messages for later problem and correction.

Invalid Operation Errors

This error logging is done for errors other than content errors, such as invalid operations. For example, one cannot check in an extension that is already checked in. Invalid operations are transmitted back to the sender using different process codes.

PMS Communications Log

7

The PMS Communications Log, which is maintained on the AT&T Intuity Lodging system, can be a very useful tool in debugging problems with the PMS protocol implementation. It shows all data, good or bad, sent or received by the AT&T Intuity Lodging system. An explanation is also printed for every data packet exchanged between the PMS and the AT&T Intuity Lodging system. This log is accessible through the system administration (sa) login on the AT&T Intuity Lodging system and can be displayed, printed or downloaded onto a diskette.

Accessing the PMS Communications Log

The PMS Communications Log can be accessed from the AT&T Intuity console or from a remote terminal. To access the PMS Communications Log screen from the console, perform the following steps.

1. Begin at the Intuity (TM) Administration screen and select the following sequence.

   > Lodging Administration

   > Command Menu (F7)

2. After pressing CMD-MENU (F7), the following screen will appear.

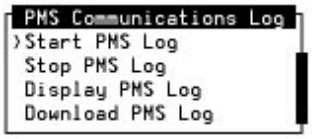
3. Select PMS Communications Log from the Command Menu.
4. The PMS Communications Log screen will appear.

PMS Communications Log Options

The following options can be performed from the PMS Communications Log screen.

Start the PMS Log

This option will start the capture of the PMS Log. When this menu item is selected, a form will be displayed.



1. Enter **High** or **Low** in Trace Level field.

   All data sent or received by the AT&T Intuity Lodging system will be displayed under the High option. If the Low option is chosen, only the data sent out by AT&T Intuity Lodging will be shown with brief explanations for data received.

2. Press SAVE (F3).

   An information window appears.

3. Press ENTER to continue.

Stop PMS Log

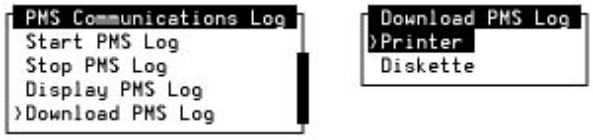
This option stops the capture of the PMS Log. If the capture is not stopped, the system will automatically stop the capture after 1.5 mega bytes of data has been collected. A 1.5 mega byte log will contain data from the last 3 to 7 hours depending on the rate at which the data is being exchanged on the link.

Display PMS Log

This option will display currently captured log on the terminal. The log captured is not stopped while the log is being displayed. Use the spacebar to continue displaying data.

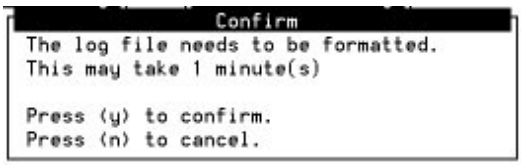
Download PMS Log

This option may be used to get a printout of the log or to download it onto a diskette. A Download PMS Log screen will be displayed when the download option is chosen..



1. Select Printer or Diskette from the Download PMS Log screen.

   Before the log is actually sent to the printer or the Download PMS Log screen is displayed, the log may have to be formatted. An information screen will be displayed at this time informing the user that log needs to be formatted and the approximate time to complete the format.



2. To continue with the download, enter **y** or press **n** to cancel.

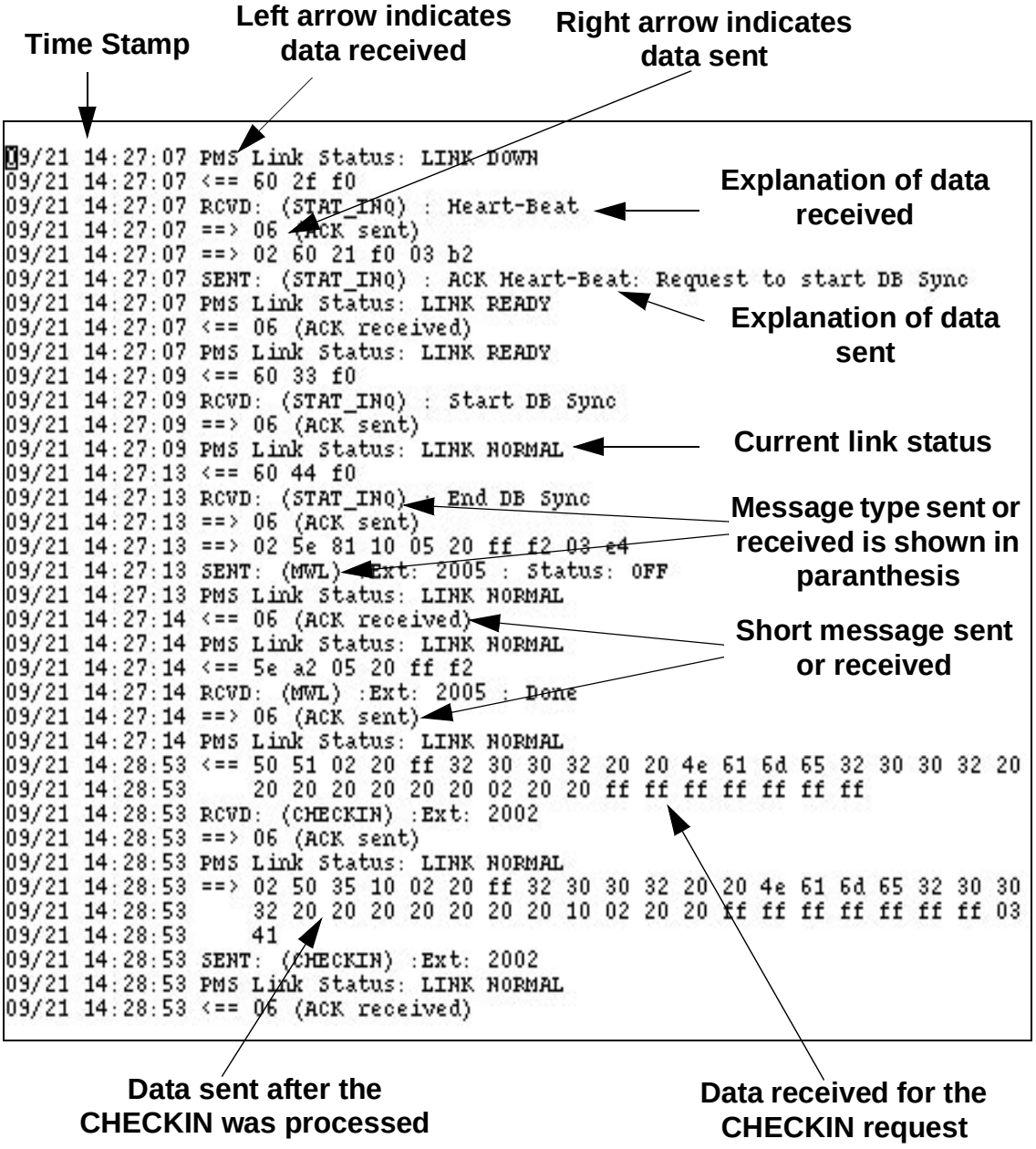
   The log may be downloaded on a DOS or a UNIX diskette. The file is placed on the UNIX diskette as a “cpio” archive.

