



# **Intuity™ Messaging Solutions**

Release 5.1

Centrex Integration

Issue 1  
January 2001

This document was printed from the *Intuity Messaging Solutions Release 5 Documentation* CD (585-313-803, Issue 4) or the *Intuity Messaging Solutions Release 5 for Technicians* CD (585-313-807, Issue 4). For an electronic version of this information or for additional information, see either Documentation CD.

## Notice

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Avaya Inc. formed as a result of Lucent's planned restructuring, design builds and delivers voice, converged voice and data, customer relationship management, messaging, multi-service networking and structured cabling products and services. Avaya Labs is the research and development arm for the company.

## Preventing Toll Fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

### Avaya Inc. Fraud Intervention:

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Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of your company's telecommunications equipment) by some party. Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent. Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

## Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you – a Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure your:

- Avaya-provided telecommunications systems and their interfaces
- Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products.

Avaya Inc. does not warrant that this product or any of its networked equipment is either immune from or will prevent either unauthorized or malicious intrusions. Avaya Inc. will not be responsible for any charges, losses, or damages that result from such intrusions.

## Federal Communications Commission Statement

**Part 15: Class A Statement.** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

**Part 68: Network Registration Number.** This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E. Refer to "Federal Communications Commission Statement" in "About This Book" for more information regarding Part 68.

## Canadian Department of Communications (DOC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications. Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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Issue 2, January 2001

For additional documents, refer to the section in "About This Book" entitled "Related Documents."

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## European Union Declaration of Conformity

The "CE" mark affixed to the DEFINITY ONE equipment described in this book indicates that the equipment conforms to the following European Union (EU) Directives:

- Electromagnetic Compatibility (89/336/EEC)
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI



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

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

## Comments

Please send an email message to [infodev@avaya.com](mailto:infodev@avaya.com) with your comments about this document.

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| <b><a href="#">GL</a></b> | <b><a href="#">Glossary</a></b>                                   | <b><a href="#">GL-1</a></b> |
| <b><a href="#">IN</a></b> | <b><a href="#">Index</a></b>                                      | <b><a href="#">IN-1</a></b> |



# About This Book

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## Purpose

This book, *INTUITY™ Messaging Solutions Release 5.1 Centrex Integration* contains instructions for integrating the INTUITY AUDIX system with the following Centrex switches:

- Lucent 5ESS® switch
- Northern Telecom (Nortel) DMS-100 switch
- Nortel SL-100 switch

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

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## Intended Audiences

This book is intended primarily for on-site technical personnel who are responsible for installing the INTUITY system and performing initial administration and acceptance testing. Secondary Avaya audiences include:

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

We assume that the primary users of this book have completed the Avaya INTUITY hardware installation training course (see [“Related Resources”](#) below).

## Release History

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This is the first release of this book.

## How to Use This Book

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Although this book is designed to step you through the switch integration process, you can also use it as a quick reference to obtain specific information you may need on a topic.

## For Complete Installation Instructions

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Read [Chapter 1, “Overview of Centrex Switch Integration”](#), first for background information and a checklist of tasks necessary to complete the integration ([Table 1-1](#)). Use the information in the other chapters in the book in the appropriate order as directed by the checklist.

## For an Integration Checklist

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If you want a quick reference, see [“Centrex Switch Integration Checklist”](#) in [Chapter 1, “Overview of Centrex Switch Integration”](#). Procedures required for switch integration are listed in the order in which you must perform them. Also included are references to where you will find the complete procedures in this book or other books for the Avaya INTUITY product.

## For Troubleshooting Information

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For troubleshooting information, see [Chapter 10, “Integration Validation and Troubleshooting”](#).

## For Connectivity and Pinout Information

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For pinout and connectivity information in addition to that provided in this book in [Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”](#), and [Chapter 7, “Hardware Installation for Centrex Switch Integration with the 202T Modem”](#), see Appendix E, “Cable Connectivity”, in the *System Installation* book for your platform.

## To Locate Specific Topics

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This book includes an alphabetical index at the end.

## Conventions Used in This Book

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This section describes the conventions used in this book.

### Terminology

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- The word “type” means to press the key or sequence of keys specified. For example, an instruction to type the letter “y” is shown as

Type **y** to continue.

- The word “enter” means to type a value and then press the **(ENTER)** key. For example, an instruction to type the letter “y” and press **(ENTER)** is shown as

Enter **y** to continue.

- The word “select” means to move the cursor to the desired menu item and then press **(ENTER)**. For example, an instruction to move the cursor to the start test option on the Network Loop-Around Test screen and then press **(ENTER)** is shown as

Select Start Test.

- The word “subscriber” is used in this document when referring to a person administered on the INTUITY AUDIX system. Subscriber appears on most of the screens and is the command word you must type at the command line, for example, **change subscriber “Jane Doe”**.
- The word “administrator” is used in this document when referring to the system administrator.
- The INTUITY AUDIX system displays *windows*, *screens*, and *menus*. Windows show and request system information ([Figure 1](#) and [Figure 2](#)). Screens request that you enter a command at the `enter` command: prompt ([Figure 3](#)). Menus ([Figure 4](#)) present options from which you can choose to view another menu, or a screen or window.

| Voice Equipment |     |               |                 |                   |       |       |      |
|-----------------|-----|---------------|-----------------|-------------------|-------|-------|------|
| Card 0 is IVC6  |     | O.S.Index: 0  |                 | Function: TipRing |       |       |      |
|                 |     | State: Inseru |                 |                   |       |       |      |
| CD.PT           | CHN | STATE         | STATE-CHNG-TIME | SERVICE-NAME      | PHONE | GROUP | TYPE |
| 0.0             | 0   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3001  | 2     | IVC6 |
| 0.1             | 1   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3002  | 2     | IVC6 |
| 0.2             | 2   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3003  | 2     | IVC6 |
| 0.3             | 3   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3004  | 2     | IVC6 |
| 0.4             | 4   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3005  | 2     | IVC6 |
| 0.5             | 5   | Inseru        | Jan 09 11:17:29 | *DNIS_SVC         | 3006  | 2     | IVC6 |
| Card 1 is IVC6  |     | O.S.Index: 1  |                 | Function: TipRing |       |       |      |
|                 |     | State: Inseru |                 |                   |       |       |      |

Figure 1. Example of a INTUITY Window Showing Information

| Serial Interface |                   |
|------------------|-------------------|
| 5ESS Integration |                   |
| Data Bits : 7    | Baud Rate : 1200  |
| Stop Bit(s) : 1  | Parity [O/E/N]: E |
| Start Bit(s): 1  | Flow Control : N  |
| [V/N]            |                   |
| Serial Ports     |                   |
| 1. [REDACTED]    | 2. [REDACTED]     |
| 3. [REDACTED]    | 4. [REDACTED]     |
| 5. [REDACTED]    | 6. [REDACTED]     |
| 7. [REDACTED]    | 8. [REDACTED]     |

Figure 2. Example of a INTUITY Window Requesting Information

AUDIX XXXXXXXXXX Active XXXXXXXXXX Alarms: w XXXXXXXXXX Logins: 2
change machine
Page 1 of 1

MACHINE PROFILE

Machine Name: local
Type: local
Location: local

Voiced Name? n
Extension Length: 4

Voice ID: 0
Default Community: 1

ADDRESS RANGES

| Prefix   | Start Ext.   | End Ext.   | Warnings |
|--|--|--|----------|
| 1: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | 0000   | 9999   |          |
| 2: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 3: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 4: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 5: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 6: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 7: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 8: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 9: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span>  | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |
| 10: <span style="border-bottom: 1px solid black; display: inline-block; width: 150px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> | <span style="border-bottom: 1px solid black; display: inline-block; width: 100px;"></span> |          |

enter command: change machine

Figure 3. Example of a INTUITY Screen

Switch Interface Administration

Call Data Interface Administration

Switch Selection

Telephony Interface Administration

Figure 4. Example of a INTUITY Menu

## Keyboard and Telephone Keypad Representations

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

Press ENTER.

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

Press **ALT-D**.

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

Press **ALT-D** + **1**

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

Press **F3** (CHOICES).

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

Press **1** to record a message.

## Screen Displays

---

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

Example 1:

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

Example 2:

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

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

Start at the Avaya INTUITY Main Menu and select

`> Switch Interface Administration`

`> Switch Selection`

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

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

## Data Entry Conventions

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

Example 1:

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

Example 2:

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

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

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

## Safety and Security Alert Labels

---

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



### CAUTION:

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



### WARNING:

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



### DANGER:

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



### SECURITY ALERT:

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

## Trademarks and Service Marks

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

- 5ESS is a registered trademark of Avaya Inc.
- AT is a trademark of Hayes Microcomputer Products, Inc.
- AUDIX is a registered trademark of Avaya Inc.
- cc:Mail is a registered trademark of cc:Mail, a subsidiary of Lotus Development Corporation.
- COMSPHERE is a registered trademark of Paradyne Corp.
- CONVERSANT is a registered trademark of Avaya Inc.
- DEFINITY is a registered trademark of Avaya Inc.
- DMS-100 is a trademark of Northern Telecom Limited.
- Dterm is a trademark of NEC Telephones, Inc.
- Equinox is a trademark of Equinox Systems, Inc.
- INTUITY is a registered trademark of Avaya Inc.
- Lotus Notes is a registered trademark of Lotus Development Corporation.
- Lucent is a trademark of Lucent Technologies.
- MEGAPORT is a trademark of Equinox Systems, Inc.
- MEGAPLEX is a trademark of Equinox Systems, Inc.
- Meridian is a trademark of Northern Telecom Limited.
- MERLIN LEGEND is a registered tradesman of Avaya Inc.
- Microcom Networking Protocol is a registered trademark of Microcom, Inc.
- Microsoft is a registered trademark of Microsoft Corporation.
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- Motorola is a registered trademark of Motorola, Inc.
- NEAX is a trademark of NEC Telephone, Inc.
- NEC is a registered trademark of NEC Telephone, Inc.
- Netware is a registered trademark of Novell, Inc.
- Netware Loadable Module is a trademark of Novell, Inc.
- Northern Telecom is a registered trademark of Northern Telecom Limited.
- Novell is a registered trademark of Novell, Inc.

- Paradyne is a registered trademark of Paradyne Corporation.
- Phillips is a registered trademark of Phillips Screw Company.
- SL-1 is a trademark of Northern Telecom Limited.
- softFAX is a registered trademark of VOXEM, Inc.
- SUPERSET is a trademark of Mitel Corporation.
- SX-100 is a trademark of Mitel Corporation.
- SX-200 is a trademark of Mitel Corporation.
- SX-2000 is a trademark of Mitel Corporation.
- Telephony OneStop is a trademark of Lotus Development Corporation.
- TMI is a trademark of Texas Micro Systems, Inc.
- UNIX is a registered trademark of UNIX System Laboratories, Inc.
- VB-PC is a trademark of Voice Technologies Group, Inc.
- VoiceBridge is a registered trademark of Voice Technologies Group, Inc.
- VOXEM is a registered tradesman of VOXEM, Inc.
- VT100 is a trademark of Digital Equipment Corporation.
- Windows is a trademark of Microsoft Corporation.

## Related Resources

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

## Training

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

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

## Technical Assistance

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The following resources are available for technical assistance with Centrex switch integration:

- Within the United States
  - Call 1-800-242-2121, extension 85474.
- Within Canada

- For all systems, call 1-800-242-1234.
- Within any other country
  - For all systems, call your local distributor.

## **How to Comment on This Book**

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We are interested in your suggestions for improving this book. Please complete and return the reader comment card located behind the title page.

If the reader comment card has been removed, send your comments via the internet to [infodev@avaya.com](mailto:infodev@avaya.com) or mail your comments to :

Avaya Inc.  
Product Documentation  
Room D1-B53  
1300 W. 120th Avenue  
Denver, Colorado 80234-2703 US

You may also fax your comments to the attention of the Avaya INTUITY writing team at (303) 538-9625.

Please mention the name and order number of this book:

*INTUITY™ Messaging Solutions Release 5.1 Centrex Integration, Issue 1, January 2001.*

# Overview of Centrex Switch Integration

# 1

---

## Overview

Switch integration refers to the sharing of information between a voice messaging system and a switch to provide a seamless interface to callers and system users. A fully integrated voice messaging system answers each incoming telephone call with information taken directly from the switch.

---

## Purpose

This chapter provides background information necessary to understand how a Centrex switch is integrated with the Avaya™ INTUITY™ system.

## Method of Integration

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Integration of the Lucent 5ESS®, Northern Telecom (Nortel) DMS-100, and Nortel SL-100 Centrex switches with the Avaya INTUITY system requires an RS-232 serial interface and auxiliary switch integration hardware. When the call is forwarded to the Avaya INTUITY system, a packet of information is sent via the serial interface that provides the integration data for the channel the call arrives on.

The Avaya INTUITY system exchanges analog voice information with the Centrex switches through analog telephone lines. Voice links connect callers from a compatible switch port to an Avaya INTUITY voice port. The switch directs internal or external callers to a hunt group of analog ports associated with the Avaya INTUITY system. These ports connect the callers to an appropriate mailbox on the Avaya system. An Avaya INTUITY system can have as many as 64 voice ports. These ports are connected to an equivalent number of analog ports on the switch and are administered as a uniform call distribution (UCD) group for DMS-100 and as a multiline hunt group for 5ESS.

### Lucent 5ESS Switch Integration — Standard Configurations

---

To create an integrated environment between the Avaya INTUITY system and a Lucent Technologies 5ESS switch, Avaya supports the following options:

- 3A simplified message service interface (SMSI) translator
- 202T modem

#### ⇒ NOTE:

For the 5ESS switch, a direct connection to the Avaya INTUITY system is not a supported option. Either the 3A translator or the modem must be used. Check with the local service company for the supported options.

### Integration with the 3A Translator

An SMSI link provides digital call information, such as called party and calling party, to the Avaya INTUITY system. The 3A SMSI translator converts the 5ESS switch applications processor interface (API) format to SMSI format so that the Avaya INTUITY system can be used with the 5ESS switch. The 3A translator receives message service system (MSS) messages from the 5ESS switch through the D-channel of an integrated services digital network (ISDN) line and translates the message into SMSI format. The SMSI output port is RS-232-compatible (EIA-232), asynchronous, and supports baud rates up to 9600; however, Avaya recommends a baud rate setting of 1200.

The 3A translator can be connected (through an adapter) to a multi-port circuit card on any Avaya INTUITY multi-application (MAP) platform. See [Chapter 4, "Hardware Installation for 5ESS Switch Integration with the 3A Translator"](#), for details about the hardware for the interface.

## Distance Requirements

The configuration for the integration with a 3A translator depends on the distance between the switch and the 3A translator. If the distance is greater than 1 km (0.62) miles, a NT1U-220, or NT1L-230 network terminator unit must be used with the 3A translator. In an upgrade of the Avaya INTUITY software with existing software, the NT1U-200 network terminator unit, which is an older version, can be used.

### ⇒ NOTE:

At distances of 9.7 km (6 mi) or more, the 3A translator *cannot* be used. A 202T modem must be used instead.

## Integration with the 202T Modem

A 5ESS integration may also use a 202T modem for integration and connect into a 3002 data circuit. See [“Nortel DMS-100 and SL-100 Switch Integration — Standard Configurations”](#) below for information on the 202T modem.

## Distance Requirements

At distances of 9.7 km (6 mi) or more, a modem *must* be used. This constraint is based on requirements for the 3002 data circuit.

## Nortel DMS-100 and SL-100 Switch Integration — Standard Configurations

---

The INTUITY system interfaces with the DMS-100 or SL-100 switch using the simplified message desk interface (SMDI) over an RS-232 link. The SMDI interface is a Bellcore standard equivalent of the SMSI interface used for 5ESS integration. The SMDI link transfers call information, such as called party and calling party, to the Avaya INTUITY system.

### ⇒ NOTE:

Integration with the Avaya INTUITY system supports the SMDI interface as defined in Bellcore Technical Reference TR-TSY-000283, July 1995, and the later standard as defined in Bellcore Technical Reference TR-NWT-000283, May 1991.

## Distance Requirements

The configuration for the integration depends on the distance between the switch and the Avaya INTUITY system.

## 202T Modem (or Customer-Supplied Modem)

At distances greater than 15.2 m (50 ft), a 202T modem is used to complete the SMSI link. The 202T modem can be connected to a multi-port circuit card on any MAP. See [Chapter 7, “Hardware Installation for Centrex Switch Integration with the 202T Modem”](#), for details about the hardware for the interface.

## Direct Connection

At distances of 15.2 m (50 ft) or less, a modem is not required, and a direct-connect configuration can be used to the multi-port serial circuit card. See [Chapter 8, "Hardware Installation for Integration with Direct Connection or Customer-Supplied Modem"](#) for details about the hardware for the interface.

## Other Configurations

---

The 5ESS, DMS-100, and SL-100 switches can be integrated by the use of a customer-supplied modem other than the 202T modem. This book does not provide installation instructions for such configurations. However, guidelines for integrating with a nonstandard modem are provided in [Chapter 7, "Hardware Installation for Centrex Switch Integration with the 202T Modem"](#).

## Demarcation Points

---

Service technicians dispatched for Avaya INTUITY system installation are not responsible for making any connections directly to switches not maintained by Avaya Inc.

The demarcation point for integration of Centrex switches not maintained by Avaya depends on the configuration.

- For integrations using an Avaya-supplied modem, the point of demarcation is the equalization device (829 loopback device or equivalent) on the immediate far side of the modem.
- For integrations using an Avaya-supplied 3A translator, the point of demarcation is the connecting block on the immediate far side of the translator.
- For direct-connect integrations, and for integrations using a modem not supplied by Avaya, the point of demarcation is the adapter at the end of the modular cable that is connected to the Avaya INTUITY system (or the RS-232 mini-tester, if it remains in line after testing).

Avaya services personnel may:

- Administer the translator or modem for operation with the switch
- Connect the translator or modem to the Avaya INTUITY system

For additional information concerning the extent of the installation, see the contract between the customer and Avaya.

## Joint Acceptance Testing

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Joint acceptance testing is to be executed by both the customer representative and the INTUITY AUDIX® on-site installer when the installation includes Avaya products and customer-provided equipment. Acceptance testing is performed at the end of an installation to demonstrate to the customer that the installation is operational. The purpose of joint acceptance testing is to have knowledgeable people available to test and resolve issues before final completion of the service order. Joint acceptance testing is required for Centrex switch integrations.

## Features and Functionality

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The following features and functionality limitations apply for integrations with Centrex switches.

### 5ESS Switch

---

Avaya INTUITY system integration with the 5ESS switch does *not* support the following Avaya INTUITY features due to switch interface limitations:

- Leave word calling (LWC)
- High-speed digital networking
- Enhanced call transfer



**NOTE:**

Transfer to 0 is a blind transfer.

- Transfer into the INTUITY AUDIX system

### DMS-100 and SL-100 Switches

---

Avaya INTUITY system integration with the DMS-100 and SL-100 switches does *not* support the following features due to switch interface limitations:

- Leave word calling (LWC)
- Port logins and logouts (in service/out of service)
- Day/night service change initiated by the switch
- High-speed digital networking

The Call Request Retrieval access code feature *is* supported. In addition to the standard procedure for retrieving mailbox messages, INTUITY AUDIX subscribers using a DMS-100 or SL-100 integration can use this feature. Some Call Request Retrieval interactions are listed below:

- Call Request Activate (CRA) — When a switch subscriber with Call Forwarding active requests CRA through a feature button or access code, the switch places a “please call” message in the Call Request Retrieval queue. The message might be from the INTUITY AUDIX system (if the system has new messages) or from another switch subscriber (if another subscriber places the CRA call).
- Call Request Retrieve (CRR) — When an entry is placed in the CRR queue, the system subscriber’s message waiting indicator (MWI) is activated. To retrieve the message, the subscriber dials an access code and the switch places a call to the first entry in the queue. This is either the INTUITY AUDIX system or another switch subscriber, depending on the origination of the entry. (Multiple INTUITY AUDIX system messages create only one please call request for the INTUITY AUDIX system in the queue.) When the last CRR queue is accessed, the subscriber’s MWI is turned off. If a subscriber has no entries in the queue and dials a CRR access code, the switch returns a fast-busy signal.
- Call Request Delete All (CRDA) — A subscriber can dial an access code to erase all entries in the Call Request Retrieval queue and turn the MWI off. In this case, a subscriber’s MWI turns off as requested, even if the INTUITY AUDIX system has new messages for that subscriber. A new CRA message or an MWI update from the AUDIX system turns the MWI back on.

## **Centrex Switch Integration Checklist**

---


The following checklist ([Table 1-1](#)) outlines the process of integrating the Avaya INTUITY system with a Centrex switch. It is assumed that:

- The switch integration software package is already installed on your system. (If you need to install the software, see Chapter 9 (for MAP/5P) or Chapter 8 (for all platforms), “Installing the Switch Integration Software Packages,” in the maintenance book for your platform.)
- You are performing the integration as part of installation of the Avaya INTUITY system and completing the procedures as specified in the system installation book for your platform.

### **⇒ NOTE:**

When using this checklist, be sure to complete the tasks for the appropriate type of integration (3A translator, 202T modem, direct connection, other nonstandard option).