Interpreting the Log

The PMS Communications Log shows data sent and received by the AT&T Intuity Lodging system on the PMS link. It also displays an explanation of each message sent or received. As protocol problems arise, they are indicated in the log with an appropriate explanation.

- Each message sent or received by the AT&T Intuity system must be acknowledged with an ACK character.
- If an ACK is not received, an ENQ character will be sent after the Link Acknowledgment Time-out.
- Sent and received data is shown only when the “High” trace level is selected. The “Low” level trace only shows the data sent with a brief explanation for messages received from the PMS.
- The data shown corresponds to the packet structures for each message type. Each byte of data sent or received is shown as two alphanumeric characters with space in-between.
- The data received does not show the STX, ETX, and any DLE characters received. These characters are shown in the data sent.
- Link status is shown frequently in the PMS Communications Log. The status corresponds to the states shown in the PMS protocol schematic.

The example below shows a display of the PMS Communications Log.


Time Stamp
Left arrow indicates data received
Right arrow indicates data sent
09/21 14:27:07 PMS Link Status: LINK DOWN
09/21 14:27:07 <== 60 2f f0
09/21 14:27:07 RCVD: (STAT_INQ) : Heart-Beat
09/21 14:27:07 ==> 06 (ACK sent)
09/21 14:27:07 ==> 02 60 21 f0 03 b2
09/21 14:27:07 SENT: (STAT_INQ) : ACK Heart-Beat: Request to start DB Sync
09/21 14:27:07 PMS Link Status: LINK READY
09/21 14:27:07 <== 06 (ACK received)
09/21 14:27:07 PMS Link Status: LINK READY
09/21 14:27:09 <== 60 33 f0
09/21 14:27:09 RCVD: (STAT_INQ) : Start DB Sync
09/21 14:27:09 ==> 06 (ACK sent)
09/21 14:27:09 PMS Link Status: LINK NORMAL
09/21 14:27:13 <== 60 44 f0
09/21 14:27:13 RCVD: (STAT_INQ) : End DB Sync
09/21 14:27:13 ==> 06 (ACK sent)
09/21 14:27:13 ==> 02 5e 81 10 05 20 ff f2 03 e4
09/21 14:27:13 SENT: (MWL) :Ext: 2005 : Status: OFF
09/21 14:27:13 PMS Link Status: LINK NORMAL
09/21 14:27:14 <== 06 (ACK received)
09/21 14:27:14 PMS Link Status: LINK NORMAL
09/21 14:27:14 <== 5e a2 05 20 ff f2
09/21 14:27:14 RCVD: (MWL) :Ext: 2005 : Done
09/21 14:27:14 ==> 06 (ACK sent)
09/21 14:27:14 PMS Link Status: LINK NORMAL
09/21 14:28:53 <== 50 51 02 20 ff 32 30 30 32 20 20 4e 61 6d 65 32 30 30 32 20
09/21 14:28:53 20 20 20 20 20 20 02 20 20 ff ff ff ff ff ff
09/21 14:28:53 RCVD: (CHECKIN) :Ext: 2002
09/21 14:28:53 ==> 06 (ACK sent)
09/21 14:28:53 PMS Link Status: LINK NORMAL
09/21 14:28:53 ==> 02 50 35 10 02 20 ff 32 30 30 32 20 20 4e 61 6d 65 32 30 30
09/21 14:28:53 32 20 20 20 20 20 20 20 10 02 20 20 ff ff ff ff ff ff ff 03
09/21 14:28:53 41
09/21 14:28:53 SENT: (CHECKIN) :Ext: 2002
09/21 14:28:53 PMS Link Status: LINK NORMAL
09/21 14:28:53 <== 06 (ACK received)
Explanation of data received
Explanation of data sent
Current link status
Message type sent or received is shown in paranthesis
Short message sent or received
Data sent after the CHECKIN was processed
Data received for the CHECKIN request

PMS Protocol Problems

The following is a list of the log entries which identify potential problems with the PMS interface and their possible resolutions.

1. **"Request not processed. PMS must send a Heart-Beat"**

   This entry will appear in the log when a valid AT&T Intuity Lodging administration message, such as CHECKIN, was received from the PMS when the link was not in the LINK NORMAL state. This message is not acknowledged by AT&T Intuity Lodging. The PMS must bring the link back into the LINK NORMAL state by sending the STATUS (Heart-beat) message.

2. **"illegal character before/after STX"**

   The protocol requires that all data packets must start with STX (0x02) and end with BCC with the EXT (0x03) character just before the BCC, except for the ACK (0x06), NAK (0x15) or ENQ (0x05) characters. If any other character is received before the STX character, it will be identified in the log as such. On the other hand, within a data packet all control characters (characters between 0x00 and 0x1F) must be preceded with the DLE (0x10) character. If a control character is received within a data packet without a preceding DLE, this will be identified as "illegal character after STX". This problem may also result from mis-matched baud rates and other physical problems on the link.

3. **"BCC check failed: Rcvd BCC=xx Calculated BCC=yy"**

   This message will appear in the log when the BCC check fails. The BCC character at the end of a data packet is the exclusive OR of all octets following the STX through and including ETX (the STX is not included in the BCC calculation).

4. **"Reply to PMS queued: Waiting for an ACK: xx msg(s) in queue"**
   "MWL Update queued: Waiting for and ACK: xx MWL updates in queue"

   AT&T Intuity Lodging maintains two queues for outgoing messages to PMS. One queue holds replies to normal administration messages such as CHECKINs and the other queue holds message waiting indicator updates which need to be sent to PMS. As AT&T Intuity Lodging sends messages to the PMS it expects an acknowledgment for every message. If acknowledgments are not received, but the PMS continues to send other administration messages, AT&T Intuity Lodging will process each request but queue the reply until an acknowledgment to the last message is received. Similarly if a message waiting update needs to go out but AT&T Intuity Lodging is waiting for an acknowledgment, it will queue the message waiting indicator update. Each queue can only hold 200 messages after which the link is taken into the LINK DOWN state. The symptom of this problem are delayed message waiting lamp updates.

5. **"CODE VIOLATION: Msg received contains incorrect data"**

   If a received administration message contains incorrect number of fields or if one of the fields contains illegal data, this results into CODE VIOLATION. AT&T Intuity Lodging acknowledges this message but sends the whole packet back to the PMS with the most significant bit of the "FEATURE CODE" octet set (to '1'). The number of the fields and the value in each field must correspond to the protocol specifications as described in the PMS Development Guide.

6. **"EVENT:"**

   Each "EVENT" entry in the log will be followed by an explanation and will generate an entry in the AT&T Intuity Maintenance Log. The following events are reported in the PMS Communications Log.
   "PMS Link Idle Time-out"
   "Garbage on the PMS link"
   "No more room to queue messages for PMS"
   "Max retransmit requests"
   "Max tries to transmit"
   "Too long in the MAINT state" (30 minutes is the limit)
   "Internal data corruption"

   Each of these events is preceded by other entries in the log which will provide more information about the cause of the problem. The link is taken into the LINK DOWN state on any one these EVENTS.

7. **"ENQ Sent / ENQ received"**

   An ENQ character is sent by AT&T Intuity Lodging when it is expecting an ACK and the Link Acknowledgment Time-out expires. If there are numerous "ENQ Sent" entries in the log, this may indicate a problem whereby the Acts from PMS are not being received.

8. **"NAK Sent / NAK received"**

   A NAK is sent by either the PMS or AT&T Intuity Lodging when the BCC check fails on the received data. If there are numerous "NAK Sent" or "NAK received" entries in the log, the PMS link integrity must be checked. Also try reducing the communication baud rate.

9. **Extension received by Intuity Lodging has digits backwards**

   This is not an entry which will appear in the PMS Communications Log. However, if the digits of the extension are printed backwards in the PMS log, make sure that the extension characters received from the PMS were entered in the reverse order, the way specified in the specifications.

Feature Message Set Summary

A

Feature Messages

Table A-1 summarizes the list of feature messages used for the PMS Intuity Lodging interface.

Table A-1. Feature Message Set Summary

Operational Feature	Feature Code	Purpose
Checkin	50	PMS tells Intuity Lodging to check in a guest
Modify	51	PMS tells Intuity Lodging to modify guest information
Checkout	52	PMS tells Intuity Lodging about guest mailbox checkout
Delete extension	53	PMS tells Intuity Lodging to delete an extension
Display mailbox	54	PMS tells Intuity Lodging to send mailbox information
Purge	55	PMS tells Intuity Lodging to purge an old mailbox or all old mailboxes

Continued on next page

Table A-1. Feature Message Set Summary — *Continued*

Operational Feature	Feature Code	Purpose
Activate	56	PMS tells Intuity Lodging to activate an old mailbox
Display old mailbox	57	PMS tells Intuity Lodging to send old mailbox information
Transfer/merge	58	PMS tells Intuity Lodging to transfer/merge a guest
Swap	59	PMS tells Intuity Lodging to swap guests
Text/fax	5A	PMS tells Intuity Lodging to notify guest about text/fax
Display suite	5B	PMS tells Intuity Lodging to send suite information
Create/modify suite	5C	PMS tells Intuity Lodging to modify/create a suite
Delete suite	5D	PMS tells Intuity Lodging to delete suite
MWI on/off	5E	Intuity Lodging tells PMS on room MWI status
Status inquiry	60	Data link maintenance/database synchronization
PBX link restart	61	PMS tells Intuity Lodging to restart the link between the PBX and Intuity Lodging
Display group list	62	PMS tells Intuity Lodging to send group list information
Create/modify group list	63	PMS tells Intuity Lodging to create or modify a group list
Delete group list	64	PMS tells Intuity Lodging to delete group list information

Message Data Ordering

B

There are two methods of transmitting data:

- Backward ordering
- Forward ordering

This section contains examples of both of these types of message data ordering.

Backward Ordering

Extension digits (nibbles) are transmitted from the least significant to the most significant digit. This is referred to as *backward ordering.* The following three diagrams illustrate backward ordering.