**Table 1-1. Centrex Switch Integration Checklist**

| Task  | Description  | Reference  | 3 |
|---|--|--|---|
| 1.  | Administer the switch.   | <a href="#">Chapter 3, "Centrex Switch Requirements and Administration"</a> . (Information in <a href="#">Chapter 2, "Planning for Centrex Switch Integration"</a> is also needed. |   |
| 2.  | Complete Chapters 1 through 4 up to the section, "Powering Up the System" in the system installation book. | Chapters 1 through 4 in the system installation book for your platform.  |   |
| 3.  | <b>Integration with 202T modem only:</b><br>Set the switch options on the 202T modem.                      | <a href="#">Chapter 6, "Setting the 202T Modem"</a> .  |   |
| <p> <b>NOTE:</b><br/>For the Nortel DMS-100 and SL-100 switches, the 202T modem is required only if the distance between the Avaya INTUITY system and the switch is greater than 15.3 m (50 ft), per RS-232 standard. For the 5ESS switch the 202T modem is not required if the 3A translator is used, but is required in all other cases regardless of the separation distance.</p> |  |  |   |

*Continued on next page*

**Table 1-1. Centrex Switch Integration Checklist — *Continued***

| Task | Description  | Reference   | 3 |
|------|--|---|---|
| 4.   | Install the integration hardware.  | <ul style="list-style-type: none"> <li>■ <b>Integration with 3A translator (5ESS switch only):</b><br/><a href="#">Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”</a>.</li> <li>■ <b>Integration with 202T modem only:</b><br/><a href="#">Chapter 7, “Hardware Installation for Centrex Switch Integration with the 202T Modem”</a>.</li> <li>■ <b>Integration with direct connection (DMS-100 and SL-100 switches only):</b><br/><a href="#">Chapter 8, “Hardware Installation for Integration with Direct Connection or Customer-Supplied Modem”</a>.</li> <li>■ <b>Integration with a modem not supplied by Avaya only:</b><br/><a href="#">Chapter 8, “Hardware Installation for Integration with Direct Connection or Customer-Supplied Modem”</a>.</li> </ul> |   |
| 5.   | Complete the remainder of Chapter 4 in the system installation book.   | Chapter 4, “Powering Up the System,” in the system installation book for your platform.   |   |
| 6.   | Complete the appropriate procedures for your switch type in Chapters 5 and 6 of the system installation book up to the section in Chapter 6 titled “Administering Channels.” | Chapters 5 and 6 in the system installation book for your platform.   |   |
| 7.   | <b>Integration with 3A translator (5ESS switch only):</b><br><br>Program the 3A translator.  | <a href="#">Chapter 5, “Programming the 3A Translator”</a> .  |   |
| 8.   | Verify that the correct switch integration package is installed.   | See information on the View Installed Software window in the maintenance book for your platform.  |   |

*Continued on next page*

**Table 1-1. Centrex Switch Integration Checklist — Continued**

| Task | Description   | Reference  | 3 |
|------|---|--|---|
| 9.   | Administer the Avaya INTUITY switch integration windows.  | <a href="#">Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”</a> . Information in <a href="#">Chapter 2, “Planning for Centrex Switch Integration”</a> , is also needed. |   |
| 10.  | Ensure that the switch has been administered by the CO (central office) to perform acceptance tests for the two test subscribers.                       | <a href="#">Chapter 3, “Centrex Switch Requirements and Administration”</a> .  |   |
| 11.  | Return to the “Administering Channels” section in Chapter 6 of the system installation book and complete all required tasks through Chapter 16.         | Chapters 6 through 16 in the system installation book for your platform.   |   |
| 12.  | Validate and, if necessary, troubleshoot the integration.   | <a href="#">Chapter 10, “Integration Validation and Troubleshooting”</a> .   |   |
| 13.  | Cut to service by notifying the CO or your project manager to change the system subscribers’ call forwarding coverage path to the Avaya INTUITY system. | None.  |   |

# Planning for Centrex Switch Integration

# 2

---

## Overview

Planning for the integration requires the customer to:

- Obtain information needed during the integration process, including parameters to administer on the Avaya™ INTUITY™ windows used for switch integration.
- Provide site-specific information to the service provider central office (CO) and obtain information from the CO.
- Work closely with the CO to ensure that the switch is properly administered.

---

## Purpose

This chapter contains information needed to plan the integration of the Avaya INTUITY system with the following Centrex switches:

- Lucent 5ESS® switch
- Northern Telecom (Nortel) DMS-100 switch
- Nortel SL-100 switch

## Worksheets

---

This chapter includes worksheets to record information needed to complete the integration.

## General Considerations

---

Consider the following information before the on-site installation of the Centrex switch integration hardware:


- The 5ESS, DMS-100, and SL-100 switches can be integrated with the following Avaya INTUITY multi-application platforms (MAPs):
  - MAP/40
  - MAP/40P
  - MAP/100
  - MAP/5P
- For all the Avaya INTUITY platforms, the customer must purchase a multi-port circuit card to be used for the serial connection
- Before the installation, determine which system and hardware you will use. For information about cabling configurations to integrate the Avaya INTUITY system with
  - A 5ESS switch by use of a 3A translator, see [Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”](#).
  - A 5ESS, DMS-100, or SL-100 switch by use of a 202T modem, see [Chapter 7, “Hardware Installation for Centrex Switch Integration with the 202T Modem”](#).
  - A DMS-100 or SL-100 switch by use of a direct connection or any Centrex switch by use of a customer-supplied modem (not a 202T modem), see [Chapter 8, “Hardware Installation for Integration with Direct Connection or Customer-Supplied Modem”](#).
- The DMS-100 and SL-100 switches allow INTUITY AUDIX® subscribers to use an additional feature — the Call Request Retrieval access code feature. Determine if the customer will use this feature and inform them about the feature's capabilities. For more information about this feature, see [“Features and Functionality”](#) in [Chapter 1, “Overview of Centrex Switch Integration”](#).
- You can use multiple hunt groups with the Avaya INTUITY system. See [“Planning for Hunt Groups”](#) below for more information on using multiple hunt groups.

# Planning for Central Office Requirements

To ensure that the CO properly administers the switch for integration with the Avaya INTUITY system, the customer must provide site-specific information to the CO. The CO must also provide certain information to the customer.

## Worksheet for Providing Central Office Requirements

Use the following worksheet ([Table 2-1](#)) to record information to be provided to the CO.

 **NOTE:**  
This worksheet contains site-specific requirements only. For complete switch requirements, see [Chapter 3, “Centrex Switch Requirements and Administration”](#).

**Table 2-1. Worksheet for Providing Central Office Requirements**

| Information Needed by the CO   | Information Provided to the CO |
|--|--------------------------------|
| Amount of traffic expected.  |                                |
| Number of voice ports being used.  |                                |
| Type of message waiting indicator (MWI) used by the majority of INTUITY AUDIX subscribers. |                                |
| <div><div>■</div>Flashing light?</div> <div><div>■</div>Stutter dial tone?</div>           |                                |

*Continued on next page*

**Table 2-1. Worksheet for Providing Central Office Requirements — *Continued***

| Information Needed by the CO  | Information Provided to the CO |
|---|--------------------------------|
| Extension numbers for the two test subscribers for acceptance testing.  | 1.<br>2.                       |
| Expected use of the automated attendant and outcalling features. <ul style="list-style-type: none"><li>■ Separate multi-line hunt group (MLHG) required</li><li>■ More than one hunt group required</li></ul> |                                |

*Continued on next page*

**Table 2-1. Worksheet for Providing Central Office Requirements — *Continued***

| Information Needed by the CO   | Information Provided to the CO |
|--|--------------------------------|
| <p><b>Integration with 3A translator (5ESS switch <i>only</i>):</b></p> <ul style="list-style-type: none"> <li>■ The distance from the customer site to the switch. <ul style="list-style-type: none"> <li>— Over 1 km (0.62 mi) — network terminator unit needed</li> <li>— 1 km (0.62 mi) or less — network terminator unit <i>not</i> needed</li> </ul> </li> <li>■ Source of the customer's 3A translator and/or a network terminator unit (NT1U-200, NT1U-220 or NT1U-230). <ul style="list-style-type: none"> <li>— From the CO</li> <li>— Purchased elsewhere</li> </ul> </li> </ul> <p><b>Integration with 202T modem <i>only</i>:</b></p> <ul style="list-style-type: none"> <li>■ Source of 202T modem: <ul style="list-style-type: none"> <li>— Supplied by Avaya</li> <li>— Not supplied by Avaya</li> </ul> </li> <li>■ Modem settings (see <a href="#">Chapter 6, "Setting the 202T Modem"</a>) — to be checked against the settings provided by the CO (see <a href="#">Table 2-2</a>).</li> </ul> <p><b>Integration with direct connection (DMS-100 and SL-100 switches <i>only</i>) or customer-supplied modem (any Centrex switch):</b></p> <p>Type of cable needed:</p> <ul style="list-style-type: none"> <li>■ Straight RS-232</li> <li>■ Null modem</li> </ul> |                                |

## Worksheet for Obtaining Central Office Information

---

Use the following worksheet ([Table 2-2](#)) to record information received from the CO.

 **NOTE:**

This worksheet contains site-specific requirements only. For complete switch requirements, see [Chapter 3, "Centrex Switch Requirements and Administration"](#).

**Table 2-2. Worksheet for Obtaining Central Office Information**

| Information Needed from the CO  | Information Provided by the CO |
|---|--------------------------------|
| <b>All integrations:</b>  |                                |
| <ul style="list-style-type: none"> <li>■ Multiline hunt group (MLHG) numbers being used. If more than one hunt group is being used, the message desk numbers (MDNs) associated with each hunt group.</li> <li>■ The range of extensions (for example, 0000-9999).</li> <li>■ The number of digits in the dial plan.</li> </ul>  |                                |
| <b>Integration with 202T modem only:</b>  |                                |
| Modem settings — to be checked against the settings provided to the CO (see <a href="#">Table 2-1</a> ).  |                                |
| <b>Integration with 3A translator (5ESS switch only):</b>   |                                |
| <ul style="list-style-type: none"> <li>■ Version number of the switch.</li> <li>■ Number of digits being sent by the switch: <ul style="list-style-type: none"> <li>— 7</li> <li>— 10</li> </ul> </li> <li>■ 2B1Q encoding usage: <ul style="list-style-type: none"> <li>— Yes</li> <li>— No</li> </ul> </li> <li>■ The business customer ID (BCID).</li> <li>■ The LCEN (line card equipment number).</li> </ul> |                                |

## **Planning for the Electrical System**

---

The electrical system supplying power to the Avaya INTUITY system 3A translator (if used), and 202T modem must meet the standard electrical requirements and local building codes. The circuit must be on a 20-ampere breaker and be dedicated to the Avaya INTUITY system and associated devices.

Outlets must be grounded in accordance with local and National Electrical Code (NEC) standards. Ground AC units to a solid, stable, single-point ground via the third wire of a 3-prong grounded receptacle that is free from random connections to foreign unstable ground current surges.

When you are connecting to an AC outlet, note the following precautions:

- Do not use an extension cord to connect a device to an outlet.
- Do not use an outlet connected to a wall switch or one subjected to scheduled downtimes.

### **Electrical Requirements for the 202T Modem**

---

The 202T modem requires a power outlet easily accessible to the modem. This outlet should not share power with other electrical devices that may cause noise, and should not be under the control of a switch. For further information about the operating environment for the 202T modem, see *User's Manual 202T Modem*, 999-102-1421S, or the equivalent for the shipped modem.

### **Electrical Requirements for the 3A Translator**

---

An electrical outlet must be within 1.8 m (6 f). of the 3A translator. An uninterruptible 60 Hz 120 VAC power supply is recommended, but not required.

## **Planning for the 202T Modem**

---

Connectivity options for integration with a 202T modem depend on how the local service provider delivers the 3002 data circuit required for integrations with a modem. The options include:

- Direct connection with an M8K (or M13F) adapter cable to an equalization unit, such as an 829 channel interface device or equivalent
- A 4-wire connection through an adapter

See [Chapter 7, "Hardware Installation for Centrex Switch Integration with the 202T Modem"](#) for more information about connectivity.

## Planning for the 3A Translator

---

Consider the following specifications when preparing a site to install the 3A translator (5ESS switch only) and auxiliary hardware.

### Physical Specifications

---

The 3A translator weighs 0.8952 km (2.4 lbs) and has the following dimensions:

- Height 6.4 cm (2.56 in.)
- Width 26.04 cm (10.25 in.)
- Depth 4.89 cm (9.80 in.)

Additional space is required at the rear of the unit for cables and connectors. Although the 3A translator does not require special air conditioning systems, it does generate some heat. Ensure that the site allows for heat generated by this unit and additional sources.

The power supply weighs 0.7087 km (1.9 lbs) and has the following dimensions:

- Height 5.99 km (2.36 in.)
- Width 7.62 km (3.00 in.)
- Depth 11.99 cm (4.72 in.)

### Preparation for Programming

---

The 3A translator must be programmed with site-specific information, some of which the customer must obtain from the CO.

The following tasks must be completed before programming the 3A translator:

- Ensure that all hardware connections have been made. For information about the connections, see [Chapter 4, "Hardware Installation for 5ESS Switch Integration with the 3A Translator"](#).
- Collect the following information to set the specified options on the 3A translator:
  - The baud rate you are using (SMSIBAUD). This rate must correspond with the setting for the `Baud Rate:` field on the Serial Interface window. (For information about setting this field, see ["Setting the Serial Interface Parameters"](#) in [Chapter 9, "Avaya INTUITY Administration for Centrex Switch Integration"](#).)



**NOTE:**

A baud rate of 1200 is recommended.

- The 5-digit business customer ID (BCID) provided by the CO.

- The line card equipment number (LCEN) provided by the CO. This 8-digit number identifies the integrated services digital network (ISDN) connection to the switch. The number should be broken down as follows:

- 3-digit switch module number (000-192)
- 1-digit line unit number (0-7)
- 2-digit line group controller (00-15)
- 2-digit line card number (00-31)



**NOTE:**

The digits might be preceded by an alphabetic character. That character is part of the LCEN and must be included when the 3A translator is programmed.

- Determine whether 7 or 10 digits is provided by the switch (DN SIZE). For the 5ESS switch, 10 digits are provided with switch version 5. With earlier versions, 7 digits are provided.

## **Planning for Call Forwarding**

---

A call forwarding path (also called a call coverage path) directs the switch to transfer unanswered calls to a hunt group or to another extension. When a call is covered, the switch forwards the called number to the Avaya INTUITY system. The system detects that the called number is administered as a specific system subscriber's extension and treats the call as one to be answered and recorded. Depending on how the extension is configured, the call may be answered by either the INTUITY AUDIX® or the Avaya INTUITY Lodging application.

The switch must be administered to assign call forwarding for each subscriber's extension to the appropriate Avaya INTUITY system number.

## Planning for Hunt Groups

---

A *hunt group* is a set of extension numbers assigned to another telephone number. This number is called the *start hunt number*, the leading member of the hunt, or the pilot hunt group number. When a call is received by this telephone number, a programmed search of the hunt group is made and the call is forwarded to a member of the hunt group that is not busy. For example, when two calls are made to the start hunt number, both are forwarded to two free extensions in the hunt group. Each number in the hunt group corresponds to a channel on the Avaya INTUITY system.

To configure a hunt group for calls being received by the Avaya INTUITY system:

- The switch must be administered to create a hunt group for the Avaya INTUITY system.
- The hunt group must be administered on the Avaya INTUITY system.
- The switch ports that terminate the hunt group extensions must be wired to the voice ports on the Avaya INTUITY platform.
- The voice ports must be administered on the Avaya INTUITY system.

There are three possible configurations for hunt groups:

- Single use (single hunt group)
- Shared use (single hunt group)
- Dedicated use (multiple hunt groups)

### Single Hunt Group

---

In the simplest integrations, only one hunt group is administered for all calls. For example, the start hunt number may be administered as the INTUITY AUDIX message retrieval number (the telephone number system subscribers call to retrieve voice mail messages). All calls through the Avaya INTUITY system are ultimately forwarded to the one hunt group. The channels in the system have single usage for that hunt group.

It is also possible for the channels in the one hunt group to have shared use for coresident applications. For this to occur:

- A *phantom* or *dummy* extension number that is not associated with a switch port or a telephone station must be administered on the switch.
- A *call forwarding path* must be administered for the phantom number.

Calls to the phantom number are forwarded to the hunt group. For example, the start hunt number may be administered for INTUITY AUDIX message retrieval, but a phantom number is set up for the Avaya INTUITY Lodging application. When the phantom number is dialed, the switch forwards the call to a channel in the hunt group.

From there the Avaya INTUITY system service assignment determines the correct application to start for the call. In this example, that would be the Lodging application.

There must be two numbers administered in a coresident system, a start hunt number for one application, and a phantom number for the coresident application.



**CAUTION:**

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

## **Multiple Hunt Groups**

---

Multiple hunt groups containing channels with dedicated usage groups are typically configured for the purposes of traffic management. This feature enables a set of channels to always be reserved for a specific application only. These channels are always available for that application regardless of other traffic demands on the system. For example, separate hunt groups may be administered on a system for INTUITY AUDIX message retrieval and the Avaya INTUITY Lodging application. The number of hunt groups that can be administered depends on the channel capacity of the Avaya INTUITY system. A separate hunt group can be administered for each channel.

## **MDN and Channel Mapping**

---

The multiple hunt group feature allows the Avaya INTUITY system to recognize and use the message desk number (MDN) field provided by the switch in the SMSI (simplified message service interface) protocol and the SMDI (simplified message desk interface) protocol. MDNs are also called:

- Main directory numbers
- Message service center numbers
- Multi-line hunt groups (MLHGs)
- Hunt – multi-lines (HMLs)

An MDN is a series of digits, from 001 to 999, that the switch transmits as part of the call information to the Avaya INTUITY system. Each start hunt member number is associated with an MDN. Within each MDN, each member of the hunt is associated with a logical terminal number (LTN), for example LTN1, LTN2, LTN3, etc., and a telephone number.

For each hunt group, the MDN, LTNs, and telephone numbers are mapped to voice card ports and channel numbers on the Avaya INTUITY system. The configuration rules for hunt groups are:

- Any unique MDN/LTN can be mapped to any Avaya INTUITY channel in any order.
- Each unique MDN/LTN can be mapped to only one channel.
- An MDN can have any number of channels mapped to it (up to the maximum of 64 channels supported on an Avaya INTUITY system).
- As many hunt groups can be configured as there are channels on the Avaya INTUITY system (up to a maximum of 64).

Installing the Avaya INTUITY system with a single hunt group or multiple hunt groups requires:

- The MDN mapping and the extension numbers to call to test the system (see the worksheets in [Table 2-3](#) and [Table 2-4](#)).
- A telephone to place test calls for validation. This telephone should be located so that the installer can view the system monitor while placing the calls. If this is a new system installation, one of the two test telephones for the INTUITY AUDIX application or the test telephone for the Avaya INTUITY Lodging application can be used.
- The appropriate translations on the switch so that calls can be forwarded to the Avaya INTUITY system and the appropriate MWI indication (stutter tone or MWI lamp) can be turned on or off.

Before the installation, review with your project manager the extent of your responsibilities and when administration will be performed on the switch. Complete the worksheets that will be needed for installation.

## **Recording Channel Mapping and MDNs**

Fill in the worksheet for channel mapping and MDN test ([Table 2-3](#)). You will need this information to administer the Hunt Group Translation window (see [“Setting the Hunt Group Translations”](#) in [Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”](#)).

If you are:

- Installing a new Avaya INTUITY system or adding the feature to an existing system and changing the channel mapping (assigning different channels to Avaya INTUITY ports), fill in the worksheet with information from the CO.
- Adding the multiple hunt group feature to an existing system that will retain its existing channel mapping, use the windows on the Avaya INTUITY system to provide current information. Complete the following procedure to get the information from the windows.

1. Start at the Avaya INTUITY System Main Menu ([Figure 9-1](#)) and select

> Voice System Administration

> Voice Equipment

The system displays the Voice Equipment window ([Figure 2-1](#)).

| Voice Equipment |     |               |                 |                   |       |       |      |
|-----------------|-----|---------------|-----------------|-------------------|-------|-------|------|
| Card 0 is IVC6  |     | O.S.Index: 0  |                 | Function: TipRing |       |       |      |
|                 |     | State: Inserv |                 |                   |       |       |      |
| CD.PT           | CHN | STATE         | STATE-CHNG-TIME | SERVICE-NAME      | PHONE | GROUP | TYPE |
| 0.0             | 0   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3001  | 2     | IVC6 |
| 0.1             | 1   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3002  | 2     | IVC6 |
| 0.2             | 2   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3003  | 2     | IVC6 |
| 0.3             | 3   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3004  | 2     | IVC6 |
| 0.4             | 4   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3005  | 2     | IVC6 |
| 0.5             | 5   | Inserv        | Jan 09 11:17:29 | *DNIS_SVC         | 3006  | 2     | IVC6 |
| Card 1 is IVC6  |     | O.S.Index: 1  |                 | Function: TipRing |       |       |      |
|                 |     | State: Inserv |                 |                   |       |       |      |

**Figure 2-1. Voice Equipment Window**

2. Record the telephone number for the Avaya INTUITY system card and port in the `PHONE` field on the worksheet ([Table 2-3](#)). See the following example ([Figure 2-2](#)) if necessary.
3. When you finish recording the channel numbers, press **Ⓢ** (CANCEL) twice to return to the Avaya INTUITY Main menu.
4. Use information from the CO to record the MDN and LTN for each channel.

## Worksheet for Channel Mapping and MDN Test

The worksheet ([Table 2-3](#)) contains the following fields.

- `CD.PT` is the voice card port.
- `CHN` is the channel number on the Avaya INTUITY system. For example, the following listing indicates the 11th channel connected to the system through the second Tip/Ring circuit card, fifth port on the card:  
`CD.PT 1.4 CHN 10`
- `PHONE` is the telephone number associated with the MDN and LTN.

### ⇒ NOTE:

The switch numbers its channels starting with 1. The Avaya INTUITY system starts with 00.

For channels not in use, leave all field blank.

**Table 2-3. Worksheet for Channel Mapping and MDN Test**

| MDN | LTN | CD.<br>PT | CH<br>N | PHO<br>NE | MDN | LTN | CD.<br>PT | CH<br>N | PHO<br>NE |
|-----|-----|-----------|---------|-----------|-----|-----|-----------|---------|-----------|
|     |     | 0.0       | 00      |           |     |     | 5.2       | 32      |           |
|     |     | 0.1       | 01      |           |     |     | 5.3       | 33      |           |
|     |     | 0.2       | 02      |           |     |     | 5.4       | 34      |           |
|     |     | 0.3       | 03      |           |     |     | 5.5       | 35      |           |
|     |     | 0.4       | 04      |           |     |     | 6.0       | 36      |           |
|     |     | 0.5       | 05      |           |     |     | 6.1       | 37      |           |
|     |     | 1.0       | 06      |           |     |     | 6.2       | 38      |           |
|     |     | 1.1       | 07      |           |     |     | 6.3       | 39      |           |
|     |     | 1.2       | 08      |           |     |     | 6.4       | 40      |           |
|     |     | 1.3       | 09      |           |     |     | 6.5       | 41      |           |
|     |     | 1.4       | 10      |           |     |     | 7.0       | 42      |           |
|     |     | 1.5       | 11      |           |     |     | 7.1       | 43      |           |
|     |     | 2.0       | 12      |           |     |     | 7.2       | 44      |           |
|     |     | 2.1       | 13      |           |     |     | 7.3       | 45      |           |
|     |     | 2.2       | 14      |           |     |     | 7.4       | 46      |           |
|     |     | 2.3       | 15      |           |     |     | 7.5       | 47      |           |
|     |     | 2.4       | 16      |           |     |     | 8.0       | 48      |           |
|     |     | 2.5       | 17      |           |     |     | 8.1       | 49      |           |
|     |     | 3.0       | 18      |           |     |     | 8.2       | 50      |           |
|     |     | 3.1       | 19      |           |     |     | 8.3       | 51      |           |
|     |     | 3.2       | 20      |           |     |     | 8.4       | 52      |           |
|     |     | 3.3       | 21      |           |     |     | 8.5       | 53      |           |
|     |     | 3.4       | 22      |           |     |     | 9.0       | 54      |           |
|     |     | 3.5       | 23      |           |     |     | 9.1       | 55      |           |
|     |     | 4.0       | 24      |           |     |     | 9.2       | 56      |           |
|     |     | 4.1       | 25      |           |     |     | 9.3       | 57      |           |

*Continued on next page*

Table 2-3. Worksheet for Channel Mapping and MDN Test — *Continued*

| MDN | LTN | CD.<br>PT | CH<br>N | PHO<br>NE | MDN | LTN | CD.<br>PT | CH<br>N | PHO<br>NE |
|-----|-----|-----------|---------|-----------|-----|-----|-----------|---------|-----------|
|     |     | 4.2       | 26      |           |     |     | 9.4       | 58      |           |
|     |     | 4.3       | 27      |           |     |     | 9.5       | 59      |           |
|     |     | 4.4       | 28      |           |     |     | 10.0      | 60      |           |
|     |     | 4.5       | 29      |           |     |     | 10.1      | 61      |           |
|     |     | 5.0       | 30      |           |     |     | 10.2      | 62      |           |
|     |     | 5.1       | 31      |           |     |     | 10.3      | 63      |           |

Example

In this example ([Figure 2-2](#)), 3 hunt groups are configured for 16 Avaya INTUITY channels, 00 through 15. MDN 200 has 6 hunt members, MDN 311 has 4 hunt members, and MDN 612 has 6 hunt members.