NOTE:
Only extension numbers use backward ordering. As used in this document, "extension" is represented by the following variables: EXTN, SUITE MEMBER EXTN, TO_EXTN, FROM_EXTN, FIRST_EXTN, SECOND_EXTN, and LIST_EXTN.

4	5
2	3
f	1

The diagram above shows how extension 12345 is entered in the message packet. The "f' represents NULL or four 1-bits of data.

3	4
1	2
f	f

The diagram above shows how extension 1234 is entered in the message packet.

2	3
f	1
f	f

The diagram above shows how extension 123 is entered in the message packet.

Forward Ordering

Any message data other than the extension—such as room characters, name characters or password—is ordered as it is spelled. This is referred to as *forward ordering.* The following four diagrams illustrate forward ordering.

2	1
4	3

The diagram above shows how password 1234 is entered in the message packet.

f	f
f	f

The diagram above shows how no password (or NULL) is entered in the message packet. "No password" means you will not be prompted for a password. (Remember that any password under four digits is illegal for Intuity Lodging.)

3	02
1	2

The diagram above shows how a room number (321) is entered in the message packet. The <sp> is the 0x20 space character.

Refer to Figure 4-2 to see how a name is entered in the message packet.

Abbreviations

A

AC
alternating current

ACD
automatic call distribution

ADAP
administration and data acquisition package

ADU
asynchronous data unit

ALT
assembly load and test

AMIS
Audio Messaging Interchange Specification

API
application programming interface

AUDIX
Audio Information Exchange

AWG
American wire gauge

B

BIOS
basic input/output system

bit
binary digit

bps
bits per second

BRI
basic rate interface

BSC
binary synchronous communications

BTU
British thermal unit

C

CAS
call accounting system

CCA
call classification analysis

CDH
call data handler process

CELP
code excited linear prediction

CICS
customer information control system

CMS
call management system

CO
central office

COIN
central office implemented network

COM1
serial communications port 1

COM2
serial communications port 2

COR
class of restriction

COS
class of service

CPU
central processing unit

CSI
called subscriber information

CTS
clear to send

D

DAC
dial access code

DBP
database processor

DC
direct current

DCE
data communications equipment

DCIU
data communications interface unit

DCP
digital communications protocol

DCS
distributed communications system

DID
direct inward dialing

DIP
data interface process

DMA
direct memory access

DNIS
dialed number identification service

DSP
digital signal processor

DSR
data set ready

DSU
data service unit

DTE
data terminal equipment

DTMF
dual tone multifrequency

DTR
data terminal ready

E

EIA
Electronic Industries Association

ESD
electrostatic discharge

ESS
electronic switching system

F

F key
function key

FIFO
first-in first-out

FOOS
facility out of service

G

GBCS
Global Business Communications Systems

GOS
grade of service

H

Hz
hertz

I

I/O
input/output

IDI
isolating data interface

IMAPI
Intuity messaging application programming interface

INADS
initialization and administration system

IRQ
interrupt request

ISDN
integrated services digital network

IVC6
integrated voice CELP card (6 channels)

IVR
integrated voice response

K

Kbps
kilobits per second

Kbyte
kilobyte (1024 bytes)

kHz
kilohertz

L

LAN
local area network

LCD
liquid crystal display

LED
light-emitting diode

LIFO
last-in first-out

LWC
leave word calling

M

MANOOS
manually out of service

Mbyte
megabyte (one million bytes)

MHz
megahertz

modem
modulator/demodulator

MPDM
modular processor data module

ms
millisecond

MT
maintenance (Intuity software component)

MTBF
mean time between failures

MWI
message-waiting indicator

MWL
message-waiting lamp

N

NW
Intuity AUDIX Digital Networking

O

OA&M
operations, administration, and maintenance

OS
operating system

OSI
open systems interconnection

P

PBX
private branch exchange

PC
power converter or personal computer

PDM
processor data module

PEC
price element code

PIB
processor interface board

PMS
property management system

POST
power-on self test

R

RAM
random-access memory

REN
ringer equivalence number

ROM
read-only memory

RTS
request to send

RTU
right to use

S

SCA
switch communications adapter

SCSI
small computer systems interface

SID
switch integration device

SIMM
single in-line memory module

SMSI
simplified message service interface

SW
switch integration (Intuity software component)

T

TCP/IP
Transmission Control Protocol/Internet Program

TDD
telecommunications device for the deaf

TDM
time division multiplex

T/R
tip/ring

TRIP
tip/ring input process

TSC
AT&T's Technical Services Center

U

UCD
uniform call distribution

UPS
uninterruptible power supply

V

VM
Intuity AUDIX Voice Messaging

VP
voice platform (Intuity software component)

VROP
voice response output process

Glossary

5ESS Switch
An AT&T central office switch that can be integrated with the AT&T 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*.

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

ADAP
See *administration and data acquisition package*.

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

adjunct
A separate system closely integrated with a switch, such as an AT&T Intuity system or a call management system (CMS).

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

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

ADU
See *asynchronous data unit*.

alarm log
A list of alarms that represent all of the active or resolved problems on an AT&T 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
Alphabetic, numeric, or punctuation symbols.

ALT
See *assemble load and test.*

AMIS
See *Audio Messaging Interchange Specification*.

AMIS Prefix
A number added to the destination number to indicate that the destination number 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 transmission from one system to another.

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

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

antistatic
A material that is treated to prevent the build-up of static electricity.

API
See *application programming interface.*

application programming interface
A set of formalized software calls and routines that can be referenced by an application program to access underlying network services.

assemble load and test
The 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 bits or characters are spaced by start and stop bits and not by 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 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 AT&T Intuity system provides asynchronous RS-232 capabilities for Intuity AUDIX Digital Networking, if required.

attendant console
A special purpose phone with numerous lines and features located at the front desk. The front desk attendant uses the phone to answer and transfer calls.