 **NOTE:**  
Each system usually has only one MDN. As a result, your worksheet would be blank.

---

| MDN | LTN | CD.P<br>T | CH<br>N | PHONE |
|-----|-----|-----------|---------|-------|
| 200 | 1   | 0.0       | 00      | 6427  |
| 200 | 2   | 0.1       | 01      | 6428  |
| 200 | 3   | 0.2       | 02      | 6429  |
| 311 | 4   | 0.3       | 03      | 5900  |
| 311 | 5   | 0.4       | 04      | 5901  |
| 311 | 9   | 0.5       | 05      | 5903  |
| 311 | 10  | 1.0       | 06      | 5904  |
| 200 | 27  | 1.1       | 07      | 6430  |
| 200 | 28  | 1.2       | 08      | 6432  |
| 200 | 29  | 1.3       | 09      | 6433  |
| 612 | 1   | 1.4       | 10      | 8856  |
| 612 | 2   | 1.5       | 11      | 8857  |
| 612 | 3   | 2.0       | 12      | 8858  |
| 612 | 9   | 2.1       | 13      | 8892  |
| 612 | 10  | 2.2       | 14      | 8893  |
| 612 | 11  | 2.3       | 15      | 8894  |

---



---

**Figure 2-2. Example of a Completed Worksheet for Channel Mapping and MDN Test**

## Determining the Telephone Numbers for Test

### ⇒ NOTE:

If the administration has not been done on the switch at the time of installation, the integration cannot be tested.

Determine the telephone numbers for the acceptance test and fill in the following worksheet ([Table 2-4](#)). There should be one telephone number for each MDN.

Table 2-4. Worksheet for Extension Numbers for Test

| Telephone Number Type       | Associated MDN | Telephone Number(s) |
|-----------------------------|----------------|---------------------|
| Message retrieval numbers   |                |                     |
| Call answer numbers         |                |                     |
| Automated Attendant numbers |                |                     |
| Others                      |                |                     |

## Planning for the Avaya INTUITY Lodging Application

Calls to the Avaya INTUITY Lodging application can be handled in any of several ways that impact the hunt group planning and administration for the integration.

- A Lodging-only system can be administered as a single hunt group.  
See the information on single hunt group, single usage in [“Planning for Hunt Groups”](#) above.
- On a system with INTUITY AUDIX coresident with Avaya INTUITY Lodging (or another application), a single hunt group is administered along with a phantom number for the coresident application. For this configuration, you must administer the phantom numbers to be forwarded to the hunt group.  
See the information on single hunt group, shared usage in [“Planning for Hunt Groups”](#) above.
- On a system with multiple hunt groups, one hunt group can be administered for the Lodging application. All calls to the Lodging start hunt number go to the voice channels in the Lodging hunt group.

In all cases you must:

1. Administer the switch to assign call forwarding for each guest's extension to the associated Avaya INTUITY system hunt group number.
2. Provide the appropriate message retrieval numbers to the system subscribers.

## **Cut to Service**

---


A cut to service of the INTUITY Lodging application amounts to changing the call forwarding path for each guest extension to the Avaya INTUITY system hunt group. The associated system must be completely installed before you cut the INTUITY Lodging application into service. Furthermore, all Avaya INTUITY system initial administration, associated switch administration, and acceptance tests must be completed. Some switching systems make it possible to group these extensions as a set, allowing the call forwarding path to be changed simultaneously. Most switching systems permit changing the call forwarding path for guest extensions one extension at a time. You may use either method.

## **Planning for Avaya INTUITY Administration**

---

Fill in the following worksheet ([Table 2-5](#)) with the parameters necessary to administer the fields in the Avaya INTUITY windows for switch integration. For full information on these fields, see the references in [Table 2-5](#).

Table 2-5. Worksheet for Avaya INTUITY Administration Windows

| Window   | Fields  |
|--|---|
| Serial Interface   | Data Bits: (default=7)<br>Stop Bit(s): (default=1)<br>Start Bit(s): (default=1)   |
| For full information, see <a href="#">“Setting the Serial Interface Parameters”</a> in <a href="#">Chapter 9, “Avaya INTUITY Administration on for Centrex Switch Integration”</a> | Baud Rate: (default=1200)<br>Parity: (default=E)<br>Flow Control [Y/N]: (default=N)   |
|  | Serial Ports:<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7.<br>8.   |
|  |  <b>NOTE:</b><br>The defaults provided on the Serial Interface window will be correct for most integrations. |


Continued on next page

Table 2-5. Worksheet for Avaya INTUITY Administration Windows — Continued

| Window  | Fields  |           |                  |
|---|---|-----------|------------------|
| Device Assignment   | Link Test [Y/N]:<br>Link Test Interval (seconds):   |           |                  |
| For full information, see <a href="#">“Setting the MWI Device Assignment s” in Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”</a> | <div><div>➤</div><div><b>NOTE:</b><br/>For Nortel DMS-100 and SL-100 switches, the link test field must be set to <b>n</b> (no). The Link Test Interval and Link Test Number fields are not used.</div></div> |           |                  |
|   |   |           |                  |
|   | Switch Number   | Device ID | Link Test Number |
|   | 1.  |           |                  |
|   | 2.  |           |                  |
|   | 3.  |           |                  |
|   | 4.  |           |                  |
|   | 5.  |           |                  |
|   | 6.  |           |                  |
|   | 7.  |           |                  |
|   | 8.  |           |                  |
|   | 9.  |           |                  |
|   | 10.   |           |                  |
|   | 11.   |           |                  |
|   | 12.   |           |                  |
|   | 13.   |           |                  |
|   | 14.   |           |                  |
|   | 15.   |           |                  |
|   | 16.   |           |                  |
|   | 17.   |           |                  |
|   | 18.   |           |                  |
| 19.   |   |           |                  |
| 20.   |   |           |                  |

Continued on next page

Table 2-5. Worksheet for Avaya INTUITY Administration Windows — Continued

| Window   | Fields  |
|--|---|
| MWI Parameters   | MWI On Prefix:<br>MWI On Suffix:<br>MWI Off Prefix:<br>MWI Off Suffix:<br>MWI Updates [Y/N]:<br>Background Refresh:<br>Background Interval:<br>Background Updates:<br>Broadcast Interval:<br>Broadcast Updates:<br>Block Start Time:<br>Block End Time: |
| For full information, see “ <a href="#">Setting MWI Parameters</a> ’ in Chapter 9, “ <a href="#">Avaya INTUITY Administration for Centrex Switch Integration</a> ” |   |
| Hunt Group Translation   |  <b>NOTE:</b><br>Use the worksheet for channel mapping and MDN test ( <a href="#">Table 2-3</a> ).   |
| For full information, see “ <a href="#">Setting the Hunt Group Translations</a> ” in Chapter 2, “ <a href="#">Planning for Centrex Switch Integration</a> ”        |   |

Continued on next page

Table 2-5. Worksheet for Avaya INTUITY Administration Windows — *Continued*

| Window  | Fields                      |               |                   |                 |                |               |              |
|---|-----------------------------|---------------|-------------------|-----------------|----------------|---------------|--------------|
| Dial Plan Translation<br><br>For full information, see <a href="#">“Setting the Dial Plan Translations”</a> in Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration” | INTUITY Extension Length:   |               |                   |                 |                |               |              |
|   | Switch Network Access Code: |               |                   |                 |                |               |              |
|   |                             | Switch Prefix | Switch Start Ext. | Switch End Ext. | INTUITY Prefix | Switch Number | Remote [Y/N] |
|   | 1.                          |               |                   |                 |                |               |              |
|   | 2.                          |               |                   |                 |                |               |              |
|   | 3.                          |               |                   |                 |                |               |              |
|   | 4.                          |               |                   |                 |                |               |              |
|   | 5.                          |               |                   |                 |                |               |              |
|   | 6.                          |               |                   |                 |                |               |              |
|   | 7.                          |               |                   |                 |                |               |              |
|   | 8.                          |               |                   |                 |                |               |              |
|   | 9.                          |               |                   |                 |                |               |              |
|   | 10.                         |               |                   |                 |                |               |              |
|   | 11.                         |               |                   |                 |                |               |              |
|   | 12.                         |               |                   |                 |                |               |              |
|   | 13.                         |               |                   |                 |                |               |              |
|   | 14.                         |               |                   |                 |                |               |              |
|   | 15.                         |               |                   |                 |                |               |              |
|   | 16.                         |               |                   |                 |                |               |              |
|   | 17.                         |               |                   |                 |                |               |              |
|   | 18.                         |               |                   |                 |                |               |              |
|   | 19.                         |               |                   |                 |                |               |              |
|   | 20.                         |               |                   |                 |                |               |              |
|   | 21.                         |               |                   |                 |                |               |              |
|   | 22.                         |               |                   |                 |                |               |              |
|   | 23.                         |               |                   |                 |                |               |              |
|   | 24.                         |               |                   |                 |                |               |              |
|   | 25.                         |               |                   |                 |                |               |              |
|   | 26.                         |               |                   |                 |                |               |              |
|   | 27.                         |               |                   |                 |                |               |              |

Table 2-5. Worksheet for Avaya INTUITY Administration Windows — *Continued*

| Window                               | Fields        |                   |                 |                |               |              |
|--------------------------------------|---------------|-------------------|-----------------|----------------|---------------|--------------|
| Dial Plan Translation<br>(Continued) | Switch Prefix | Switch Start Ext. | Switch End Ext. | INTUITY Prefix | Switch Prefix | Remote [Y/N] |
|                                      | 28.           |                   |                 |                |               |              |
|                                      | 29.           |                   |                 |                |               |              |
|                                      | 30.           |                   |                 |                |               |              |
|                                      | 31.           |                   |                 |                |               |              |
|                                      | 32.           |                   |                 |                |               |              |
|                                      | 33.           |                   |                 |                |               |              |
|                                      | 34.           |                   |                 |                |               |              |
|                                      | 35.           |                   |                 |                |               |              |
|                                      | 36.           |                   |                 |                |               |              |
|                                      | 37.           |                   |                 |                |               |              |
|                                      | 38.           |                   |                 |                |               |              |
|                                      | 39.           |                   |                 |                |               |              |
|                                      | 40.           |                   |                 |                |               |              |
|                                      | 41.           |                   |                 |                |               |              |
|                                      | 42.           |                   |                 |                |               |              |
|                                      | 43.           |                   |                 |                |               |              |
|                                      | 44.           |                   |                 |                |               |              |
|                                      | 45.           |                   |                 |                |               |              |
|                                      | 46.           |                   |                 |                |               |              |
|                                      | 47.           |                   |                 |                |               |              |
|                                      | 48.           |                   |                 |                |               |              |
|                                      | 49.           |                   |                 |                |               |              |
|                                      | 50.           |                   |                 |                |               |              |

# Centrex Switch Requirements and Administration

# 3

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## Overview

This chapter includes general software and hardware requirements for administering Centrex switches for integration with the Avaya™ INTUITY™ system and specifies information the customer must provide to and obtain from the central office (CO). Separate sections are provided for the:

- Lucent 5ESS® switch
- Northern Telecom (Nortel) DMS-100/SL-100 switch

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## Purpose

This chapter provides high-level guidelines for ensuring that the switch is administered properly for integration with the Avaya INTUITY system.

## Lucent 5ESS Switch

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This section provides the following information for 5ESS switch integrations:

- Hardware and software requirements
- Switch administration requirements

### 5ESS Switch Hardware and Software Requirements

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The customer must ensure that the CO provides the hardware and software listed below.

#### 5ESS Switch Integration with a 3A Translator

The following are required:

- 5E4(2) generic software load (version 4.2 or later)
- A basic rate interface (BRI) line set up in office-dependent data (ODD) as an applications processor interface (API). This BRI/API link should be a OB+D link (data only) with D-channel packet switching. The CO can provide this service in one of two ways:
  - A BRI/API 4-wire T-interface is used if a 3A translator is located less than 1 km (0.6 miles) from the switch. This interface requires a D8W-87 8-pin modular cord (RJ45 to RJ45) leading to a 4-wire, T-interface jack. The modular jack is usually the demarcation point; the CO is responsible for any equipment beyond this point. A 5ESS switch module can provide an integrated services line unit-T card (ISLU-T) connection if the customer site is located near the CO.
  - A 2-wire BRI/API U-interface is used if a 3A translator is located more than 1 km (0.6 miles) from the switch. The U-interface allows the 3A translator to be located up to about 10 km (6.25 miles) from the switch (if 19-gauge wire is used); a U-interface often uses 25-gauge wire, allowing the connection to extend up to 3.6 km (2.25 miles). However, the 3A translator can connect only to 4-wire T-interface cabling.

Converting the 2-wire BRI/API U-interface from the switch to the 4-wire T-interface wiring needed by the 3A translator requires a network terminator unit (NT1U-200 or NT1U-220 using AMI protocol or an NT1U-300 using ZB1Q protocol). The CO may provide the unit or the customer may be required to obtain it, depending on the local service provider procedures.

#### NOTE:

Brite cards are required on the switch if the network terminator unit is more than 5 km (3 miles) away from the switch.

**3** Centrex Switch Requirements and Administration  
*Lucent 5ESS Switch*

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- Business and residence custom services (BRCS) feature package I, II, or III
- Integrated services digital network (ISDN) feature package I
- An ISDN SM, optical remote module (ORM), or remote switching module (RSM) to support the BRI/API link
- The ISDN Message Service, also called deluxe MSS
- Up to 64 analog station lines in a multi-line hunt group (MLHG), with one 2-way Centrex line for each voice messaging port. The number of queue slots in the group should be based on traffic.

 **NOTE:**

If multiple hunt groups are to be configured, the same requirements apply to each hunt group. The Avaya INTUITY system can support a configuration with up to 64 different MLHGs.

The number of analog lines must match the number of INTUITY AUDIX® voice ports.

- One 2-way analog station line for reporting INTUITY AUDIX alarms to a remote services site. Remote services personnel or systems will use this line to perform remote maintenance.
- Optional: One 2-way analog station line if the customer will be using remote access for administration

## **5ESS Switch Integration with a 202T Modem**

The following is required:

- A 202T modem (or equivalent) at the switch
- A baud rate setting of 1200

 **NOTE:**

Further requirements are site-specific. Contact your service provider and your remote support center.

## **5ESS Switch Administration Requirements**

---

The customer and the service provider are responsible for administering the CO to accept the INTUITY system. The local operating company must administer the 5ESS switch before you begin the installation.

This list summarizes the switch administration necessary for all integrations, whether the 3A translator or the 202T modem is used:

- The voice messaging station lines must be assigned to a message service center (MSC) MLHG. The hunt group must use uniform call distribution (UCD) and be associated with a Deluxe MSS group. There may be 2 to 64 lines in the group.



**NOTE:**

The Avaya INTUITY system can support a configuration with up to 64 different MLHGs.

- The voice ports must be configured to allow calls to originate from INTUITY AUDIX® ports. This is required for outcalling functions such as fax and audio interchange interface specification (AMIS).
  - Queuing (including optional music or recorded announcements) can be assigned to the hunt group if desired.
  - Optional: Some voice messaging ports can be assigned to a separate hunt group on the switch to support the INTUITY AUDIX automated attendant feature (for example, if heavy automated attendant use is expected). Outside callers can then be directed to the automated attendant MLHG, while INTUITY AUDIX system subscribers can dial directly into the main MLHG.
  - If desired, other voice messaging ports can be set aside on the switch to support the INTUITY AUDIX outcalling feature. By default, outcalling occurs on channel group 2 on the Avaya INTUITY system. Through administration of the Voice Equipment window, outcalling can be made to occur on the highest numbered ports, such as ports 59 to 63, by assigning them to another channel group. These ports can be administered as individual station lines on the switch that are not in the hunt group.
  - For the purpose of evaluating traffic on the system, any ports that are set aside for specific automated attendant or outcalling use are subtracted from the total number of ports available in the main voice messaging hunt group. For example, if a 32-port system has 6 ports in a MLHG for automated attendant calls and 4 station lines set aside for outcalling, 22 ports are available in the main voice messaging MLHG for direct voice mailbox calls and redirected call answer calls.
- The following line assignments are needed for all INTUITY AUDIX station (subscriber telephone) lines, depending on customer requirements:
    - BCID (business customer ID) (shows the message group to which INTUITY AUDIX system subscribers belong). One INTUITY AUDIX system can support more than one company, for example, if each company has a different customer group ID. The business customer

group ID between the 3A translator and the 5ESS must match. If not, the message waiting indicators may not light or calls will get non-intercept answer.

- Call forwarding in ODD, with forwarding to the voice messaging MLHG (called the MSC MLHG on the switch). The 5ESS switch bases internal call forwarding on the terminal group.
- Deluxe MSS feature with the following:
  - Attendant coverage (required; set to **yes**).
  - Message waiting indicator (MWI), either a lamp, stutter tone, or both.
- The analog lines to the voice messaging system must be assigned to a MSC MLHG with circular hunting on the 5ESS and to a UCD on the DMS-100. The hunt group must be assigned to a Deluxe MSS group (ISDN messaging service).
- An individual analog port is required for reporting INTUITY AUDIX alarms to a remote location.
- To test the INTUITY system, the CO must set up two test telephones to be connected through the switch. These telephones should match the majority of telephones that the customer will use on the system. If the MWI will be a flashing light, the test telephones must also be equipped with a flashing light. If the MWI is a stutter tone, the test telephones must be able to give the stutter notification.

For the system to be tested and cut to service, the customer must provide the CO with two test subscriber extensions and all subscriber extensions on the system. Once the integration is complete, the CO must perform acceptance tests for the two test subscribers, which includes:

- Administering the coverage path
- Administering the test subscriber stations

## Nortel DMS-100 and SL-100 Switches

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This section provides the following information for DMS-100 and SL-100 switch integrations:

- Hardware
- Software requirements
- Switch administration requirements

### DMS-100 and SL-100 Switch Hardware Requirements

---

The customer must ensure that the CO provides the following hardware for the SMDI link:

- A 202T modem at the switch (if distance requires)
- A 3002 data circuit between the two modems (for example, an 829 channel interface unit, OMNI port, or equivalent). The transmit option must be 0 and the receive option must be 13.
- If an 829 channel interface unit is used, an appropriate cable (such as a B25A) between the unit and the modem in the CO (central office)
- Data communications card:
  - NT1X67FA or higher vintage IOC card for 1200-baud rate link
  - NT1X89AA/AB or high vintage MPC card for 2400 baud rate link (used for direct connection configurations or configurations with a customer-supplied modem)
- An SMDI link cable between the IOC/MPC port on the switch and the 25-pin adapter connected to the Avaya INTUITY serial port cable.



**NOTE:**

If the NT1X67 IOC card is used at the switch, the connection must be programmed for port 0 on the data communication card and the card must be dedicated for the Avaya INTUITY system.



**CAUTION:**

*The nt1x67bc or the nt1x67bd circuit cards are NOT compatible with the Avaya INTUITY system.*

The hardware interface to the IOC/MPC port varies with different switch models. For direct connection (without a modem) or for connection through a customer-supplied modem (not a 202T modem), see the DTE serial port adapter pin configuration in [Chapter 8, "Hardware Installation for Integration with Direct Connection or Customer-Supplied Modem"](#). Use an RS-232 mini-tester (or breakout box) to determine the correct connection. An integration does not require

the installation of a 202T modem if the distance between the Avaya INTUITY system and the switch is less than or equal to 15.3 m (50 ft), which is an RS-232 standard. If the distance is greater than 15.3 m (50 ft), a modem is required.

In addition, a loop start (not a ground start) interface for the voice connection (UCD or MLHG) agents is required.

## **DMS-100/SL-100 Switch Software Requirements**

The customer must ensure that the CO provides the following software:

- BCS24 through BCS28 and BCS32 or later software releases are required on the DMS-100/SL-100 switch to support the Avaya INTUITY system SMSI data link.



**NOTE:**

Nortel calls this link the simplified message desk interface (SMDI) link.

- The following SMSI feature packages are required:
  - NTX100: Meridian Digital Centrex - Basic (IBN)
  - NTX101: Meridian Digital Centrex - enhanced business services (IBN)
  - NTX119: Message Service
  - NTX730: ASCII Driver
  - NTX732: Simplified Message Desk Interface (SMDI)



**NOTE:**

NTX100 and NTX101 contain the uniform call distribution (UCD) features required for basic message-desk operation. NTX119 allows the Avaya INTUITY system to request message waiting updates. NTX730 and NTX732 enable the DMS-100/SL-100 to send call setup information to the Avaya INTUITY system.

- Plain Old Telephone Service (POTS) — For customers to use the message desk, either NTX220 (Vertical Services I) or NTX806 (Enhanced Call Forwarding - POTS) packaging must be available *in addition* to the packages listed previously.

## **Serial Port Settings**

For the serial port settings on the switch, see Nortel NTP 297-3501-316.

## DMS-100 and SL-100 Switch Administration Requirements

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The customer and the local operating company are responsible for administering the CO to accept integration with the Avaya INTUITY system. The local operating company must administer the DMS-100 or SL-100 switch before you begin the integration. The information provided here is for reference only.

The following high-level procedures are needed on the switch:

- Define the UCD (uniform call distribution) agent for each voice port that connects to the Avaya INTUITY system.



### NOTE:

The Avaya INTUITY system requires a loop start (not a ground start) interface for the voice ports.

- Define the UCD group.
- Configure the SMDI link.
- Activate the SMDI link.

See information on service order procedure 0081 in Nortel NTP 297-3401-311 for the SMDI link configuration on the DMS-100 and SL-100 switches. See Nortel NTP297-2001-104 for information on how to administer the switch tables.

In addition, MWI must be enabled on the switch, and two telephones must be set up for testing.

## Configuring the SMDI Link

The following procedures are required to assign parameters to configure the SMDI link. Ensure that the switch administrator has made these assignments.

1. Parameters for the terminal devices must be set in the appropriate tables, as described in Steps [a](#) and [b](#) below:
  - a. The TERMDEV table is required for the NT1X67FA circuit card. [Table 3-1](#) lists the fields in the TERMDEV table.
  - b. The MPC table and MPCLINK table are required for the NT1X89 circuit card. [Table 3-2](#) lists the fields for the MPC table, and [Table 3-3](#) lists the fields for the MPCLINK table.
2. Parameters for the datalink characteristics must be set in the SLLNKDEV table. [Table 3-4](#) lists the fields for the SLLNKDEV table.
3. In addition, ensure that the proper buffer allocation is made for SMDI records such as call information and MWI traffic in the OFCENG table per the requirements defined in Nortel NTP 1001-455.

**Table 3-1. TERMDEV Table Definitions (for the NT1X67 Circuit Card)**

| Field     | Description  | Values  |
|-----------|--|---|
| TERMDDES  | The SMDI link device name.   | 1-8 characters.   |
| IOCNO     | The I/O (input/output) controller number.  |   |
| CKTNO     | The I/O controller number to which the link is assigned as outgoing and incoming dateline. |   |
| TERMTYPE  | Terminal type.   | SMDI  |
| BAUDRT    | Baud rate of the terminal device.  | Set the appropriate baud rate: <ul style="list-style-type: none"> <li>■ 1200</li> <li>■ 2400 (for direct connection configurations only or configurations with a customer-supplied modem).</li> </ul> |
| GUARINTYP | Interface type.  | If a modem is used, set this value to EIA.  |
| EQPEC     | Product engineering code of the circuit card.  | Example: 1X67FA   |
| PRTY      | Parity of the terminal device.   | <ul style="list-style-type: none"> <li>■ e (even)</li> <li>■ o (odd)</li> <li>■ n (none)</li> </ul> <p>Normally this value is set to <b>n</b> (none).</p>   |
| MODEM     | Type of modem.   | NONE  |
| COMCLASS  | Command classes for the link.  | ALL   |

**Table 3-2. MPC Table Definitions for the NT1X89 Circuit Card**

| Field   | Description   | Values   |
|---------|---|--|
| MPCNO   | The MPC number used for the SMDI link.                  | Range 0-255. The value used here must also be used in the MPCNO field in the MPCLINK table.                        |
| MPCIOC  | The shelf number of the MPC I/O controller (SMDI link). | Range 0-12.  |
| IOCCCT  | The IOC circuit number.                                 | To derive this value, multiply the slot position on the IOC shelf by 4.<br><br>0, 4, 8, 12, 16, 20, 24, 28, or 32. |
| EQ      | The product engineering code for the MPC circuit card.  | 1X89AA or 1X89BA.  |
| DLDFILE | The download file name for SMDI.                        | 8 characters in the format MPCAxxyy.   |

**Table 3-3. MPCLINK Table Definitions for the MPC Circuit Card**

| Field    | Description   | Values   |
|----------|---|--|
| LINKKEY  | Key composed of the MPCNO and LINKNO subfields.   | See the fields below.  |
| MPCNO    | The MPC number used in the SMDI link.   | Enter the same value as in the MPCNO field in the MPC table. |
| LINKNO   | The MPC link for SMDI application with ASYNC protocol.  | 2 or 3.  |
| PROTOCOL | This value must be consistent with the download file specified in the MPC table (see the DLDFILE field in <a href="#">Table 3-2</a> above). | ASYNC  |
| LINKNABL | The amount of time a link is enabled before it is busied.   | The number of minutes in multiples of 5.                     |
| APLDEFN  | Application definition.   | SMDI   |

**Table 3-4. SLLNKDEV Table Definitions for Datalink Characteristics**

| Field     | Description   | Values   |
|-----------|---|--|
| DEVNAME   | Device name entered in the TERMDEV table.                   | Use the device name entered in the TERMDEV table.  |
| DEVTYPE   | Device type.  | <ul style="list-style-type: none"> <li>■ For BCS29 and earlier releases, use RS232.</li> <li>■ For BCS30 and later releases, use HS1X67 (for the 1X67F circuit card).</li> </ul> |
| XLATION   | Translations used for incoming and outgoing calls.          | Usually set to NONE.   |
| PROTOCOL  | Protocol used for the datalink.                             | Set to NONE for the serial link.   |
| DIRECTION | Specifies the direction that data travels through the link. | Set the direction as INOUTLK (for two-way).  |
| XFERS     | Report type currently allowed on the datalink.              | Set to SMDIDATA.   |

## Activating the SMDI Link

The SMDI link must be assigned to the voice ports. This is done by using the service order (SERVORD) procedure to assign the SMDI option for each voice port by setting SMDI\_AUTOLOG to **y** for all voice ports.

## Defining the UCD Agent for Each Voice Port that Connects to the Avaya INTUITY System

The UCD group setup requires defining settings for each UCD agent (analog line) using the service ordering (SERVORD) table. Each voice port (Tip/Ring line) coming into the Avaya INTUITY system must be defined as a UCD agent. The directory numbers assigned to each voice port (UCD agent) must also be assigned in the Voice Equipment window on the Avaya INTUITY system.

Each voice port connecting to the Avaya INTUITY system must be configured as a loop-start interface. The status must be set to WORKING in the Line Circuit Inventory (LNINV) table. There must be a sufficient number of DS-30A links between the LCGs (Line Group Controllers) and the LCMs (Line Concentrator Modules) to support traffic to the Avaya INTUITY system. See Nortel NTP-297-1001-103 for more information. The following parameters should be set for each line connected to the Avaya INTUITY system:

- DN — directory number
- LCC — line class code of service (usually set to IBN)
- GROUP — name of the IBN customer group to which the line belongs
- SUBGRP — subgroup number
- NCOS — network class of service
- SNPA — Service numbering plan area
- LATANAME — local area transport access name (set to NILLATA)
- LEN\_OR\_LTID — line equipment number (also known as line terminal ID)
- OPTION — The following options must be enabled on the line:
  - COD (CUTOFF\_ON\_DISC) must be enabled and the setting verified as greater than 200 ms. (The default setting on the Nortel switches is usually 80 ms.
  - UCD must be specified to associate the line with a UCD.
  - SMDI must be specified to associated the line with a particular SMDI link.
  - 3WC (for 3-way calling) should be set on the line. More options may be required.
  - T (for transfer enabled) must be set.

Make sure that the cutoff-on-disconnect-time is set to 1 second in the OFCVAR table.

## Defining the UCD Group

The UCDGRP (uniform call distribution group) table defines the MDN (message desk number) for the Avaya INTUITY system. The MDN is needed for the Avaya INTUITY system only if more than one hunt group (UCD group) is used in voice connection. Each voice channel has a corresponding UCD agent that is a member of the message desk. The UCDGRP (UCD group) table ([Table 3-5](#)) is used for these definitions.

A primary directory number must also be assigned for the UCD group:

- DNROUTE table is used in BCS 33 and higher releases.
- WRND table is used in BCS 32 or lower releases.

See ([Table 3-6](#)) for the fields in these tables.

**Table 3-5. UCD Group Table (UCDGRP)**

| <b>Field</b> | <b>Description</b>   | <b>Values</b>  |
|--------------|--|--|
| UCDNAME      | Name assigned to a UCD group.  | Range 1-16 characters.   |
| ACDN         | Specifies whether automatic call distribution is supported.  | n  |
| CUSTGRP      | The name of the customer group to which the UCD group belongs  | 1-16 characters.   |
| UCDRNGTH     | The interval after which an answered call to a UCD agent is forwarded to the route specified in the THROUT field.  | 20   |
| TABNAME      | Specifies where overflow and timeouts are to be routed.  | <ul style="list-style-type: none"> <li>■ OFRT</li> <li>■ IBNRTE</li> </ul>   |
| INDEX        | The route list number assigned in the OFRT or IBNRTE table.  | Range 1-1023.  |
| PRIOPRO      | The maximum amount of time a call can wait in the queue.   | Digits representing the number of seconds.   |
| MAXPOS       | The number of Avaya INTUITY voice ports used.  | Range 1-64.  |
| DBG          | Specifies when billing begins.   | <ul style="list-style-type: none"> <li>■ N — billing starts when the caller receives a recorded announcement.</li> <li>■ Y — billing starts when the call is answered by a UCD agent.</li> </ul> |
| DEFPRIO      | The default priority treatment for local calls terminating on the primary UCD number.  | 0 (zero)   |
| RLSCNT       | The maximum number of calls that terminate on a UCD station but are not answered.  | 0 (zero)   |
| MAXCQSIZ     | The maximum number of calls that can be in the incoming queue. The queue size should be less than or equal to the maximum number of Avaya INTUITY voice ports. | Range 0-511.   |

*Continued on next page*

**Table 3-5. UCD Group Table (UCDGRP) — Continued**

| Field        | Description  | Values   |
|--------------|--|--|
| MAXWAIT      | The maximum time a call can wait in the incoming call queue before being answered. | Digits representing the number of seconds.                 |
| OPTIONS      |  | UCD_SMDI   |
| SMDI_TERMDEV | The terminal designation defined in the TERMDEV and SLLNKDEV tables.               | Use the value assigned in the TERMDEV and SLLNKDEV tables. |
| SMDI_DSK_NO  | MDN (message desk number).   | Range 1-63.  |

**Table 3-6. DNROUTE and WRDN Table Definitions for the UCD Group**

| Field    | Description   | Values  |
|----------|---|---|
| DNNM     | Specifies the numbering plan.   | <ul style="list-style-type: none"> <li>■ SVGNPA</li> <li>■ NXX</li> <li>■ DEFGDIGS</li> </ul> |
| DN_SEL   | DN selector FEAT.   | FEAT  |
| FEATURE  | Feature UCD.  | UCD   |
| UCDGRP   | The UCD group name.   | Use the name set for the UCDNAME field in the UCDGRP table.                                   |
| DNTYPE   | Directory number type.  | Set this value to PRIM if the directory number is the primary UCD DN for the UCD group.       |
| TOLLPRIO | The priority of toll calls terminating on the primary UCD directory number. | Normally set to 0 (zero).   |

## Enabling MWI

For the subscriber extensions that will receive voice mail messages on the Avaya INTUITY system, the MWI (message waiting indicators) must be enabled. This is done by enabling either MWT (message waiting tone) or MWL (message waiting

lamp). The subscriber extensions must be configured to define the Call Forward Busy number as the lead UCD number, and the Call Forward No-Answer number to the UCD.

## **Setting Up Test Telephones**

Two telephones must be set up for testing the Avaya INTUITY system. These telephones must be connected through the switch and should match the majority of telephones that the customer will use on the system. If the MWI will be a flashing light, the test telephones must also be equipped with a flashing light. If the MWI is a stutter tone, the test telephones must be able to give stutter notification.

For the system to be tested and cut to service, the customer must provide the CO with two test subscriber extensions and all subscriber extensions on the system. Once the integration is complete, the CO must perform acceptance tests for the two test subscribers. The following two tasks must be performed:

- Administer the coverage path.
- Administer the test user stations.

# Hardware Installation for 5ESS Switch Integration with the 3A Translator

# 4

## Overview

---

The connections required to integrate the Avaya™ INTUITY™ system with the Lucent 5ESS® switch using the 3A SMSI (simplified message desk interface) translator must be completed before programming the 3A translator. This chapter describes the:

- 3A translator
- NT1U-200, NT1U-220, NT1L-230, and NT1U-300 network terminator units
- Power supply for the NT1U-200, NT1U-220, NT1L-230, and NT1U-300 network terminator units
- Possible configurations for connecting to the multi-port serial circuit card

### ➤ NOTE:

The NT1U-200 network terminator unit is a older version of the unit, no longer supplied. It can be used for some integrations in upgrade situations.

Hardware configurations differ, depending upon the distance between the 3A translator and the 5ESS switch.

## Purpose

---

This chapter provides procedures to install the hardware necessary to integrate a 5ESS switch with any MAP (multi-application platform) of the Avaya INTUITY system using a 3A translator.

## Configuration

---

The 5ESS switch supports the applications processor interface (API) protocol. Data must be converted from simplified message service interface (SMSI) to API protocol before it reaches the integrated services digital network (ISDN) switching module on the 5ESS switch. To translate API to SMSI protocol, a 3A SMSI translator is used. The 3A translator can be connected to the multi-port serial circuit card on any INTUITY multi-application platform (M AP).

## Distance Requirements

---

Different hardware configurations are possible depending on the distance between the 3A translator and the switch. If this distance is over 1 km (0.62 mi), a network terminator unit (NT1U-200, NT1U-220, NT1L-230, or NT1U-300) is required:

- NT1L-230 network terminator unit can be used in any configuration.
- NT1U-220, NT1L-230, or NT1U-300 network terminator unit is required if the U-card on the 5ESS switch uses 2B1Q encoding (5ESS switch Version 6 or later). Under these conditions, do *not* use an older version NT1U-200 network terminator unit.

The following configurations are supported for connection to the multi-port serial circuit card with the 3A translator:

- Less than 1 km (0.62 mi) from the 5ESS switch
- 1 km (0.62 mi) or more from the 5ESS switch with NT1U-220, NT1L-230, or NT1U-300 network terminator unit
- Less than 1 km (0.62 mi) from the 5ESS switch with NT1U-200 or NT1L-230 network terminator unit

### NOTE:

At distances of 9.7 km (6 mi) or greater the 3A translator *cannot* be used. A modem must be used instead.

## Hardware Devices

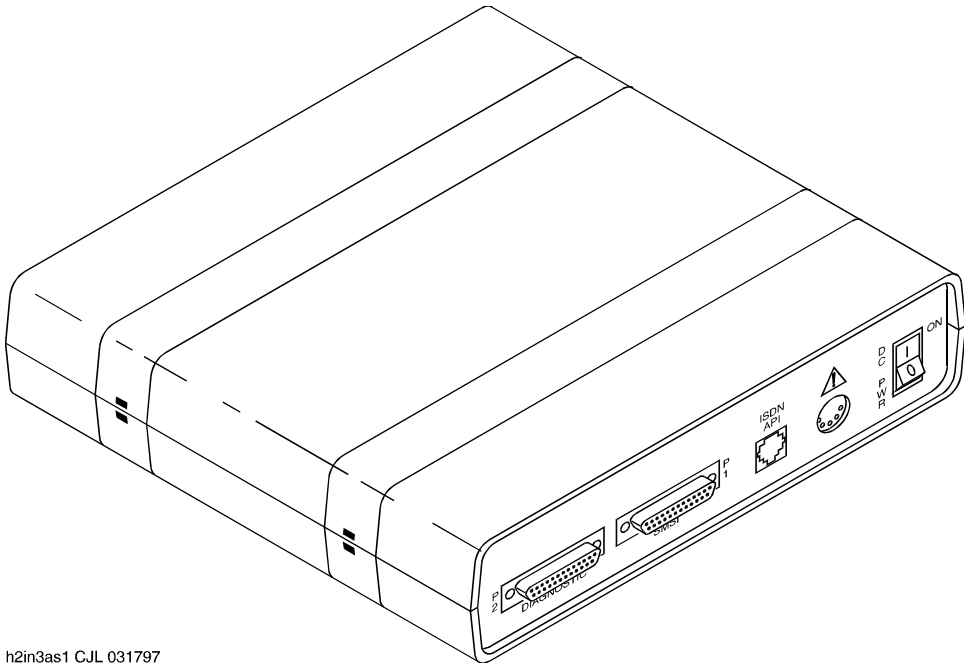
See the following illustrations when installing the 5ESS integration hardware:

- 3A translator ([Figure 4-1](#) and [Figure 4-2](#))
- NT1U-220 network terminator unit ([Figure 4-3](#))
- NT1L-230 network terminator unit ([Figure 4-4](#))
- Power supply for NT1U-220, NT1U-220, NT1L-230, and NT1U-300 network terminator units ([Figure 4-5](#))



**NOTE:**

The NT1U-200 network terminator unit is not illustrated. It resembles the NT1U-220 network terminator unit. The NT1U-300 is also not illustrated. It also resembles the NT1U-200, but uses 2B1Q signaling.



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**Figure 4-1. Back View of the 3A SMSI Translator**

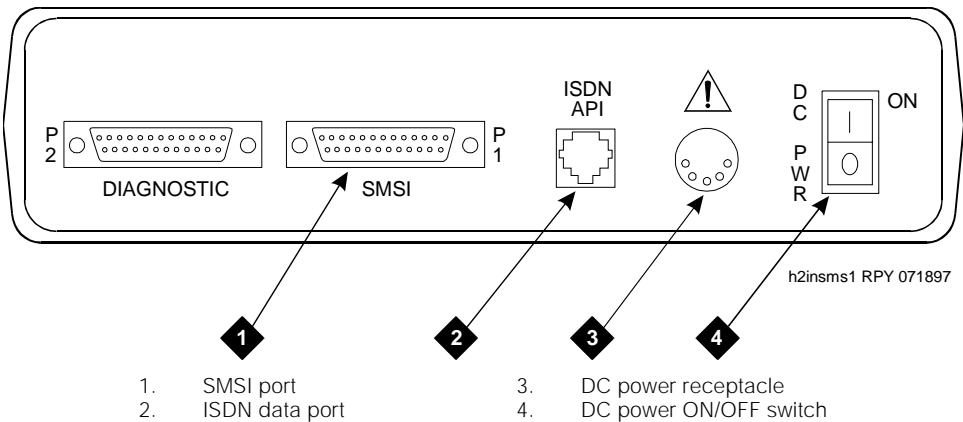


Figure 4-2. Back Panel of the 3A SMSI Translator

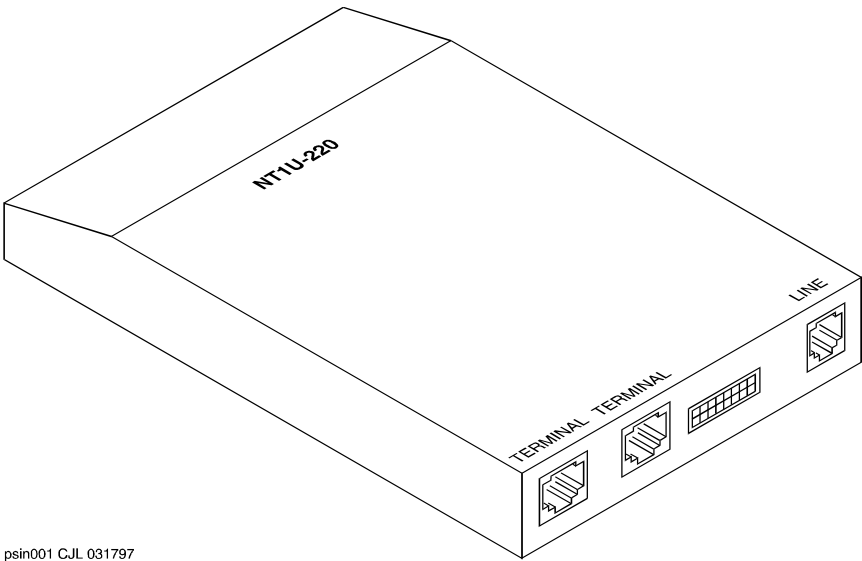
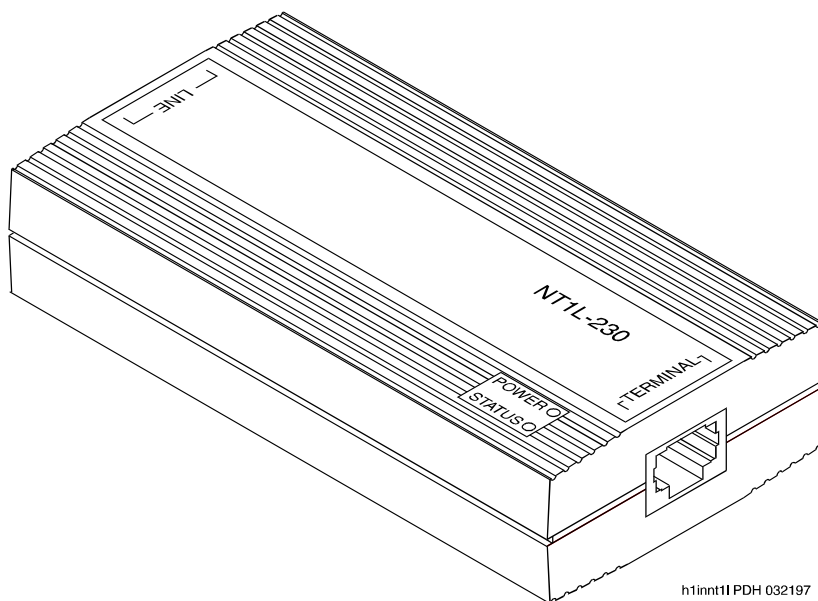


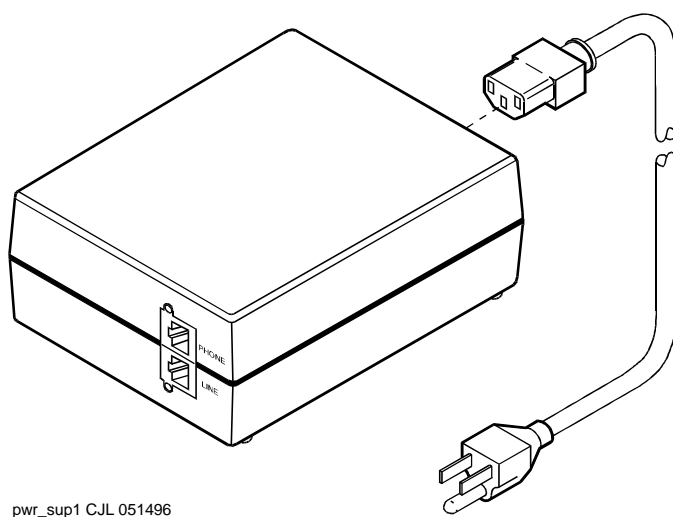
Figure 4-3. NT1U-220 Network Terminator Unit

4 Hardware Installation for 5ESS Switch Integration with the 3A Translator  
Hardware Devices

Page 4-5



**Figure 4-4. NT1L-230 Network Terminator Unit**



**Figure 4-5. Power Supply for NT1U-200, NT1U-220, and NT1L-230 Network Terminator Units**

## Connecting to the Multi-Port Serial Circuit Card

---

The procedure required to connect the 3A translator to the multi-port serial circuit card depends on the distance between the 3A translator and the 5ESS switch:

- 1 km (0.62 mi) or less
- More than 1 km (0.62 mi) with NT1U-220, NT1L-230, or NT1U-300 network terminator unit
- More than 1 km (0.62 mi) with NT1U-200 or NT1L-230 network terminator unit

### Distance of 1 km (0.62 mi) or Less

---

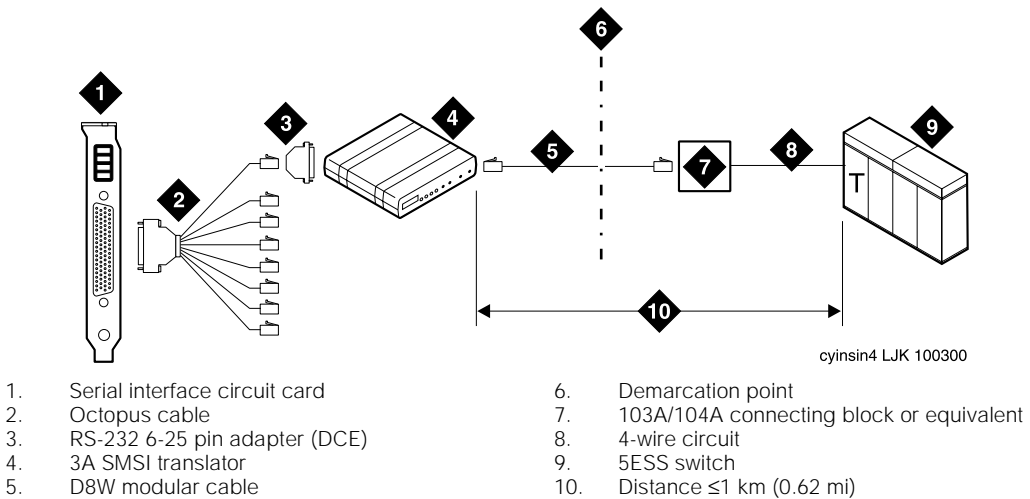
The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is 1 km (0.62 mi) or less from the 5ESS switch ([Figure 4-6](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.3-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- D8W modular cable
- 103A or 104A adapter or equivalent

In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. Uninterruptible 60 Hz 120 VAC power is recommended.