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

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

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

AUDIX
See *Audio Information Exchange*.

autodelete
An Intuity AUDIX feature that allows subscribers to indicate that faxes are automatically deleted from their mailbox after being printed.

automated attendant
A feature that allows a user of an Intuity system 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 Intuity subscribers and users to the system. See also *call-distribution group*.

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

autoprint
An Intuity AUDIX feature that allows subscribers to indicate that faxes are automatically sent to a specified print destination.

autoscan
See *automatic message scan*.

AWG
See *American wire gauge.*

American wire gauge
A standard measuring gauge for non-ferrous conductors.

B

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

backup
A duplicate copy of files and directories saved on a removable media such as floppy diskette or tape. The backup filesystem may 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 the information should go to.

baud
A unit of measurement that describes the speed of transferred information.

baud rate
Transmission signaling speed.

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

basic rate access
See *basic rate interface*.

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

binary 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*.

bit
See *binary digit*.

body
The part of subscriber 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 (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.

BRI
See *basic rate interface*.

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

BSC
See *binary synchronous communications*.

buffer
Memory used to compensate for time differences in transmission by temporarily storing data.

bulletin board
An Intuity AUDIX feature that allows a message to be played to callers who dial the 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 an Intuity device from service (make it appear busy or in use), and later restore it to service (release it). The Intuity switch data link, voice ports, or networking ports may be busied out if they appear faulty or if maintenance tests are run.

byte
A unit of storage in the computer. On many systems, a byte is eight 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 or AT&T Intuity Lodging feature that allows the system to answer a call and record a message when the subscriber is unavailable. Callers may be redirected to the system through the call coverage or call forwarding switch features. Intuity AUDIX subscribers may record a personal greeting for these callers.

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

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

call coverage
A switch feature that defines a preselected path for calls to follow if the first (or second) coverage points are not answered. The 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 subscribers and users to the Intuity system by distributing new calls to idle ports. This group (or split) is called automatic call distribution (ACD) on System 85, Generic 2, and Generic 3 and uniform call distribution (UCD) on System 75, Generic 1, and Generic 3. See also *automatic call distribution* and *uniform call distribution*.

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

called tone (CED tone)
The distinctive tone generated by a fax endpoint when it answers a call (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 (constant 1100 Hz tone on for one-half second, off for three seconds).

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

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

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

CAS
See *call accouting system*.

CED tone
See *called tone*.

CELP
See *code excited linear prediction*.

central office (CO)
An office or location in which large telecommunication machines 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 system*.

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

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 Intuity Message Manager, the subscriber's PC running Message Manager is the client. See also *server*.

CMS
See *call management system*.

CNG tone
See *calling tone*.

CO
See *central office*.

COS
See *class of service*.

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

collocated
An 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 (i.e., 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
AT&T's numbering system for telecommunications equipment. 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.

compound message
A message that combines both a message and a fax message into one unit, which is then handled by Intuity AUDIX as a single message.

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

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

COS
See *class of service*.

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

CPU
See *central processing unit*.

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

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

CSI
See *called subscriber information*.

CTS
See *clear to send*.

D

DAC
See *dial access code*.

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

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

data communications interface unit (DCIU)
A switch device that allows nonvoice (data) communication between an AT&T Intuity system and an AT&T 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 phone 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 AT&T Intuity system connections. The 2600 or 2700 series may also be used; these are more expensive DSU options and support diagnostic testing and the DATAPHONE II Service network system.

data set
AT&T term for a modem. 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 AT&T 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*.

DCE
See *data communications equipment*.

DCIU
See *data communications interface unit*.

DCP
See *digital communications protocol*.

DCS
See *distributed communications system*.

debug
See *troubleshoot*.

dedicated line
A communications path that does not go through a switch. A dedicated (hard-wired) path may be formed with directly connected cables. MPDMs, DSUs, or other devices may 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 print number
The subscriber-administered extension to which autoprinted faxes are redirected upon their receipt into the subscriber's mailbox. This default print destination is also provided as a print option when the subscriber is manually retrieving and printing faxes from the mailbox.

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

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

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

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

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

DID
See *direct inward dialing*.

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
A specialized digital microprocessor that performs calculations on digitized signals that were originally analog and then sends the results on.

DIP
See *data interface process*.

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

direct inward dialing
The ability for a caller outside a company 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
An Intuity AUDIX feature allowing you to hear a subscriber's name and extension after typing **N at the activity menu. Also, 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 AT&T Intuity screens and performing maintenance or administration activities.

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

distribution list
See *mailing list*.

DMA
See *direct memory access*.

DNIS
See *dialed number identification service*.

DSP
See *digital signal processor*.

DSU
See *data service unit*.

DTE
See *data terminal equipment*.

DTMF
See *dual tone multifrequency*.

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

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

dual tone multifrequency
A way of signaling consisting of a pushbutton or touch tone dial that sends out a sound which consists of two discrete tones picked up and interpreted by telephone switches.

E

electrostatic discharge (ESD)
Discharge of a static charge on a surface or body through a conductive path to ground. An ESD can be damaging to integrated circuits.

enabled/disabled
The state of a hardware device that indicates whether the AT&T Intuity system can use it. 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 AT&T 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 subscriber who gets stuck trying to respond to a message. To escape, the subscriber simply presses #.

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

ESD
See *electrostatic discharge*.

events
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
The current channel is not receiving a dial tone and is not functioning.

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.

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

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

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

filename
Alphanumeric characters used to identify a particular file.

file redundancy
See *mirroring*.

file system
A collection of related files (programs or data) stored on disk that are required to initialize an AT&T Intuity system.

first-in/first-out
The first call (or data) to be received is the first call (or data) to be processed.

F key
See *function key*.

FOOS
See *facility out-of-service*.

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

function
Individual steps or procedures within a mailbox activity.

function key (F key)
A key on a computer keyboard that performs a defined function when pressed. The user interface for the AT&T Intuity system defines keys F1 through F8.