#### 4 Hardware Installation for 5ESS Switch Integration with the 3A Translator Connecting to the Multi-Port Serial Circuit Card

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**Figure 4-6. 3A Translator Connected to a Multi-Port Serial Circuit Card 1 km (0.62 mi) or Less from the 5ESS Switch**

### Installing the Hardware

Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is 1 km (0.62 mi) or less from the switch ([Figure 4-6](#)).

1. On the Avaya INTUITY system, connect one end of the 4.3-m (14-ft) modular cable into the port being used on the multi-port serial circuit card.

#### ➤ NOTE:

The port used must correspond with the port indicated in the *Serial Port* field on the Serial Interface window. (See [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”](#) for information on this window.)

2. Connect the other end of the 4.3-m (14-ft) modular cable to the RS-232 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.
6. In the back of the 3A translator, connect one end of the D8W modular cable to the ISDN data port.

7. Connect the other end of the D8W modular cable to the 103A or 104A connecting block leading to the 5ESS switch, or see [Figure 4-7](#) for wiring information necessary for the connection.



**NOTE:**

The CO will deliver a 4-wire circuit to the interconnection point where the 103A or 104A connecting block is shown in [Figure 4-6](#). The following wiring information ([Figure 4-7](#)) may be needed to complete the connection.

**Table 4-1.**

| 4-Wire Circuit from CO |                    | D8W Modular Cable |                    |
|------------------------|--------------------|-------------------|--------------------|
| 1                      | W/BL (white-blue)  | 4                 | W/BL (white-blue)  |
| 2                      | pair               | 5                 | pair               |
| 3                      | W/GN (white-green) | 3                 | W/GN (white-green) |
|                        | pair               |                   | pair               |

**Figure 4-7. Wiring Configuration for Connecting the 3A Translator**

For information about CO requirements for interfacing with the switch, see [Chapter 3, “Centrex Switch Requirements and Administration”](#).

**Distance of More Than 1 km (0.62 mi) with  
NT1U-220 or NT1L-230 Network Terminator Unit**

The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the 5ESS switch ([Figure 4-8](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.3-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- Two D8W modular cables
- D6 modular cable
- Network terminator unit (NT1U-220 or NT1L-230)

4 Hardware Installation for 5ESS Switch Integration with the 3A Translator  
Connecting to the Multi-Port Serial Circuit Card

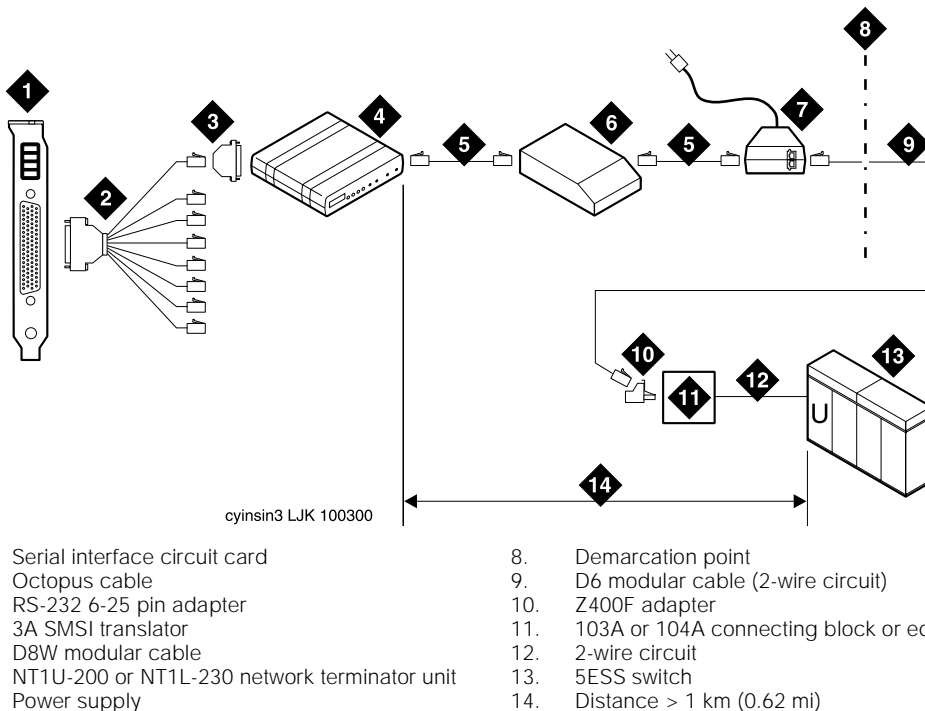
Page 4-9

- Power supply for NT1U-220 or NT1L-230 network terminator unit
- 400B2 adapter
- 103A or 104A connecting block (or equivalent)

In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. Uninterruptible 60 Hz 120 VAC power is recommended.

**NOTE:**

An NT1U-220, NT1L-230, or NT1U-300 network terminator unit is required if the U-card on the 5ESS switch uses 2B1Q encoding (5ESS switch version 6 or later). Otherwise, use an NT1U-200 or equivalent network terminator unit. The CO (central office) may provide the unit or the customer may be required to obtain it, depending on the local operating company procedures. The demarcation point is adjusted accordingly ([Figure 4-8](#)).



- |   |   |
|---|---|
| 1. Serial interface circuit card                | 8. Demarcation point                            |
| 2. Octopus cable                                | 9. D6 modular cable (2-wire circuit)            |
| 3. RS-232 6-25 pin adapter                      | 10. Z400F adapter                               |
| 4. 3A SMSI translator                           | 11. 103A or 104A connecting block or equivalent |
| 5. D8W modular cable                            | 12. 2-wire circuit                              |
| 6. NT1U-200 or NT1L-230 network terminator unit | 13. 5ESS switch                                 |
| 7. Power supply                                 | 14. Distance > 1 km (0.62 mi)                   |

NOTE: If the customer provides the NT1U-200 or NT1L-230 network terminator unit, the demarc point is the D8W cable from the back of the 3A translator.

**Figure 4-8. 3A Translator Connected to a Multi-Port Serial Circuit Card More Than 1 km (0.62 mi) from the 5ESS Switch with NT1U-220 or NT1L-230 Network Terminator Unit**

## Installing the Hardware

Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch ([Figure 4-8](#)):

1. On the Avaya INTUITY system, connect one end of the 4.3-m (14-ft) modular cable into the port being used on the multi-port serial circuit card.

### NOTE:

The port used must correspond with the port indicated in the `Serial Port` field on the Serial Interface window. (See [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Setting the Serial Interface Parameters”](#) for information about this window.)

2. Connect the other end of the 4.3-m (14-ft) modular cable into the RS-232 DCE 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 DCE 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.
6. In the back of the 3A translator, connect one end of the first D8W modular cable to the ISDN data port.
7. Connect the other end of the D8W modular cable a TERMINAL port on the NT1U-220, NT1L-230, or NT1U-300 network terminator unit ([Figure 4-3](#) or [Figure 4-4](#)).
8. Connect one end of the second D8W modular cable to the LINE port of the NT1U-220, NT1L-230, or NT1U-300 network terminator unit.
9. Connect the other end of the D8W modular cable to the TO PHONE port of the NT1U-220/NT1L-230/NT1U-300 power supply ([Figure 4-5](#)).
10. Connect one end of the D6 modular cable to the TO LINE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
11. Connect the other end of the D6 modular cable to the 400B2 adapter.
12. Connect the 400B2 adapter to the 103A or 104A connecting block leading to the 5ESS switch.

For information about CO requirements for interfacing with the switch, see [Chapter 3, “Centrex Switch Requirements and Administration”](#).

## **Distance of More Than 1 km (0.62 mi) with NT1U-200, NT1L-230, or NT1U-300 Network Terminator Unit**

---

The following hardware is required when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch ([Figure 4-9](#)):

- Multi-port serial circuit card (installed in any MAP)
- 4.5-m (14-ft) modular 6-wire cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DCE)
- 3A SMSI translator
- 60 Hz 120 VAC power supply/transformer (provided with the 3A translator)
- Two D8W modular cables
- D6 modular cable
- Network terminator unit (NT1U-200 or NT1L-230)
- Power supply for NT1U-200 or NT1L-230 network terminator unit
- 103A or 104A connecting block (or equivalent)

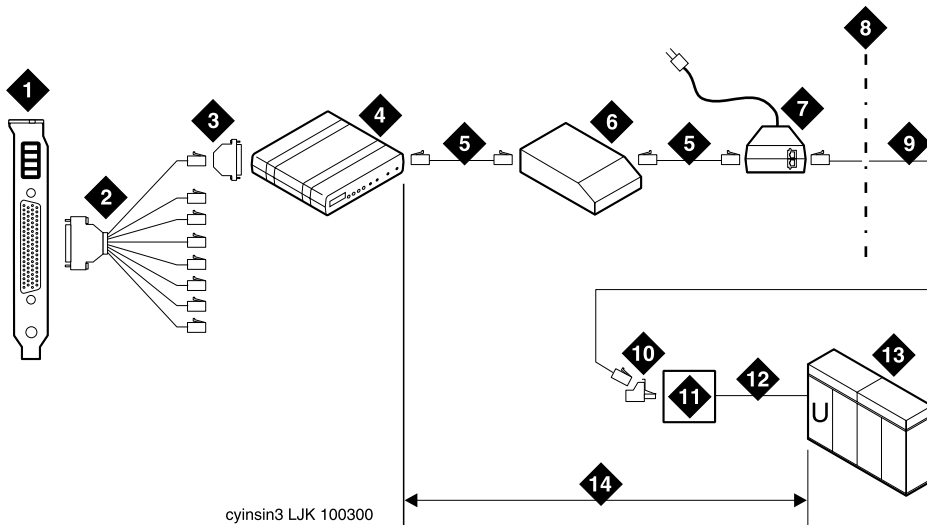
In addition, a standard electrical outlet must be within 1.8 m (6 ft) of the 3A translator. An uninterruptible 60 Hz 120 VAC power is recommended.

### **NOTE:**

Use an NT1U-200 or NT1L-230 network terminator unit for 5ESS switch Versions 5 or earlier. Otherwise, use an NT1U-220, NT1L-230, or NT1U-300 network terminator unit, as described in the previous section. The CO may provide the unit or the customer may be required to obtain it, depending on the local operating company procedures. If the customer provides the unit, the demarcation point is adjusted ([Figure 4-9](#)).

#### 4 Hardware Installation for 5ESS Switch Integration with the 3A Translator Connecting to the Multi-Port Serial Circuit Card

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- |   |   |
|---|---|
| 1. Serial interface circuit card                | 8. Demarcation point                            |
| 2. Octopus cable                                | 9. D6 modular cable (2-wire circuit)            |
| 3. RS-232 6-25 pin adapter                      | 10. 400B2 adapter                               |
| 4. 3A SMSI translator                           | 11. 103A or 104A connecting block or equivalent |
| 5. D8W modular cable                            | 12. 2-wire circuit                              |
| 6. NT1U-220 or NT1L-230 network terminator unit | 13. 5ESS switch                                 |
| 7. Power supply                                 | 14. Distance > 1 km (0.62 mi)                   |

NOTE: If the customer provides the NT1U-200 or NT1L-230 network terminator unit, the demarc point is the D8W cable from the back of the 3A translator2

**Figure 4-9. 3A Translator Connected to a Multi-Port Serial Circuit Card More Than 1 km (0.62 mi) from the 5ESS Switch with NT1U-200 or NT1L-230 Network Terminator Unit**

### Installing the Hardware

Use this procedure to connect the hardware for the 5ESS integration when the 3A translator is connecting to the multi-port serial circuit card and is more than 1 km (0.62 mi) from the switch ([Figure 4-9](#)):

1. On the Avaya INTUITY system, connect one end of the 4.3-m (14 ft) modular 6-wire cable into the port being used on the multi-port serial circuit card.

#### ➡ NOTE:

The port used must correspond with the port indicated in the `Serial Port` field on the `Serial Interface` window. (See [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”](#) for information about this window.)

**4** Hardware Installation for 5ESS Switch Integration with the 3A Translator  
*Connecting to the Multi-Port Serial Circuit Card*

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2. Connect the other end of the 4.3-m (14-ft) modular cable into the RS-232 DCE 6-25 pin adapter.
3. In the back of the 3A translator ([Figure 4-2](#)), connect the RS-232 DCE 6-25 pin adapter into the SMSI port (P1). Secure the adapter to the back of the 3A translator.
4. Connect one end of the DC power cord from the power supply to the DC power receptacle in the back of 3A translator.
5. Connect the other end of the DC power cord to an AC electrical outlet.
6. In the back of the 3A translator, connect one end of the D8W modular cable to the ISDN data port.
7. Connect the other end of the D8W modular cable to a TERMINAL port on the NT1U-200, NT1L-230, or NT1U-300 network terminator unit.
8. Connect one end of the first D6 modular cable to the LINE port of the NT1U-200, NT1L-230, or NT1U-300 network terminator unit.
9. Connect the other end of the D6 modular cable to the TO PHONE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
10. Connect one end of the second D6 modular cable to the TO LINE port of the NT1U/NT1L power supply ([Figure 4-5](#)).
11. Connect the other end of the D6 modular cable to the Z400F adapter.
12. Connect the Z400F adapter to the 103A or 104A connecting block leading to the 5ESS switch.

For information about CO requirements for interfacing with the switch, see [Chapter 3, "Centrex Switch Requirements and Administration"](#).

# Programming the 3A Translator

# 5

---

## Overview

This chapter describes the 3A SMSI (simplified message desk interface) translator. It includes:

- Illustrations of the translator
- Listings of options and default settings
- Instructions for setting the required options

### ⇒ NOTE:

Before programming the 3A translator, ensure that all hardware connections to the 3A translator have been made. For information about hardware connections for Lucent™ 5ESS® switch integrations, see [Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”](#).

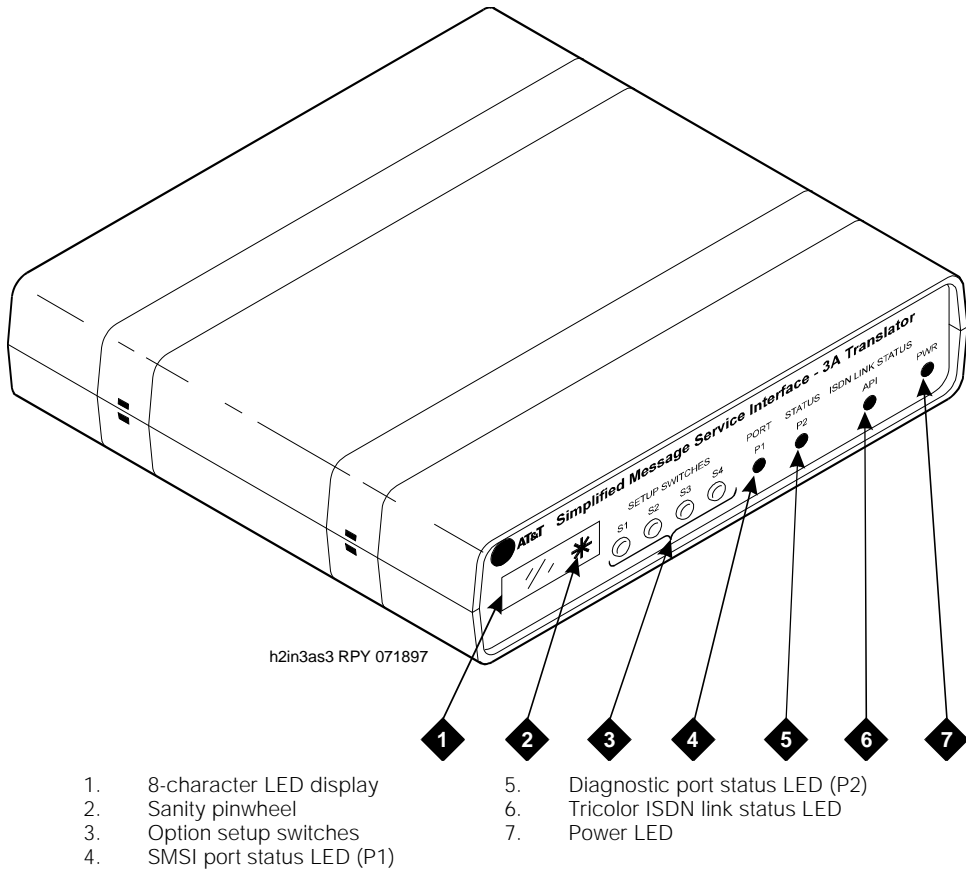
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## Purpose

This chapter provides the procedures necessary to program the 3A translator.

## 3A Translator Setup Switches

To program the 3A translator, use the setup switches on the front of the box. For a view of the 3A translator box, see [Figure 5-1](#). For a closeup view of the front of the box, see [Figure 5-2](#).



**Figure 5-1. Front Panel of 3A SMSI Translator**

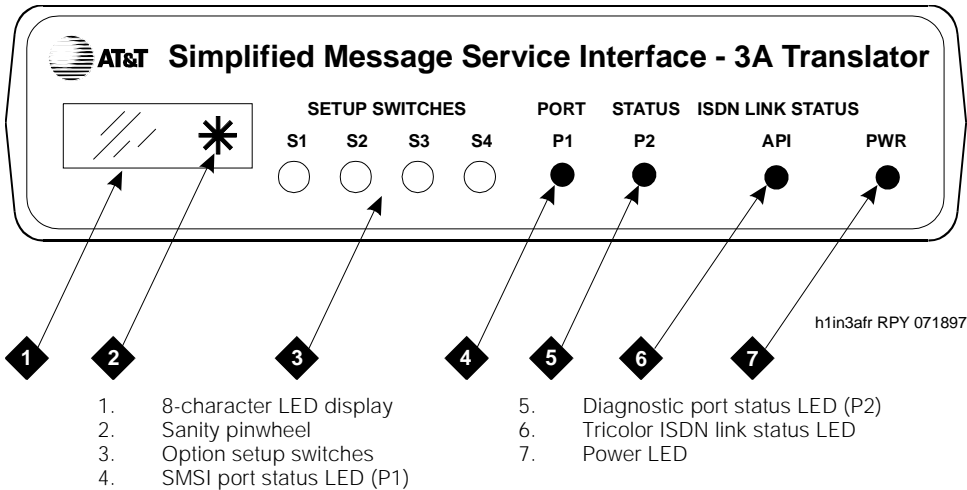


Figure 5-2. Closeup Front View of 3A SMSI Translator

### 3A Translator Setup Options

Sixteen options are available on the 3A translator ([Table 5-1](#)). Each option has a default setting. For most of the options, you do not need to change the default. Options you must set for the Avaya INTUITY™ system are shown in [Table 5-1](#) in **bold** type. Use [Table 5-1](#) to record your settings for these options.

**NOTE:**  
For a list of information needed to select the settings, see [Chapter 2, “Planning for Centrex Switch Integration”](#).

Table 5-1. Options on the 3A Translator (Required Options in Bold)

| Option   | Default Setting | Your Setting |
|----------|-----------------|--------------|
| SMSIBAUD | <b>1200</b>     | 1200         |
| SMSIPRTY | even7dls        |              |
| DIAGBAUD | 1200            |              |
| DIAGPRTY | even7dls        |              |
| LCEN     | <b>00000000</b> |              |
| BCID     | <b>00000</b>    |              |

Continued on next page

**Table 5-1. Options on the 3A Translator (Required Options in Bold) — Continued**

| Option   | Default Setting | Your Setting   |
|----------|-----------------|----------------|
| TEI      | 01              |                |
| DN SIZE  | <b>7 digits</b> | 7 or 10 digits |
| DIAGMODE | normal          |                |
| PRIVMODE | no block        |                |
| PRIVCHAR | space           |                |
| RUN MODE | smsi            |                |
| FLOWCNTL | <b>rts/cts</b>  |                |
| TIMRCNTL | 1.0 sec         |                |
| LO-WATER | 80 bufrs        |                |
| HI-WATER | +4              | 15             |

## **3A Translator Setup Switch Functions**

To change the option settings on the 3A translator, use the setup switches (S1-S4) on the front of the translator ([Figure 5-2](#)). These switches toggle between program mode and change mode.

- To display each option and its setting, use the switches in *program mode*.
- To change the current setting and save the new setting, use the switches in *change mode*.

[Table 5-2](#) describes the function for each setup switch, depending on the mode (setup or change) being used.

**Table 5-2. 3A Translator Setup Switch Functions**

| Setup Switch | Program Mode   | Change Mode   |
|--------------|--|---|
| S1           | Displays the current option in the LED display. Continue to press to display each option.                        | Toggles to program mode while saving the current setting, and displays the current option in the LED display.               |
| S2           | Toggles to change mode.  | Displays the current option setting in the LED display. Continue to press to display each possible setting for that option. |
| S3           | Displays the first current option setting in the LED display. Continue to press to display each current setting. | For numeric settings, shifts the cursor one digit to the right.   |
| S4           | Exits program mode, and completes the SMSI connection.   | Toggles to program mode without saving the current setting, and displays the current option in the LED display.             |

## Programming the 3A Translator

Before programming the 3A translator, ensure that all hardware connections to it have been made. For information about hardware connections for Lucent 5ESS switch integration, see [Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”](#).

Use this procedure to program the 3A translator.