G

Generic 1, 2, or 3
AT&T switch system software releases. Generic 1, Generic 3i, and Generic 3s correspond to the new generation of System 75-based software. Generic 2 and Generic 3r correspond to the new release of System 85-based software.

generic tape
A copy of the standard software and stand-alone tape utilities that is shipped with a new AT&T Intuity system.

GOS
See *grade of service*.

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

guaranteed fax
A feature of AT&T 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 users who are not Intuity AUDIX subscribers to leave messages on the system by dialing a subscriber's extension and entering a system-wide guest password.

H

hard disk drive
A high-capacity data storage/retrieval device that is located inside a computer platform. A hard disk drive stores data on non-removable 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 an AT&T 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 one cycle per second.

host switch
The switch directly connected to the AT&T Intuity system over the data link. Also, the physical link connecting an AT&T 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*.

I

I/O
Input/output.

IDI
See *isolating data interface*.

IMAPI
See *Intuity messaging application programming interface*.

INADS
See *initialization and administration system*.

information service
See *bulletin board*.

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

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

initialize
To start up the system for the first time.

input
A signal fed into a circuit or channel.

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

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

integrated voice response
An application module that allows customers to write their own alternate applications, also known as a script builder.

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

interrupt request (IRQ)
A device that signals the data bus and the CPU that it needs attention.

Intuity AUDIX Digital Networking
An AT&T Intuity feature that allows customers to link together up to 500 remote AT&T Intuity machines for a total of up to 500,000 remote subscribers. See also *digital networking*.

Intuity Message Manager
A Windows-based software product that allows Intuity AUDIX subscribers to receive, store, and send their voice/FAX messages from a PC.

Intuity messaging application programming interface (IMAPI)
A software function-call interface that allows Intuity AUDIX to interact with AT&T Intuity Message Manager.

I/O address
input/output address.

IRQ
See *interrupt request*.

ISDN
See *integrated services digital network*.

isolating data interface (IDI)
A synchronous, full duplex data device used for cable connections between an AT&T Intuity GPSC-AT/E card and the switch data communications interface unit (DCIU).

IVC6
See *integrated voice processing CELP (IVC6) card.*

IVR
See *integrated voice response*.

J

jumper
Pairs or sets of small prongs on circuit cards and mother boards that allow the user to instruct the computer to select one of its available operation options. When two pins are covered, an electrical circuit is completed.

K

Kbps
kilobits per second; one thousand bits per second.

Kbyte
kilobyte 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 backup copies (such as back01). Disk drive labels usually indicate the disk position (such as disk00 or disk02).

LAN
See *local area network*.

last-in/first-out
The last call (or data) to be received is the first call (or data) to be processed.

LCD
See *liquid crystal display*.

leave word calling (LWC)
A switch feature that allows the calling party to leave a standard (nonvoice) message for the called party using a feature button or dial access code.

LED
See *light emitting diode*.

LIFO
See *last-in/first-out*.

light emitting diode (LED)
A light indicator on the hardware platform that shows the status of operations.

liquid crystal display (LCD)
The 10-character alphanumeric display that shows status of the system, including alarms.

load
To read software from external storage (such as disk) and place 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 AT&T Intuity Message Manager requires that the Intuity AUDIX system and the subscribers' PCs are on a LAN.

local AUDIX machine
The AT&T Intuity system where a subscriber's Intuity AUDIX mailbox is located. All subscribers on this home machine are called *local subscribers*.

local installation
A switch, adjunct, or peripheral equipment installed physically near the host switch or system. See also *collocated*.

local network
An Intuity AUDIX Digital Network in which all AT&T Intuity systems are connected to the same switch.

login
A unique code used to gain approved access to the AT&T 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 subscribers every time they login to the system.

LWC
See *leave word calling*.

M

magnetic peripherals
Data storage devices that use magnetic media to store information. Such devices include hard disk drives, floppy disk drives, and cartridge tape drives.

mailbox
A portion of disk memory given to each subscriber for creating and storing outgoing and incoming messages.

mailing list
A group of subscriber addresses assigned a list ID# and public or private status. A mailing list may be used to simplify sending messages to several subscribers.

maintenance
The process of identifying system errors and correcting them, or taking steps to prevent problems from occurring.

major alarm
An alarm detected by AT&T Intuity software that affects at least one fourth of the AT&T Intuity ports in service. Often a major alarm indicates that service is affected.

MANOOS
See *manually out-of-service*.

manually out-of-service
A unit has been intentionally taken out of service.

mean time between failures
The average time a manufacturer estimates before a failure occurs in a component or system.

megabyte
A unit of memory equal to 1,048,576 bytes (1024 x 1024). It is often rounded to one million.

memory
A device which can store logic states such that data can be accessed and retrieved. Memory may be temporary (such as system RAM) or permanent (such as disk).

menu tree
The way in which nested automated attendants are set up.

message categories
Groups of messages in Intuity AUDIX subscribers' mailboxes. Categories include new, unopened, and old for the incoming mailbox and delivered, accessed, undelivered, undeliverable (not deliverable), and file cabinet for the outgoing mailbox.

message delivery
An optional AT&T Intuity feature that permits subscribers to send messages to any touch-tone telephone, as long as the telephone number is in the range of allowable numbers. This feature is an extension of the AMIS analog networking feature and is automatically available when the AMIS feature is activated.

Message Manager
See *Intuity Message Manager*.

message-waiting indicator (MWI)
An indicator that alerts subscribers that they have received new mail messages. An MWI can be LED, neon, or audio (stutter dial tone).

message waiting lamp (MWL)
An lamp that alerts subscribers that they have received new mail messages. An MWL can be LED, neon, or audio (stutter dial tone). Also known as a message-waiting indicator.

migration
An installation that moves data from another messaging system to the AT&T Intuity system.

minor alarm
An alarm detected by maintenance software that affects less than one fourth of the AT&T Intuity ports in service, but has exceeded error thresholds or may impact service.

mirroring
An AT&T Intuity system feature that allows data from crucial filesystems to be continuously copied to backup (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 AT&T Intuity AUDIX system information such as call type, calling party, called party, and on/off signals for message waiting lamps.

modem
A device that converts data from a form that is compatible with data processing equipment (digital) to a form compatible with transmission facilities (analog), and vice-vera.

modular
A term that describes equipment made of plug-in units that can be added together to make the system larger, improve its capabilities, or expand its size.

modular processor data module (MPDM)
A data device that converts RS-232C or RS-449 protocol signals to digital communications protocol (DCP) used by System 75/85, Generic1, and Generic 3 switches. MPDMs may connect AT&T Intuity to a switch DCIU or SCI link or connect terminals to a switch port card.

MPDM
See *modular processor data module*.

MTBF
See *mean time between failures*.

multi-application platform (MAP)
The computer hardware platform used by the AT&T Intuity system. Currently, a MAP/5, MAP/40, and MAP/100 are available.

multilingual feature
A feature that allows simultaneously-active language announcement sets on the system. With this feature, mailboxes can be administered so that subscribers can hear prompts in the language of their choice.

MWI
See *message-waiting indicator*.

MWL
See *message waiting lamp*.

N

networking
See *Intuity AUDIX Digital Networking*.

networking prefix
A set of digits that identifies an AT&T 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
Al message that could not be delivered after a specified number of attempts. This usually means that the subscriber's mailbox is full.

O

on-line help
An AT&T Intuity feature that provides information about AT&T Intuity user interface screens by pressing a predetermined key. See also *help*.

open systems interconnection (OSI)
Internationally accepted framework of standards for communication between two systems made by different vendors.

operating system (OS)
The set of 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 modify program output by modifying the execution of a command. When you do not specify any options, the command will execute according to its default options.

OS
See *operating system*.

OSI
See *open systems interconnection*.

outcalling
An AT&T Intuity feature that allows the system to dial subscribers' numbers to inform them they have new messages.

outgoing mailbox
A storage area for subscribers to 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
A code assigned to every AT&T Intuity terminal user and Intuity AUDIX subscriber for security reasons. After dialing the system, subscribers must dial their personal password correctly to log on. Passwords are also assigned to local and remote networked machines to identify the machines or the network. See also *login.*

password aging
An Intuity AUDIX feature that allows administrators to set a length of time after which a subscriber's password expires. The subscriber is then forced to change the password.

PBX
See *private branch exchange*.

PC
See *power converter*.

PDM (processor data module)
See *modular processor data module (MPDM)*.

PEC
See *price element code*.

peripheral device
Equipment external to the AT&T Intuity cabinet, such as printers or terminals, necessary for full operation and maintenance of the AT&T Intuity system. Also called *peripherals*.

personal directory
An Intuity AUDIX feature allowing each subscriber 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*.

port
A connection or link between two devices, allowing information to travel to a desired location. For example, a switch port connects to an AT&T Intuity voice port to allow a subscriber to leave a message.

POST
See power-on self test.

priority call answer
An Intuity AUDIX feature that allows callers to designate a call answer message as a priority message. To make a message priority, the caller presses 2 after recording the message.

priority messaging
An Intuity AUDIX feature that allows some subscribers to send messages that are specially marked and preferentially presented to recipients. See also *priority outcalling*.

priority outcalling
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 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 owning subscriber can access.

private messaging
A feature of Intuity AUDIX that allows a subscriber to send a message that cannot be forwarded by the recipient.

processor data module (PDM)
See *modular processor data module (MPDM)*.

processor interface (PI)
A System 75, Generic 1, Generic 3i, Generic 3s, and Generic 3vs switch data link. Also called *processor interface board (PIB)*.

programmed function key
See *function key*.

property management system
Term used in hospitality industry referring to the database used by hotels for guest records and billing information.

protocol
A set of conventions or rules governing the format and timing of message exchanges (signals) to control data movement and the detection and possible correction of errors.

public mailing list
A list of addresses that any Intuity AUDIX subscriber can use if that subscriber knows the owner's list ID# and extension number. Only the owner can modify a public mailing list.

pulse-to-touchtone converter
A device connected to the switch that converts signals from a rotary phone to touch tones. This device allows callers to use rotary phones to access options in a subscriber's mailbox or to access options in an automated attendant.

R

RAM
See *random access memory*.

random access memory (RAM)
The primary memory in a computer that can be overwritten with new information.

read-only memory
A memory device which is programmed at the factory and whose contents thereafter cannot be altered.

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 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 network
A network in which the systems are integrated with more than one switch.

remote service center
An AT&T or AT&T-certified organization that provides remote support to AT&T 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 into your system and remedy problems.

remote subscribers
Intuity AUDIX subscribers whose mailboxes reside on a remote Intuity AUDIX Digital Networking machine.

remote terminal
A terminal connected to a computer over a phone line.

REN
See *ringer equivalence number*.

reply loop escape
An Intuity AUDIX feature that allows a subscriber the option of continuing to respond to a message after trying to reply to a nonsubscriber message.

reply to sender
An Intuity AUDIX feature that allows subscribers to immediately place a call to the originator of an incoming message if that person is in the switch's dial plan.

request to send (RTS)
One of the control signals on a RS-232 connector that places the modem in the originate mode so that it can begin to send.

restart
An AT&T Intuity feature that allows Intuity AUDIX subscribers who have reached the system through the call answer feature to access their own mailboxes by typing the *R (Restart) command. This feature is especially useful for long-distance calls or for users who wish to access the AT&T Intuity system when all the ports are busy. Also, 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 backup tapes, floppy diskette, or another disk device.

retention time
The amount of time messages are saved on disk before being automatically deleted from a subscriber's mailbox.

ringer equivalence number (REN)
A number required in the United States for registering your telephone equipment with the phone company.