1. Turn the power switch off and then on.  
When the power is on, the power LED lights green.
2. When the LED display window displays `ATP`, press S1 until the window displays `PROG MODE`.  
You are now in program mode.
3. Press S1 until the window displays `SMSI BAUD`.  
The default baud rate setting, 1200, is displayed.
4. Press S2 until window displays the baud rate being used.

A baud rate of 1200 is recommended. The baud rate must correspond with the setting for the `Baud Rate` field on the Serial Interface window (see [“Setting the Serial Interface Parameters”](#) in [Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”](#) for information about this window).

5. When the window displays the setting you want, press S1.

The new setting is saved, and the window displays the following:

SAVED  
SMSIBAUD

6. Press S1 until the window displays `LCEN`, and then press S2.

The window displays the default setting `00000000`, with the first digit from the left flashing. You will change this setting, one digit at a time, to the value you obtained from the CO.

7. Press S2 until the flashing digit displays the value you want, and then press S3.

The setting is displayed with the next digit flashing.

8. Repeat Step 7 until each of the digits is correctly set, and then press S1.

The new setting is saved, and the window displays the following:

SAVED  
LCEN

9. Press S1 until the window displays `BCID`, and then press S2.

The window displays the default setting `00000`, with the first digit from the left flashing. You will change this setting, one digit at a time, to the value you obtained from the CO.

10. Press S2 until the flashing digit displays the value you want, and then press S3.

The setting is displayed with the next digit flashing.

11. Repeat [Step 10](#) until each of the digits is correctly set, and then press S1.

The new setting is saved, and window displays the following:

SAVED  
BCID

12. If you are:

- Changing the option setting for `DN SIZE`, continue with [Step 13](#).
- Not changing the option setting for `DN SIZE`, skip to [Step 15](#).

 **NOTE:**

To determine what setting to use for this option, you must know what version of the 5ESS switch you are using. Versions 5 or later use 10 digits; older versions use 7 digits. Obtain this information from the CO.

13. Press S1 until the window displays `DN SIZE`, and then press S2.

The window displays the default setting `7 digits`.

14. Press S2 until the window displays `10 digits`, and then press S1.

5 Programming the 3A Translator  
3A SMSI Translator Indicator Lights

Page 5-7

The new setting is saved, and the window displays the following:

```
SAVED
DN SIZE
```

15. Press S1 until the window displays `FLOWCNTL`, and then press S2.

The default setting `rts/cts`, is displayed.

16. Press S2 until the window displays `xon/xoff`, and then press S1.

The new setting is saved, and the window displays the following:

```
SAVED
FLOWCNTL
```

17. Press S1 until the window display `HIWATER`, and then press S2.

The default setting `rts/cts`, is displayed.

18. Press S2 until the window displays `15`, and then press S1.

The new setting is saved.

19. Press S4.

The 3A translator is programmed, completing the SMSI connection. The window displays the following:

```
PROGMODE END
SMSI
```

## **3A SMSI Translator Indicator Lights**

On the front panel of the 3A SMSI translator the right-most LED is the power (PWR) indicator and should always be illuminated green while the power switch is ON. (See [Figure 5-2](#) for an illustration of the front panel.) The ISDN LINK STATUS LED is located to the left of the power indicator. This tricolor LED uses the following colors to indicate the status of the data link:

|        |   |
|--------|---|
| Red    | Indicates that the link has reached level 2, meaning that a hardware connection has been established between the 3A translator and the 5ESS switch. |
| Yellow | Indicates that the link has reached level 3 and the communication protocol has been established.  |
| Green  | Indicates that the 5ESS switch is in communication with the application firmware over the link.   |

In normal operation, the ISDN LINK STATUS LED should remain green at all times.

**5** Programming the 3A Translator  
*3A SMSI Translator Indicator Lights*

*Page 5-8*

The two remaining LEDS to the left of the ISDN LINK STATUS LED report the status of the serial ports. The SMSI and DIAGNOSTIC port status LEDs are labeled P1 and P2, respectively. If P1 is illuminated (green), the port is able to communicate with the Avaya INTUITY system or modem. P2 is illuminated when a diagnostic terminal is attached.

# Setting the 202T Modem

# 6

---

## Overview

This chapter describes how to set the options on the 202T modems and how to assemble the modem unit.

### ➤ NOTE:

A Centrex switch integration does not require the installation of a 202T modem if the distance between the Avaya™ INTUITY™ system and the switch is less than or equal to 15.3 m (50 ft), the RS232 standard. If the distance is greater than 15.3 m (50 ft), use a 202T modem.

The 202T modem supports *only* a baud rate of 1200. To use the 202T modem, verify that the SMDI link is configured for 1200, as specified in [Chapter 3, "Centrex Switch Requirements and Administration"](#).

---

## Purpose

This chapter provides the procedures necessary to set the options on the 202T modem and to assemble the modem unit.

## 202T Modem Types

---

You can install either one of the following 202T modem types with the INTUITY™ AUDIX system:

- Motorola 202T modem
- AT&T Dataphone 202T modem

However, the modem at the service provider switch may be different, though the commonly-supported modems at the service provider switch include the following:

- General DataCom 202T modem
- Rexon 202T modem
- NEC 202T modem

When you install at Motorola 202T modem with the Intuity AUDIX system, the modem at the service provider switch must always be set to the *default* options. If the Intuity AUDIX modem is an AT&T Dataphone 202T, the modem options at the service provider switch may differ. See [“Modem Settings for the Service Provider Switch” on page 6-11](#).

The manufacturer’s name appears on the faceplate of the unit.

## Setting Options for the 202T Motorola Modem

---

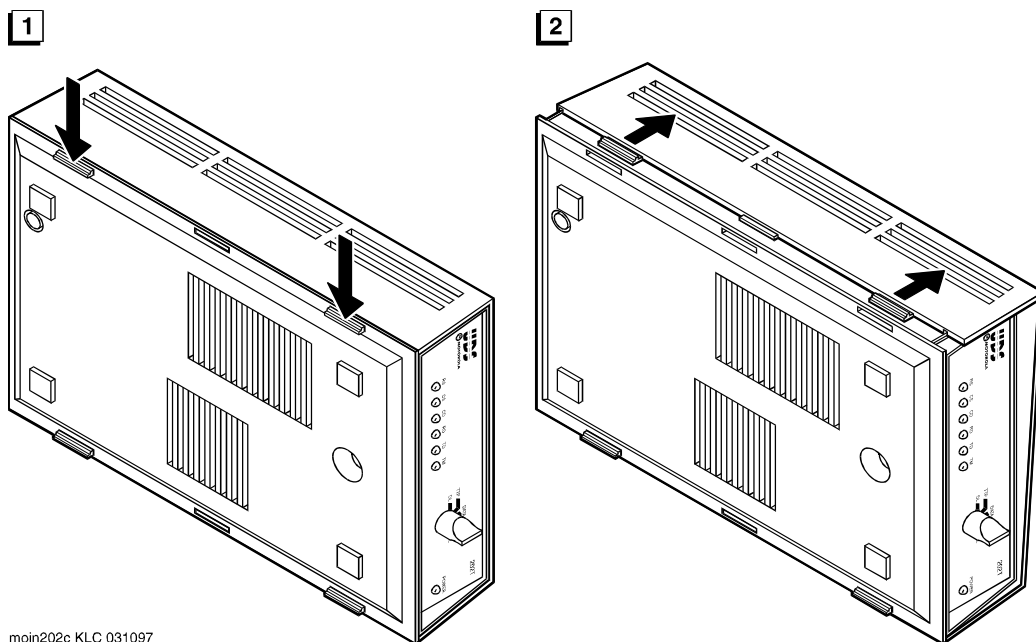
The Motorola 202T modem contains 14 jumpers that must be correctly set. Use this procedure to set the jumpers.

1. To remove the top cover from the Motorola 202T modem, complete the following Steps a through f:

 **NOTE:**

Installers in Canada may need to use a screwdriver to remove a screw through the top rear panel or to remove tabs located between the cover latch and the bottom plate.

- a. Turn the modem on its side.
- b. Place your thumbs on the blue tabs and your fingers on the edge of the cover ([Figure 6-1](#), View 1).

















**Figure 6-1. Removing the Top Cover of the Motorola 202T Modem: Releasing the First Set of Latches**

- c. Press the tabs down and toward the modem ([Figure 6-1](#), View 2). Use your fingers to gently push the top cover away from the body. *Do not remove the top cover.*
  - d. Turn the modem so that the opposite side faces you.
  - e. Gently push above the latches to release the other side of the cover.
  - f. Pull the released cover off.
2. Verify the settings. To locate the jumpers in the modem, see [Figure 6-2](#). To verify the jumpers, see [Figure 6-3](#) and [Table 6-1](#). Correct any as necessary.

6 Setting the 202T Modem  
Setting Options for the 202T Motorola Modem

Page 6-4

**Table 6-1. Motorola 202T Modem Jumper Identities and Settings**

| Location on<br><a href="#">Figure 6-2</a><br>and <a href="#">Figure 6-3</a>         |  |  | Jumper Identity                 | Setting for the Avaya INTUITY System  |
|---|--|--|---------------------------------|---|
|    |  |  | Carrier Detect Level            | –45 dBm Level<br>(0 and –45 strapped)   |
|    |  |  | Carrier Detect Delay            | 6 ms<br>(6 and P strapped)  |
|    |  |  | Anti-Streaming Option           | Out<br>(6 strapped)   |
|    |  |  | Local Copy Squelch              | Out – No local copy<br>(Out and P strapped)   |
|    |  |  | Call Turnaround Squelch         | Call Turnaround Squelch set to out<br>(P and O strapped)  |
|    |  |  | Turnaround Squelch Time         | 8.3 ms squelch<br>(P and 8.3 strapped)  |
|   |  |  | Soft Carrier Turnoff            | 0 – Do Not Send Soft Carrier<br>(0 strapped)  |
|  |  |  | Test Generator Baud Rate Select | 18 bps<br>(Option 4 strapped)   |
|  |  |  | Chassis/System Ground Option    | Out<br>(Out and P strapped)   |
|  |  |  | RTS/CTS Delay                   | RTS/CTS Delay 33 ms<br>(33 strapped)  |
|  |  |  | Transmit Carrier                | Strapped for terminal control of carrier by exercising<br>RTS Input Line<br>(TC and P strapped) |
|  |  |  | 2-Wire/4-Wire Option            | 4-Wire Option<br>(4W and P strapped)  |
|  |  |  | Transmit Level Option           | 0<br>(-0 strapped)  |
|  |  |  | 2-Wire/4-Wire Option            | 4-Wire Option<br>(4W and P strapped)  |

6 Setting the 202T Modem  
Setting Options for the 202T Motorola Modem

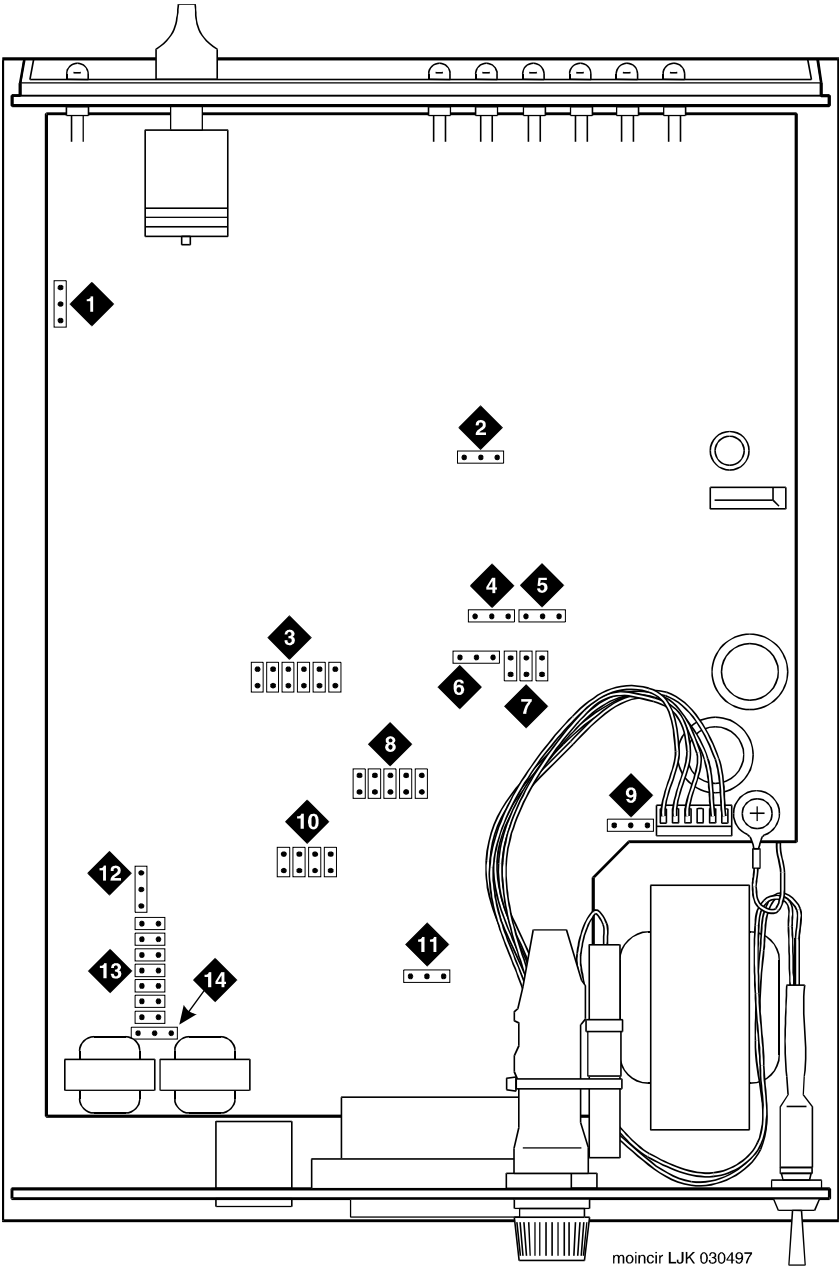


Figure 6-2. Motorola 202T Modem Circuit Board and Jumper Locations

6 Setting the 202T Modem  
Setting Options for the 202T Motorola Modem

Page 6-6

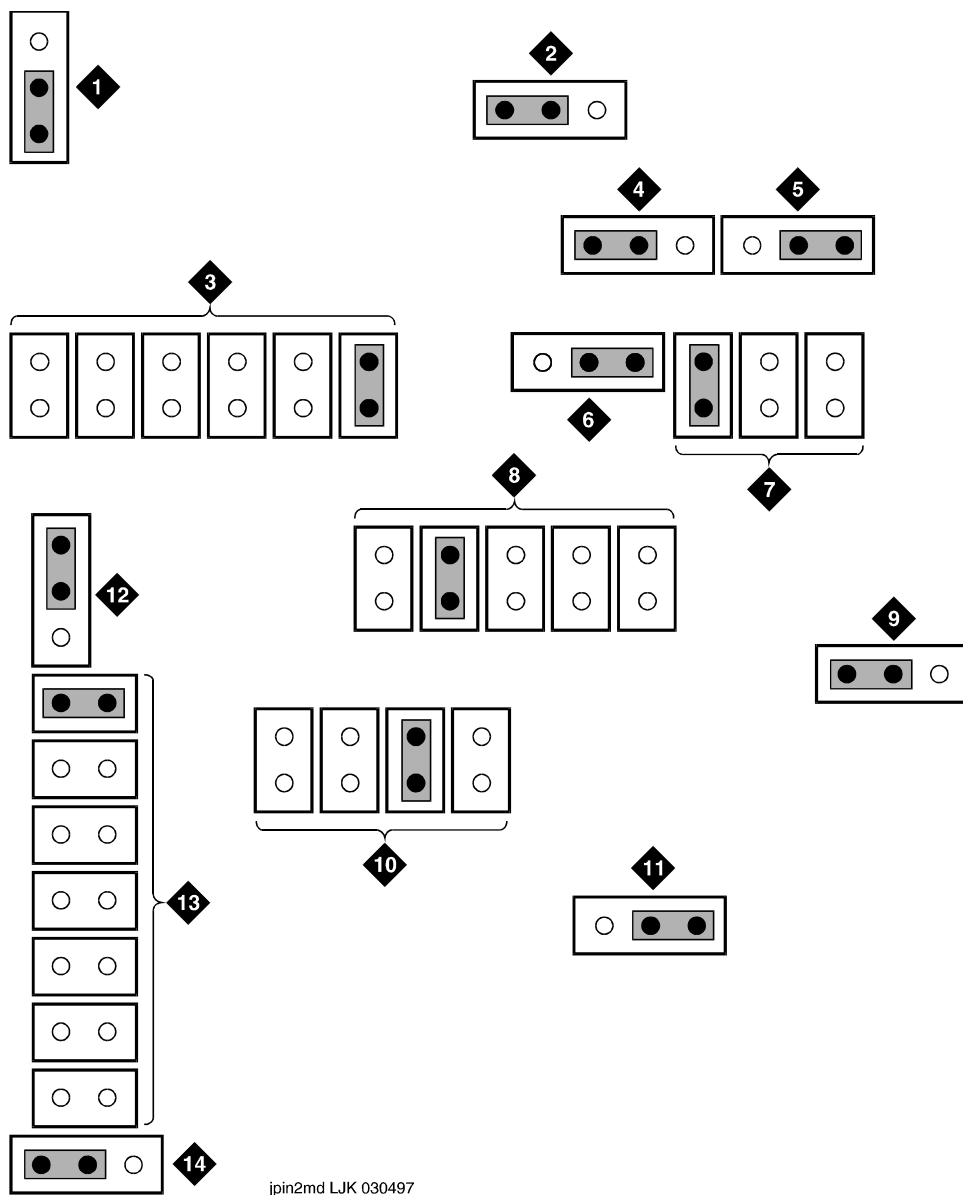


Figure 6-3. Motorola 202T Modem Default Jumper Settings

6 Setting the 202T Modem  
*Setting Options for the AT&T Dataphone 202T Modem*

Page 6-7

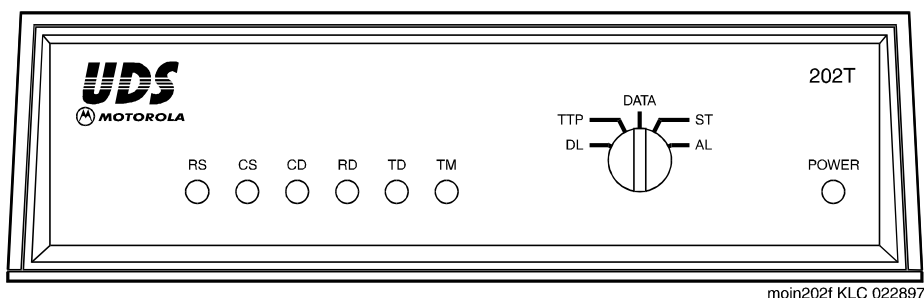
3. To replace the top cover, complete the following Steps a and b:
  - a. Line up the guides with the front and back panels.  
The guide for the front panel is slightly farther from the edge of the cover.
  - b. Slide the cover into place.  
The cover clicks when the latches are secure.



**NOTE:**

Installers in Canada should replace the screw or the locking tabs.

4. Set the front dial to DATA (see [Figure 6-4](#)).



**Figure 6-4. Front Panel of the Motorola 202T Modem Showing the Dial Setting for DATA**

5. Continue with [Chapter 7, "Hardware Installation for Centrex Switch Integration with the 202T Modem"](#).

## Setting Options for the AT&T Dataphone 202T Modem

The AT&T Dataphone 202T modem has three switches — S2, S3, and S4 — that you must set before installing the integration hardware.

### Location of Switches

[Figure 6-5](#) shows the location of the switches.

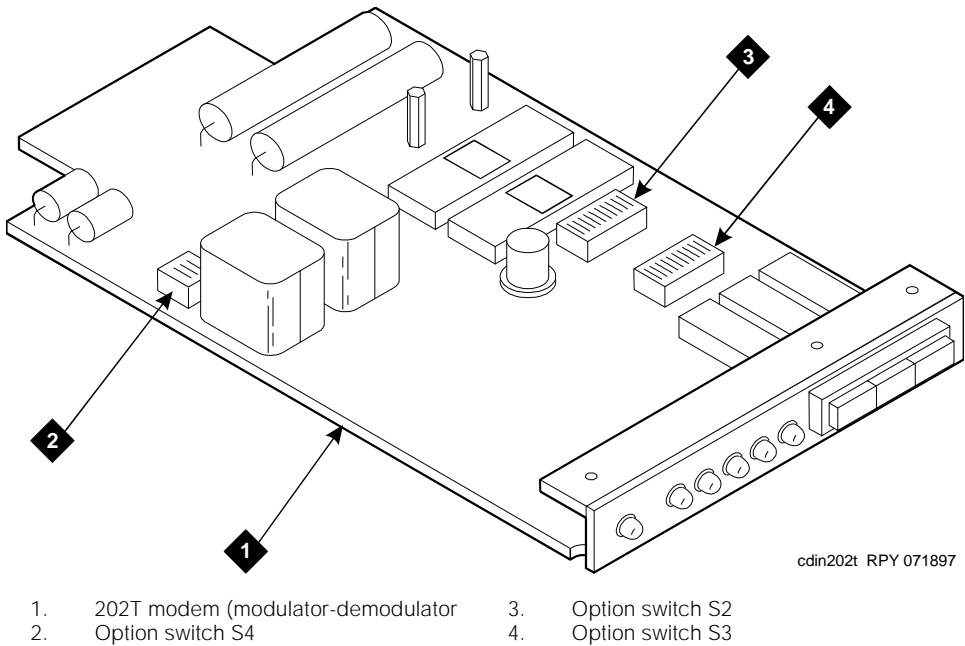


Figure 6-5. Location of Option Switches on the AT&T Dataphone 202T Modem

### Operating the Rockers

The options are set by moving rockers on the numbered side of the switches up (open) or down (closed). [Figure 6-6](#) shows an example of a switch on the 202T modem. In this example, options 1 through 5 are closed, indicated by rockers down on the numbered side of the switch. Options 6 through 10 are open, indicated by rockers up on the numbered side of the switch.

**NOTE:**  
[Figure 6-6](#) is an example only. Use the switch settings in [Table 6-2](#).

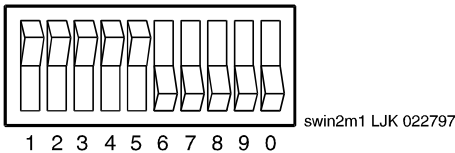


Figure 6-6. Example of 202T Modem Switch Option Settings

## Procedure

Use this procedure to set the switches.

1. Remove the front of the data mounting.
2. Pull out the circuit card.
3. Use [Table 6-2](#) to verify the option switch settings for S2, S3, and S4.



### NOTE:

The information in [Table 6-2](#) may also be printed on the bottom of the modem housing.

**Table 6-2. AT&T Dataphone 202T Modem Option Settings**

| Switch | Segment | Position | Feature                               | Option<br>(* = factory<br>setting) | Description                     |
|--------|---------|----------|---------------------------------------|------------------------------------|---------------------------------|
| S1     | 1       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 2       | Closed   | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 3       | Closed   | Fast carrier<br>detection             | N                                  | Out (normal<br>mode)            |
|        | 4       | Open     | Clear-to-send<br>interval             | M*                                 | 8ms                             |
|        | 5       | Open     | —                                     | —                                  | —                               |
|        | 6       | Open     | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 7       | Closed   | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 8       | Open     | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 9       | Closed   | —                                     | —                                  | —                               |
|        | 0       | Open     | Clear-to-send<br>interval             | M*                                 | 8ms                             |

*Continued on next page*

## 6 Setting the 202T Modem

### Setting Options for the AT&T Dataphone 202T Modem

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**Table 6-2. AT&T Dataphone 202T Modem Option Settings — Continued**

| Switch | Segment | Position | Feature                               | Option<br>(* = factory<br>setting) | Description                     |
|--------|---------|----------|---------------------------------------|------------------------------------|---------------------------------|
| S2     | 1       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 2       | Closed   | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 3       | Closed   | Fast carrier<br>detection             | N                                  | Out (normal<br>mode)            |
|        | 4       | Open     | Clear-to-send<br>interval             | M*                                 | 8ms                             |
|        | 5       | Open     | —                                     | —                                  | —                               |
|        | 6       | Open     | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 7       | Closed   | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 8       | Open     | Soft turnoff and<br>squench intervals | Z                                  | 0 (soft turnoff)<br>0 (squench) |
|        | 9       | Closed   | —                                     | —                                  | —                               |
|        | 0       | Open     | Clear-to-send<br>interval             | M*                                 | 8 msec                          |
| S3     | 1       | Open     | 4-wire operation                      | ZK*                                |                                 |
|        | 2       | Open     | Compromise delay<br>equalization      | ZU*                                | Maximum                         |
|        | 3       | Open     | Channel condition                     | ZY*                                | Basic                           |
|        | 4       | Open     | 4-wire operation                      | ZK*                                |                                 |
|        | 5       | Open     | Compromise<br>amplitude equalization  | ZW*                                | Maximum                         |
|        | 6       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 7       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 8       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 9       | Closed   | 4-wire operation                      | ZK*                                |                                 |
|        | 0       | Closed   | 4-wire operation                      | ZK*                                |                                 |

*Continued on next page*

**Table 6-2. AT&T Dataphone 202T Modem Option Settings — Continued**

| Switch | Segment | Position | Feature   | Option<br>(* = factory<br>setting) | Description |
|--------|---------|----------|---|------------------------------------|-------------|
| S4     | 1       | Closed   | Continuous carrier  | ZN                                 | In          |
|        | 2       | Open     | Carrier detector reset                                    | ZM*                                | Out         |
|        | 3       | Closed   | State of CC (data set<br>ready) during analog<br>loopback | YB                                 | On          |

- 4. Insert the circuit card in the modem data mounting.
- 5. Replace the front of the data mounting.

## Modem Settings for the Service Provider Switch

When the Intuity AUDIX uses an AT&T Dataphone 202T modem, the modem option settings at the service provider switch may vary, depending on the type of modem. The following tables show the modem options for the commonly-supported modems.

### Modem Options for the AT&T Dataphone 202T Modem

Use the same options as are defined in this document for the modem options the Intuity AUDIX system uses.

### Modem Options for the General Data Communications 202T Modem

- Pin x4 = 4w
- Pin x5 = chout
- Pin x2 = eqin

**Table 6-3. Modem Options for the General Data Communications 202T Modem**

|   | <b>Switch 4</b> | <b>Switch 6</b> | <b>Switch 7</b> | <b>Switch 8</b> |
|---|-----------------|-----------------|-----------------|-----------------|
| 1 | OFF             | OFF             | ON              | OFF             |
| 2 | OFF             | OFF             | ON              | OFF             |
| 3 | OFF             | OFF             | ON              | OFF             |
| 4 | OFF             | OFF             | ON              | OFF             |
| 5 | ON              | OFF             | OFF             | X               |
| 6 | OFF             | OFF             | X               | X               |
| 7 | OFF             | OFF             | X               | X               |
| 8 | OFF             | ON              | X               | X               |

**Modem Options for the Raxon 202T Modem**

---

**Table 6-4. Modem Options for the Raxon 202T Modem**

---

| Switch S2 |          |
|-----------|----------|
| Segment   | Position |
| 1         | ON       |
| 2         | OFF      |
| 3         | OFF      |
| 4         | ON       |
| 5         | OFF      |
| 6         | OFF      |
| 7         | OFF      |
| 8         | ON       |
| 9         | OFF      |
| 10        | OFF      |

| Switch S3 |          |
|-----------|----------|
| Segment   | Position |
| 1         | OFF      |
| 2         | OFF      |
| 3         | ON       |
| 4         | ON       |
| 5         | OFF      |
| 6         | OFF      |
| 7         | OFF      |
| 8         | ON       |
| 9         | ON       |
| 10        | ON       |

**Modem Options for the NEC 202T Modem**

**Table 6-5. Modem Option for the NEC 202T Modem**

| NEC (soft options)     |        |
|------------------------|--------|
| Line detect 4-wire     | On     |
| Fast carrier detect    | On     |
| Continuous carrier     | On     |
| Anti-stream            | Off    |
| RD (Recv data) squelch | 0 ms   |
| Clear to send delay    | 8.2 ms |
| Soft turnoff           | 0      |
| Local copy             | Off    |
| Transmit level         | 0      |

# Hardware Installation for Centrex Switch Integration with the 202T Modem

# 7

---

## Overview

This chapter describes:

- The 202T modem
- Connecting to the multi-port serial circuit card
- Cabling the voice ports

---

## Purpose

This chapter provides information on the hardware connections required to integrate any Avaya™ INTUITY™ MAP (multi-application platform) system with a Centrex switch using a 202T modem.

## Distance Requirements

A Centrex switch integration requires installation of a 202T modem only if the distance between the Avaya INTUITY system and the switch is greater than 15.3 m (50 ft), per RS-232 standard. If the distance is 15.3 m (50 ft) or less, for Northern Telecom (Nortel) DMS-100 and SL-100 integrations, no modem is required, and a direct-connect configuration can be used. See [Chapter 8, “Hardware Installation for Integration with Direct Connection or Customer- Supplied Modem”](#).

For a Lucent 5ESS® switch, direct connection is not an option. Either a modem or the 3A SMSI translator must be used. See [Chapter 4, “Hardware Installation for 5ESS Switch Integration with the 3A Translator”](#). However, if the distance is 9.7 km (6 mi) or greater, the 5ESS switch cannot be integrated with a 3A SMSI translator. A 202T modem *must* be used instead.

## Hardware

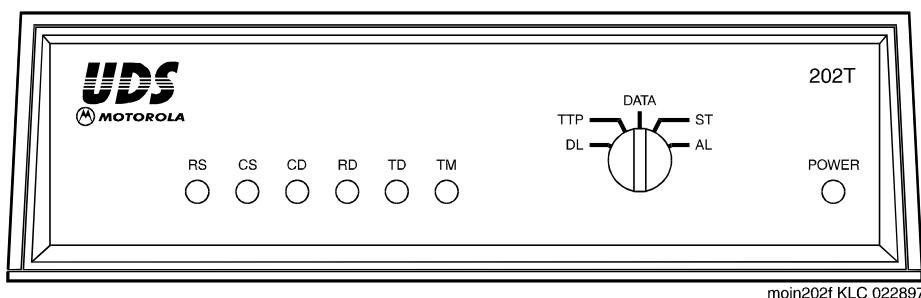
Two versions of the 202T modem are in use:

- Motorola 202T modem
- AT&T 202T Dataphone modem

Refer to the following drawings of the 202T modem when installing the switch integration hardware.

### Motorola 202T Modem

[Figure 7-1](#) shows the front and [Figure 7-2](#) shows the back of the Motorola 202T modem.



**Figure 7-1. Motorola 202T Modem (Front View)**

7 Hardware Installation for Centrex Switch Integration with the 202T Modem  
Hardware

Page 7-3

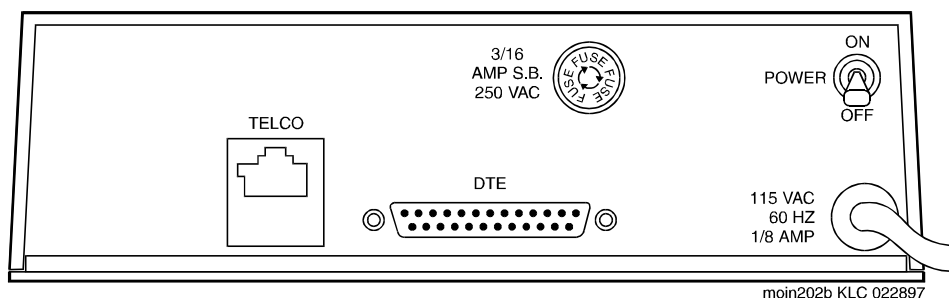


Figure 7-2. Motorola 202T Modem (Back View)

### AT&T 202T Dataphone

[Figure 7-3](#) shows the front and [Figure 7-4](#) shows the back of the AT&T 202T Dataphone modem.

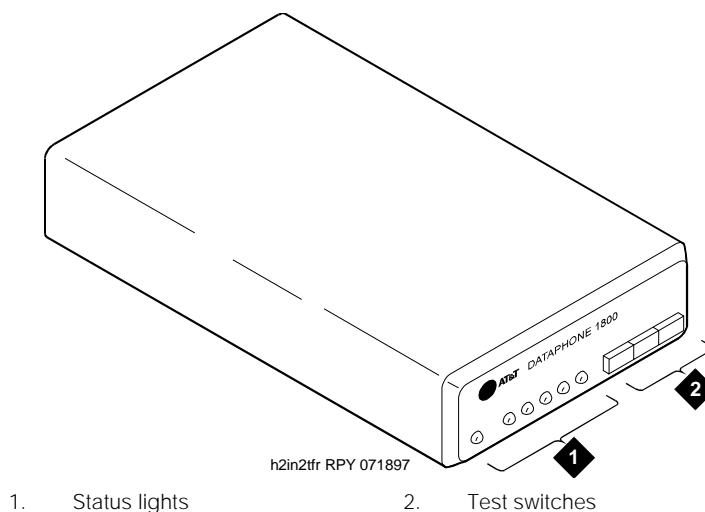
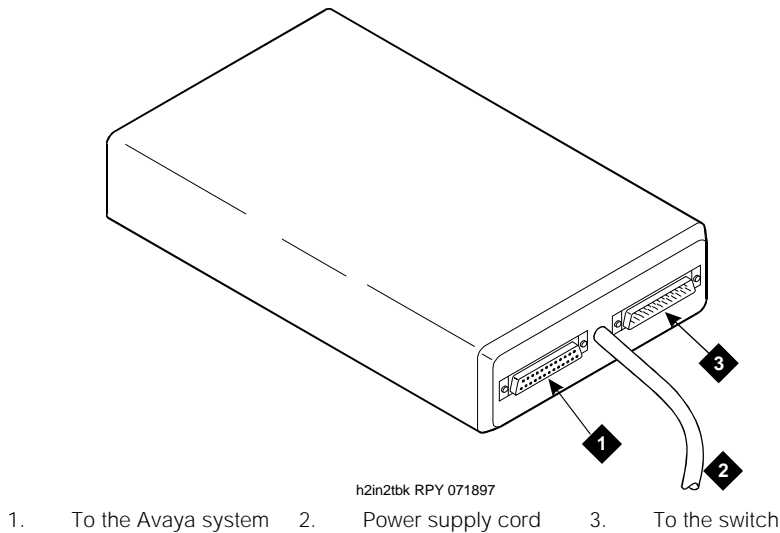


Figure 7-3. AT&T 202T Dataphone Modem (Front View)

7 Hardware Installation for Centrex Switch Integration with the 202T Modem  
*Connecting to the Multi-Port Serial Circuit Card*

Page 7-4



**Figure 7-4. AT&T Dataphone 202T Modem (Back View)**

## Connecting to the Multi-Port Serial Circuit Card

Use this configuration only if the distance between the Avaya INTUITY system and the switch is greater than 15.3 m (50 ft).

### Hardware Required

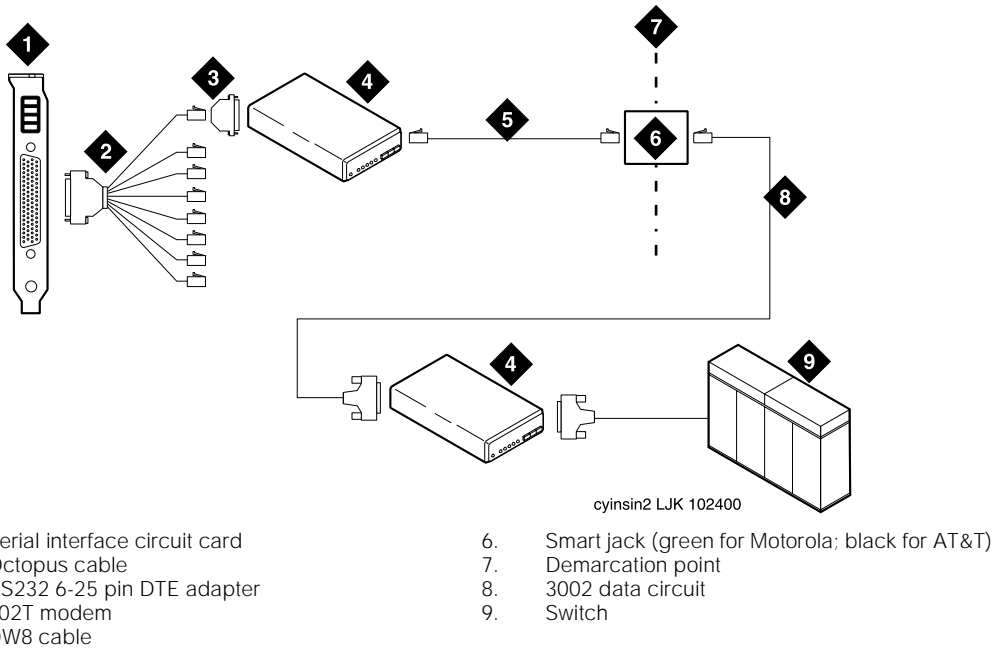
Use the following hardware:

- Multi-port serial circuit card installed in the MAP
- 4.3-m (14-ft) modular 6-wire cable (D6AP — provided with multi-port serial circuit card)
- RS-232 6-25 pin terminal/printer adapter (DTE)
- 202T modem
- M8K (or M13F) cable connector for integrations using an AT&T 202T modem (*not* needed for the Motorola connection through the telco port)

[Figure 7-5](#) shows the configuration for the integration when the 202T modem is connected to the multi-port serial circuit card on an Avaya INTUITY MAP system.

## 7 Hardware Installation for Centrex Switch Integration with the 202T Modem Connecting to the Multi-Port Serial Circuit Card

Page 7-5



**Figure 7-5. Connecting from the Multi-Port Serial Circuit Card on the Avaya INTUITY System to the Switch**

### Installing the Hardware

#### ⇒ NOTE:

Before installing the integration hardware, set the switch options on the 202T modem. See [Chapter 6, "Setting the 202T Modem"](#).

Use this procedure to configure the hardware for a Centrex switch integration when connecting to the multi-port serial circuit card on the Avaya INTUITY system ([Figure 7-5](#)).

1. Attach one end of the 4.3-m (14-ft) modular 6-wire cable into the connector being used on the multi-port serial circuit card on the Avaya INTUITY system.

#### ⇒ NOTE:

The port used must correspond with the port indicated in the `Serial Ports` field on the `Serial Interface` window. For more information about this window, see ["Setting the Serial Interface Parameters"](#) in [Chapter 9, "Avaya INTUITY Administration for Centrex Switch Integration"](#).

7 Hardware Installation for Centrex Switch Integration with the 202T Modem  
*Connecting to the Multi-Port Serial Circuit Card*

Page 7-6

2. Attach the other end of the 4.3-m (14-ft) modular cable into the RS-232 6-25 pin DTE adapter.
3. Attach the RS-232 adapter into the female connector in the back of the 202T modem.
4. Plug the power supply cord for the 202T modem into an AC electrical outlet.
5. Determine your next step. If you are connecting to:
  - An AT&T Dataphone 202T modem, complete the following Steps a through c:
    - a. Attach one end of the M8K (or M13F) cable connector to the male RS-232 connector in the back of the AT&T Dataphone 202T modem.
    - b. Attach the other end of the M8K (or M13F) adapter to the bottom of the 829 channel interface unit at the demarcation point.



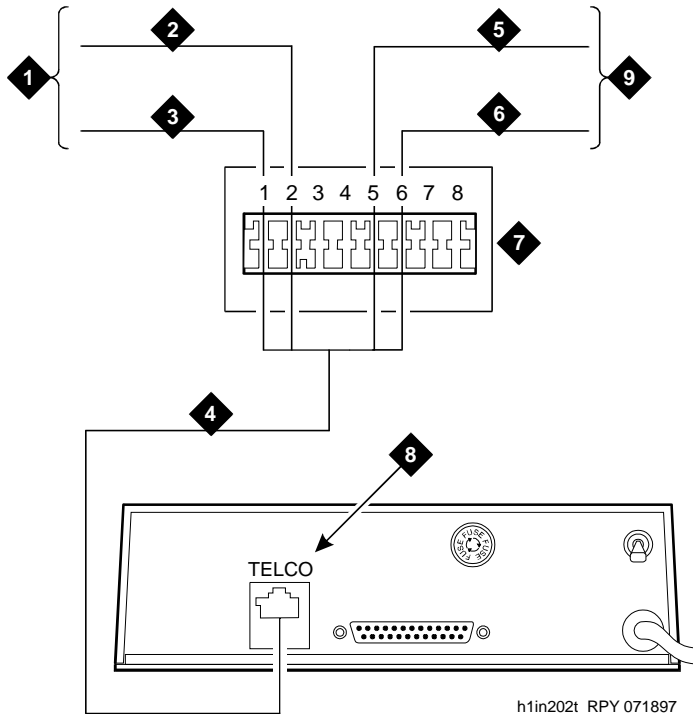
**NOTE:**

For information about possible connections from the 202T modem to the switch, see *User's Manual 202T Modem* (999-102-1421S).

- A Motorola 202T modem, continue with "Connecting the Motorola 202T Modem Telco Port," below. Do *not* use the M8K (or M13F) cable connector.

## Connecting the Motorola 202T Modem Telco Port

Use [Figure 7-6](#) to connect the Motorola 202T modem telco port.



- |                                      |  |
|--------------------------------------|--|
| 1. Transmit pair to service provider | 6. GN/W (green-white) of 4-pair wire             |
| 2. BL/W (blue-white) of 4-pair wire  | 7. 103A or 104A connecting block (or equivalent) |
| 3. W/BL (white-blue) of 4-pair wire  | 8. RJ-45 telco connector on rear of modem        |
| 4. D8W modular connector             | 9. Receive pair from service provider            |
| 5. W/GN (white-green) of 4-pair wire |  |

**Figure 7-6. Connection Diagram for the Motorola 202T Modem Telco Port**

## **Cabling the Voice Ports**

---

For information about cabling the voice ports from the Avaya INTUITY system, see Chapter 3, "Making Cable Connections," in the system installation for your platform.

# Hardware Installation for Integration with Direct Connection or Customer- Supplied Modem

# 8

## Overview

---

This chapter describes the hardware and testing required for custom integrations when an Avaya™ INTUITY™ system is to be connected directly to a switch. To use this configuration, the Avaya INTUITY system and the switch must be separated by no more than 14.3 m (50 ft). In a direct connection the Avaya INTUITY system and the switch are connected without a modem or other peripheral device by a straight RS-232 cable or by an RS-232 null modem cable.

The hardware and testing is also required when an Avaya INTUITY system is to be connected to a customer-supplied modem (other than the 202T modem). In this type of configuration, the customer is responsible for installation and testing of any hardware not supplied by Avaya.

## Purpose

---

This chapter provides the hardware installation procedures necessary to integrate:

- A Northern Telecom (Nortel) DMS-100 or SL-100 switch with any Avaya INTUITY MAP (multi-application platform) using a direct connection to the multi-port serial circuit card

### ⇒ NOTE:

This configuration *cannot* be used for integration of a Lucent 5ESS® switch. It can be used for Nortel DMS-100 and SL-100 switches only if the distance between the Avaya INTUITY system and the switch is less than 15.3 m (50 ft). If the distance is 15.3 m (50 ft) or greater, a modem must be used. See [Chapter 7, “Hardware Installation for Centrex Switch Integration with the 202T Modem”](#).

- 8 Hardware Installation for Integration with Direct Connection or Customer- Supplied Modem  
*Connecting Directly to a Switch or Customer-Supplied Modem*

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- A Lucent 5ESS, Nortel DMS-100, or Nortel SL-100 switch with any Avaya INTUITY MAP using a connection to a customer-supplied modem (not a 202T modem)

## Connecting Directly to a Switch or Customer-Supplied Modem

---

Use the following hardware for this configuration:

- 4.3-m (14-ft) modular cable (D6AP — provided with the multi-port serial circuit card)
- RS-232 DTE (data terminal equipment) 6-25 pin adapter provided with the multi-port serial circuit card)
- RS-232 minitester (Avaya-supplied for custom integrations)

## Installing and Testing the Hardware

---

Use this procedure to configure the hardware for the integration when the Avaya INTUITY system and the switch are to be connected directly or when the Avaya INTUITY system is to be connected to a customer-supplied modem (see [Figure 8-1.](#))

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



**NOTE:**

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

4. Power on the Avaya INTUITY system.



**NOTE:**

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

5. Ensure that the following LEDs (light-emitting diodes) on the minitester light green:
  - DTR (data terminal ready)
  - RTS (request to send)
  - TD (transmit data)
  - DSR (data set ready)

8 Hardware Installation for Integration with Direct Connection or Customer- Supplied Modem  
*Connecting Directly to a Switch or Customer-Supplied Modem*

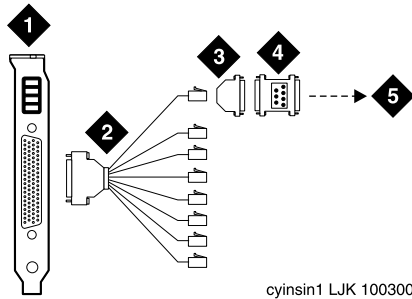
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6. Leave the minitester connected to the cable.



**NOTE:**

The minitester can be left in-line with the customer equipment, at the customer's discretion.