ROM
See *read-only memory*.

RS-232
A set of standards developed by the Electrical Industries Association (EIA) that specifies various electrical and mechanical characteristics for interfaces between computers, terminals, and modems.

RTS
See *request to send*.

S

sales representative
An AT&T or AT&T-certified person who assists you in the purchasing, planning, and implementation of AT&T equipment and solutions.

SCA
See *switch communications adapter*.

scan
To automatically play mail messages, headers, or both.

scheduled delivery time
A time and/or date that an Intuity AUDIX subscriber optionally assigns to a message that tells the system when to deliver it. If a delivery time is omitted, the system sends the message immediately.

SCSI
See *small computer system interface*.

secondary extension
A second, fax-dedicated extension that directs incoming faxes directly into a subscriber's mailbox without ringing the telephone. The secondary extension shares the same mailbox as the voice extension, but acts like a fax machine. Also called *personal fax extension*.

serial transmission
The transmission of one bit at a time over a single wire.

server
A computer that processes and stores data that is used by other smaller computers. For AT&T 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*.

SIMMs
See *single in-line memory modules*.

simplified message service interface (SMSI)
Type of data link connection to an integrated 1A ESS switch or 5ESS switch in the AT&T Intuity system.

single in-line memory modules (SIMMs)
A method of containing random access memory (RAM) chips on narrow circuit card 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*.

split
Group (or queue) of analog ports on the switch. See also *call-distribution group*.

subscriber
An AT&T Intuity user who has been assigned the ability to access the Intuity AUDIX Voice Messaging system.

subscriber interface
The devices that subscribers use to access their mailboxes, manage mailing lists, administer personal greeting, and use other messaging capabilities. Subscriber interfaces include a touch-tone telephone keypad and a PC using AT&T Intuity Message Manager.

surge
A sudden voltage rise and fall in an electrical circuit.

surge protector
A device that plugs into the phone system and the commercial AC power outlet. It is designed to protect the phone system from high voltage surges that could be damaging to the phone system.

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 hook
The device at the top of most telephones which is depressed when the handset is resting in the cradle (on hook). This device is raised when the handset is picked up (the phone 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 in order to provide a seamless interface to callers and subscribers.

switch integration device
Operates as a digital telephone set emulator.

switch network
Two or more interconnected switching systems.

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 magnetic tape.

TCP/IP
See *transmission control protocol/internet program*.

TDD
See *telecommunications device for the deaf*.

TDM
See *time division multiplex*.

telecommunications device for the deaf (TDD)
A device with a keyboard and display unit that connects to or substitutes for a phone. The TDD allows a deaf or hearing-impaired person to communicate over the phone 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 being used to log on to the AT&T Intuity system. Terminal type is the last required entry before gaining access to the AT&T Intuity display screens.

terminating resistor
A grounding resistor placed at the end of bus, line, or cable to prevent signals from being reflected or echoed.

time division multiplex
A device which derives multiple channels on a single transmission facility by connecting bit streams one at a time at regular intervals.

tip/ring
A term used to denote the analog telecommunications interface.

tone generator
A device acoustically coupled to a rotary phone, used to produce touch-tone sounds when subscribers cannot use a regular touch-tone generating voice terminal.

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. They customize the AT&T Intuity system and switch features for users.

transmission control protocol/internet program (TCP/IP)
A set of protocols developed by the Department of Defense to link dissimilar computers across many kinds of networks. It is the protocol commonly used over Ethernet, as well as x.25, networks. Although committed to an eventual migration to an Open Systems Interconnection (OSI) architecture. TCP/IP currently divides networking functionality into only four layers: network interface, Internet, transport, and application.

T/R
See *tip/ring*.

troubleshoot
The process of locating and correcting errors in computer programs. Also called *debug*.

U

UCD
See *uniform call distribution*.

Undelete
An Intuity AUDIX feature that allows subscribers to restore the last message deleted. The subscriber presses * U to restore a deleted message.

undelivered message
A message that has not yet been sent to an Intuity AUDIX subscriber's incoming mailbox. The message resides in the sender's outgoing message 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 the result of an interrupted Intuity AUDIX session. Also called *working message*.

uniform call distribution (UCD)
The type of call-distribution group (or hunt group) of analog port cards on some switches that connects subscribers and 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
An auxiliary power unit for a telephone system 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 an AT&T Intuity system to a newer release.

untouched message
An Intuity AUDIX feature that allows a subscriber to keep a message in its current category by using the **H (Hold) command. If the message is in the new category, message-waiting indication remains active (for example, the message-waiting lamp will remain lit).

UPS
See *uninterruptable power supply*.

U. S. 123
An alternate announcement set in U. S. English whose prompts use numbers, not letters, to identify phone keypad presses. For example, a prompt might say, “press star three,” instead of, “press star D.”

user population
A combination of light, medium, and heavy users on which AT&T Intuity configuration guidelines are based.

V

vector
A customized program in the switch for processing incoming calls.

voice link
The AT&T 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 AT&T Intuity system on disk memory. Also called *voice mail*.

voice port
The IVC6 port that provides the interface between the AT&T Intuity system and the analog ports on the switch.

voice terminal
A telephone used for spoken communications with the AT&T Intuity system. A touch-tone telephone with a message-waiting indicator is recommended for all Intuity AUDIX subscribers.

voicing
Either speaking a message into the AT&T Intuity system during recording, or having the system playback a message or prompt to a subscriber.

volt
The unit of measurement of electromotive force. One volt is the force required to product a current of one ampere through a resistance of one ohm.

W

watt
A unit of electrical power that is required to maintain a current of one amp under the pressure of one volt.

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