- |    |                               |    |                               |
|----|-------------------------------|----|-------------------------------|
| 1. | Serial interface circuit card | 4. | RS-232 mini-tester            |
| 2. | Octopus cable                 | 5. | To customer premise equipment |
| 3. | RS-232 6-25 pin DTE adapter   |    |                               |

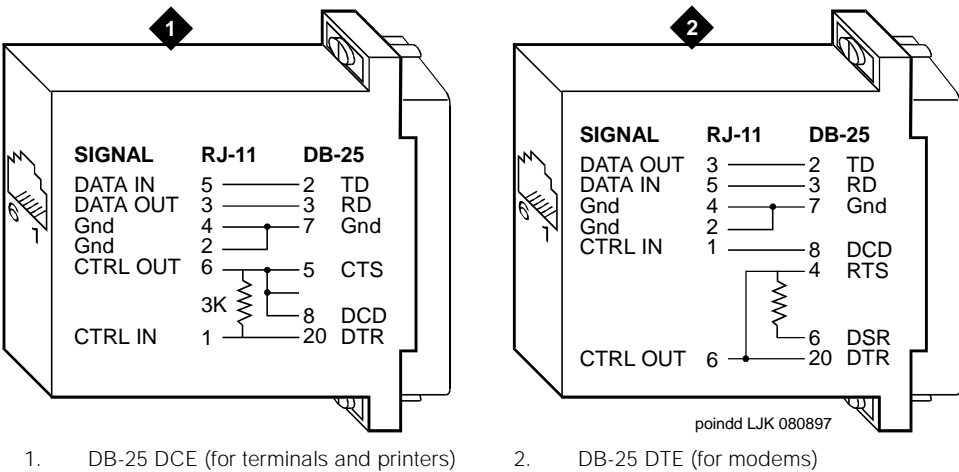
**Figure 8-1. Connecting from the Multi-Port Serial Circuit Card on the Avaya INTUITY System to a Customer-Supplied Modem or Other Equipment**

The remaining connections are the customer's responsibility.

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

## Pinouts

Use the following pinout connections ([Figure 8-2](#)) as reference if needed when configuring or testing DTE and DCE devices.



**Figure 8-2. Pinout Connections for DTE and DCE Devices**

Avaya INTUITY Administration for  
Centrex Switch Integration

9

Overview

Administering the Avaya™ INTUITY™ system for switch integration requires using windows in the user interface to perform the procedures listed below in the specified order ([Table 9-1](#)).

Table 9-1. Task Procedure Matrix

| Order | Procedure   | Window                 |
|-------|---|------------------------|
| 1.    | <a href="#">“Verifying the Country and Switch”</a>        | Switch Selection       |
| 2.    | <a href="#">“Setting the Serial Interface Parameters”</a> | Serial Interface       |
| 3.    | <a href="#">“Setting the MWI Device Assignments”</a>      | Device Assignment      |
| 4.    | <a href="#">“Setting MWI Parameters”</a>                  | MWI Parameters         |
| 5.    | <a href="#">“Setting the Dial Plan Translations”</a>      | Dial Plan Translation  |
| 6.    | <a href="#">“Setting the Hunt Group Translations”</a>     | Hunt Group Translation |

In addition, the procedure in [“Stopping and Starting the Voice System”](#) below may be necessary.

## Purpose

---

This chapter provides the procedures you need to use the Avaya INTUITY user interface windows to administer the system for switch integration.

## Before You Begin

---

In this chapter it is assumed that:

- You have been directed to this book from Chapter 6, “Initial Administration for Switch Integration,” in the system installation book for your platform and you have completed all the procedures specified there.
- The correct hardware and switch software package are installed on the system. See the maintenance book for your platform for information on checking the hardware and software.

Before you complete the procedures in this chapter, you should have already done the following:

- Assigned extension numbers to all voice channels using the PBX Extension to Channel option under the Voice Equipment menu
- Assigned DNIS\_SVC as a service to all channels using the Services to Channels option under the Voice Equipment menu



### NOTE:

If multiple applications are used (for example, INTUITY AUDIX® and Avaya INTUITY Lodging), you should have administered the proper service for the called number.

- Assigned service through the Number Services option under the Voice System Administration menu, by selecting **any** for the calling and called number and specifying the appropriate service (for example, **audix**)
- Assigned all numbers that do not have real stations (called phantom or dummy numbers) to switch 0 in the INTUITY AUDIX database.



### CAUTION:

*If switch 0 is not used for these extensions, the system will try to turn message waiting indicators (MWIs) on and off and continually fail. This condition can seriously impede system performance.*

- Assigned the appropriate transfer restrictions (if any) using the Transfer Security option from the Voice System Administration menu

- Specified the voice equipment state using the State of Voice Equipment option under the Voice Equipment menu:
  - New State: **inserv**
  - Equipment: **channel**
  - Equipment Number: **all**
  - Change Immediately?: **yes**
- Assigned the appropriate channel group to voice channels using the Channels to Group option under the Voice Equipment menu



**NOTE:**

The platform comes with default setting of channel group to 2. This is appropriate for most applications.

- Administered the Avaya INTUITY extension length (dial plan)
- Selected the country and switch on the Switch Selection window

## **Permissions for Windows**

---

The **sa** login can view all the windows used in these procedures but cannot change any values for parameters. The **craft** and remote maintenance logins can set values for parameters in all windows, except the MWI Parameters window. On the MWI Parameters window, the **craft** login is restricted from changing all but two fields.

## **Other Windows Used for Switch Integration**

---

Some windows in the user interface that are used for switch integration can be viewed by the **sa** and **craft** logins, but require remote maintenance permissions to change any values for parameters. These windows are used only in troubleshooting scenarios involving your service representative and are therefore not described here.

## When to Stop and Restart the Voice System

If you change or enter parameters on any of the windows used for switch integration, you must stop and then restart the system in order for your changes to be incorporated into call processing. However, you can administer all the windows and then stop and restart the system just one time. See [“Stopping and Starting the Voice System”](#) below for the procedure.

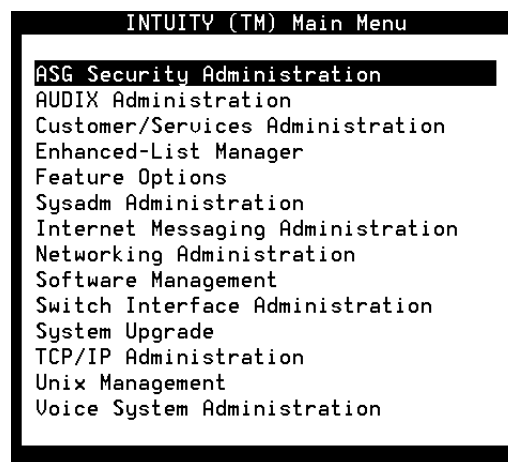
## Avaya INTUITY Main Menu

All procedures in this chapter begin at the Avaya INTUITY Main Menu ([Figure 9-1](#)). For information about accessing the Main Menu, see “Logging In to the INTUITY AUDIX System” in Appendix B, “Accessing Windows and Screens,” in the system installation book for your platform.



### NOTE:

[Figure 9-1](#) is a sample window only and does not reflect the options loaded onto the actual system you are installing.



**Figure 9-1. Avaya INTUITY Main Menu**

## Verifying the Country and Switch

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

### ⇒ NOTE:

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

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select:

```
> Feature Options
```

The system displays Feature Options window.

2. Press **F1** (Acknowledge Message).
3. Press **F7** (Switch Select).

The system displays the Switch Selection window ([Figure 9-2](#)).

### ⇒ NOTE:

Only the remote support center can administer this window.



**Figure 9-2. Switch Selection Window**

4. Verify that the country and switch parameters match your location. If they do not, contact your remote support center.
5. Press **F6** (Cancel) twice to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

**Table 9-2. Switch Selection Window — Field Descriptions**

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

## Setting the Serial Interface Parameters

Use this procedure to set the parameters used for serial communication between the Avaya INTUITY system and the switch.

### ⇒ NOTE:

The serial communication parameters on the switch side and on the Avaya INTUITY system side must match.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Switch Interface Administration

> Call Data Interface

> Switch Link Administration

> Serial Interface

The system displays the Serial Interface window ([Figure 9-3](#)) with defaults for your integration. If the parameters have been previously administered, the system displays the current values instead.

The screenshot shows a terminal window titled "Serial Interface". Inside, the text "SESS Integration" is displayed. Below this, there are two columns of settings. The left column contains: "Data Bits : 7", "Stop Bit(s) : 1", and "Start Bit(s): 1". The right column contains: "Baud Rate : 1200", "Parity [O/E/N]: E", and "Flow Control : N [Y/N]". Below these settings, the text "Serial Ports" is displayed. Under "Serial Ports", there are two columns of numbered ports. The left column lists ports 1, 3, 5, and 7, each followed by a black rectangular redaction box. The right column lists ports 2, 4, 6, and 8, each followed by a black rectangular redaction box. The terminal window has a black border and a small cursor is visible on the right side.

**Figure 9-3. Serial Interface Window**

2. Enter the number of data bits in the `Data Bits:` field (see [Table 9-3](#)).
3. Enter the baud rate in the `Baud Rate:` field (see [Table 9-3](#)).
4. Enter the number of stop bits in the `Stop Bit(s):` field (see [Table 9-3](#)).
5. Enter the parity type in the `Parity [O/E/N]:` field (see [Table 9-3](#)).
6. Enter the number of start bits in the `Start bit(s):` field (see [Table 9-3](#)).
7. Enter **Y** or **N**, as appropriate to enable or disable flow control, in the `Flow Control [Y/N]:` field (see [Table 9-3](#)).
8. Press **F3** (SAVE).

The system displays the following message:

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

9. Press **F1** (ACKNOWLEDG MESSAGE).
10. Press **F6** (CANCEL) three times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

**Table 9-3. Serial Interface Window— Field Descriptions**

| Field                   | Description  | Values   |
|-------------------------|--|--|
| <switch><br>Integration | Displays the switch selected on the Switch Selection window ( <a href="#">Figure 9-2</a> ).  | Display only.  |
| Data Bits:              | Specifies the number of data bits in the units of information.   | The default value of 7 should be used.   |
| Stop<br>Bit(s):         | Specifies the number of stop bits used when sending information. A stop bit is an interval at the end of a character that allows the receiving device to pause before the start of the next character. | The default value of 1 should be used.   |
| Start<br>Bit(s):        | Specifies the number of start bits used when sending information. A start bit is a character sent to signal the beginning of a transmission.   | The default value of 1 should be used.   |
| Baud Rate:              | Specifies the transmission speed for communication between the switch and the INTUITY system.  | 1200, 2400, 4800, or 9600. A baud rate of 1200 should be used for all Centrex switch integrations, except direct connects, where the baud rate should match the baud rate set on the switch. |

***Continued on next page***

**Table 9-3. Serial Interface Window— Field Descriptions — *Continued***

| Field                  | Description  | Values  |
|------------------------|--|---|
| Parity<br>[O/E/N]:     | Specifies the parity type for all the serial ports. Parity is used for detection of errors in transmitted data.  | <ul style="list-style-type: none"> <li>■ o for odd parity</li> <li>■ e for even parity</li> <li>■ n for no parity</li> </ul> <p>The default value of E should normally be used.</p>                         |
| Flow Control<br>[Y/N]: | Specifies whether flow control is enabled or disabled for all the serial ports. Flow control is a handshaking process whereby transmission is regulated so that receive buffers on peripheral devices do not overflow.   | <ul style="list-style-type: none"> <li>■ y to enable</li> <li>■ n to disable</li> </ul> <p>The default value of N should be used.</p>   |
| Serial Ports           | <p>Specifies the device IDs of the serial ports on the multi-port serial circuit card used for integration. Only one serial port can be specified on each line.</p> <p>It is recommended that you use the lowest port(s) available, depending on your configuration.</p> | <p>Device IDs for the multi-port serial circuit card are in the format /dev/ttysax, where x is a letter (a through h) representing a port on the card (from right to left).</p> <p>Example: /dev/ttysaa</p> |

## **Setting the MWI Device Assignments**

Use this procedure to assign the devices on which the system performs MWI (message waiting indicator) updates.

For the Lucent 5ESS® switch only, this procedure also lets you enable heartbeat processing, that is, a link test that periodically checks the status of the serial link. To do the test, the system periodically tries to perform an MWI update on an invalid subscriber extension number.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Switch Interface Administration

> Call Data Interface

> MWI Administration

> Device Assignment

The system displays the first of two screens of the Device Assignment window ([Figure 9-4](#)). If the parameters have been previously administered, the system displays the current values instead. To access the second screen, press (F5) (NEXT PAGE). To return to the first screen, press (F4) (PREV PAGE).

**Device Assignment**

Screen 1 of 2

DMS100 Integration

Link Test (Y/N) :

Link Test Interval :  Seconds

|    | Switch<br>Number | Device<br>ID | Link Test<br>Number |
|----|------------------|--------------|---------------------|
| 1  | 1                | /dev/ttysaa  |                     |
| 2  |                  |              |                     |
| 3  |                  |              |                     |
| 4  |                  |              |                     |
| 5  |                  |              |                     |
| 6  |                  |              |                     |
| 7  |                  |              |                     |
| 8  |                  |              |                     |
| 9  |                  |              |                     |
| 10 |                  |              |                     |

**Figure 9-4. Device Assignment Window**

2. Enter **y** or **n**, as appropriate, in the Link Test (Y/N) : field (see [Table 9-4](#)).
3. Did you enter Y in the Link Test (Y/N) field?
  - If yes, do the following:
    - a. Enter the number of seconds for the link test interval in the Link Test Interval: field (see [Table 9-4](#)).
    - b. If yes, enter a link test number in the Link Test Number field (see [Table 9-4](#)).
  - If no, go to Step [4](#).

4. Enter a switch number in the `Switch Number` field (see [Table 9-4](#)).
5. Enter a device ID in the `Device ID` field (see [Table 9-4](#)).
6. Press **F3** (SAVE).

The system displays the following message:

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


7. Press **F1** (ACKNOWLEDG MESSAGE).
8. Press **F6** (CANCEL) four times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

**Table 9-4. Device Assignment Window — Field Descriptions**

| Field                                      | Description  | Values   |
|--|--|--|
| <code>&lt;switch&gt;</code><br>Integration | Displays the switch selected on the Switch Selection window (see <a href="#">Figure 9-2</a> ).   | Display only.  |
| Link Test<br>(Y/N):                        | <p>Specifies whether the integration enables heartbeat processing.</p> <p>If the link test is disabled, the <code>Link Test Interval:</code> and <code>Link Test Number</code> fields are not used. If the link test is enabled, these fields are required.</p>    | <ul style="list-style-type: none"> <li>■ y to enable the link test</li> <li>■ n to disable the link test</li> </ul> <p><b>⇒ NOTE:</b><br/>For the Northern Telecom (Nortel) DMS-100 and SL-100 switches, this value must be set to n (no) because y (yes) causes an error to be logged on the switch.</p> <p>The link test is recommended for the 5ESS switch.</p> |
| Link Test<br>Interval<br>(seconds):        | <p><b>⇒ NOTE:</b><br/>This field is not used for the Nortel DMS-100 and SL-100 switches. For the Lucent 5ESS switch, use this field <i>only if the link test is enabled in the Link Test (Y/N): field</i>.</p> <p>Specifies the heartbeat interval in seconds.</p> | <p>One or more integers specifying the number of seconds.</p> <p><b>⇒ NOTE:</b><br/>The default value provided in the software for each switch type is normally appropriate.</p>   |

*Continued on next page*

**Table 9-4. Device Assignment Window — Field Descriptions — *Continued***

| Field            | Description   | Values   |
|------------------|---|--|
| Switch Number    | Number that uniquely identifies the switch in the Avaya INTUITY system and is used to address it.   | Maximum of 3 digits, range 1-999.<br><br>The switch number here must match the switch number assigned for system subscribers in the INTUITY AUDIX® system.   |
| Device ID        | Name(s) of the port(s) on the multi-port serial circuit card to be used for MWI updates. This name must also be specified in the <i>Serial Ports</i> field on the Serial Interface window (see <a href="#">“Setting the Serial Interface Parameters”</a> above).<br><br>Only one device ID can be specified on each line.                                     | It is recommended that you use the lowest port(s) available on the multi-port serial circuit card.<br><br>Device IDs for this card are in the format /dev/ttysax, where x is a letter (a through h) representing a port on the card, from right to left.<br><br>Example: /dev/ttysaa |
| Link Test Number |  <b>NOTE:</b><br>This field is not used for the Nortel DMS-100 and SL-100 switches. For the Lucent 5ESS switch, use this field <i>only if the link test is enabled in the Link Test (Y/N) field</i> .<br><br>Specifies the extension to which the heartbeat message is sent. | Any <i>invalid</i> subscriber number on the switch. Maximum of 10 digits.<br><br>Examples: 5551212 or 0000000<br><br>An invalid extension is used because the system checks the link by attempting to do an MWI update on the extension.   |

## Setting MWI Parameters

Use this procedure to disable MWI updates altogether on the system, or to block them during a specified period of time. The switch administrator may want MWI updates to be blocked during the time when audits run.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Switch Interface Administration

> Call Data Interface

> MWI Administration

>MWI Parameters

The system displays the MWI Parameters window ([Figure 9-5](#)) with system defaults for your integration. If the parameters have been previously administered, the system displays the defaults instead.

**NOTE:**

Some of the fields on this window are closed to all but the remote maintenance login.

**MWI Parameters**

SESS Integration

MWI On Prefix : OP:MWI,0x20

MWI On Suffix : !,0x04

MWI Off Prefix: RMV:MWI,0x20

MWI Off Suffix: !,0x04

MWI Update [Y/N] : ☒

Background Refresh [Y/N]: ☒

Background Interval : 20 Seconds

Background Updates : 5 Numbers

Broadcast Interval : 20 Seconds

Broadcast Updates : 5 Numbers

Block Start Time : 01:00

Block End Time : 02:00

**Figure 9-5. MWI Parameters Window**


2. Enter the time for blocking of MWI updates to start in the Block Start Time: field (see [Table 9-5](#)).
3. Enter the time for blocking of MWI updates to end in the Block End Time: field (see [Table 9-5](#)).
4. Press **F3** (SAVE).

The system displays the following message:

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

- 5. Press **F1** (ACKNOWLEDG MESSAGE).
- 6. Press **F6** (CANCEL) four times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

Table 9-5. MWI Parameters Window — Field Descriptions

| Field                        | Description   | Values  |
|------------------------------|---|---|
| <switch><br>Integration      | Displays the switch selected on the Switch Selection window ( <a href="#">Figure 9-2</a> ).   | Display only.   |
| MWL on prefix:               |  <b>NOTE:</b><br>Only the remote maintenance login can change the information in these fields. |   |
| MWL on suffix:               |   |   |
| MWL off prefix:              |   |   |
| MWL off suffix:              |   |   |
| MWI Update<br>[Y/N]:         |   |   |
| Background<br>Refresh [Y/N]: |   |   |
| Background<br>Interval:      |   |   |
| Background<br>Updates:       |   |   |
| Broadcast<br>Interval:       |   |   |
| Broadcast<br>Updates:        |   |   |
| Block Start<br>Time:         | Sets the time when blocking of MWI updates begins on a daily basis.   | Format <i>HH/MM/SS</i> , where: <ul style="list-style-type: none"><li>■ <i>HH</i> is the hour in the 24-hour system (range 0-23).</li><li>■ <i>MM</i> is the minute (range 0-59).</li><li>■ <i>SS</i> is the second (range 0-59).</li></ul> |
| Block End Time:              | Sets the time when blocking of MWI updates ends on a daily basis.   |   |

## Setting the Dial Plan Translations

Use this procedure to:

- Set the Avaya INTUITY extension length (also called the dial plan).
- Set up the translations to be done on the calling party identification (CLI) and called party identification (CP ID) for incoming and outgoing calls to interface the Avaya INTUITY system and the switch.

For Centrex switches, typically, the switch sends a string of either 7 or 10 digits. The Avaya INTUITY system must strip digits from the string to accord with the number of digits set in the Avaya INTUITY system extension length.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

```
> Switch Interface Administration
```

```
> Call Data Interface
```

```
> System Translation Administration
```

```
> Dial Plan Translation
```

The system displays the first of five screens of the Dial Plan Translation window ([Figure 9-6](#)) with defaults for your integration. If the parameters have been previously administered, the system displays the current values instead. To access the next screen, press **F5** (NEXT PAGE). To return to the previous screen, press **F4** (PREV PAGE).

The screenshot shows a window titled "Dial Plan Translation" with a subtitle "5ESS Integration" and "Screen 1 of 5". It contains a table for setting parameters for 10 different translations. The table has six columns: Switch Prefix, Switch Start Ext., Switch End Ext., INTUITY Prefix, Switch Number, and Remote [Y/N]. The first row is pre-filled with values: Switch Prefix (blank), Switch Start Ext. (0000), Switch End Ext. (9999), INTUITY Prefix (blank), Switch Number (1), and Remote [Y/N] (N). The other rows (2-10) are empty.

|    | Switch Prefix | Switch Start Ext. | Switch End Ext. | INTUITY Prefix | Switch Number | Remote [Y/N] |
|----|---------------|-------------------|-----------------|----------------|---------------|--------------|
| 1  |               | 0000              | 9999            |                | 1             | N            |
| 2  |               |                   |                 |                |               |              |
| 3  |               |                   |                 |                |               |              |
| 4  |               |                   |                 |                |               |              |
| 5  |               |                   |                 |                |               |              |
| 6  |               |                   |                 |                |               |              |
| 7  |               |                   |                 |                |               |              |
| 8  |               |                   |                 |                |               |              |
| 9  |               |                   |                 |                |               |              |
| 10 |               |                   |                 |                |               |              |

**Figure 9-6. Dial Plan Translation Window**

2. Verify that the INTUITY extension length in the INTUITY Extension Length: field is correct (see [Table 9-6](#)).

**NOTE:**

You should have already administered the INTUITY Extension Length: field as a part of initial administration for switch integration.

3. Enter the Switch network access code in the Switch Network Access Code: field (see [Table 9-6](#)).
4. Enter the switch prefix in the Switch Prefix field (see [Table 9-6](#)).
5. Enter the switch start extension in the Switch Start Ext. field (see [Table 9-6](#)).
6. Enter the switch end extension in the Switch End Ext. field (see [Table 9-6](#)).
7. Enter the INTUITY prefix in the INTUITY Prefix field (see [Table 9-6](#)).
8. Enter the switch number in the Switch Number field (see [Table 9-6](#)).
9. Enter y or n in the Remote [Y/N] field (see [Table 9-6](#)).
10. Repeat Steps [4](#) through [9](#) for any remaining translations.
11. Press **F3** (SAVE).

The system displays the following message:

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


12. Press **F1** (ACKNOWLEDG MESSAGE).
13. Press **F6** (CANCEL) four times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

**Table 9-6. Dial Plan Translation Window— Field Descriptions**

| Field                                | Description  | Values   |
|--------------------------------------|--|--|
| <switch><br>Integration              | Displays the switch selected on the Switch Selection window ( <a href="#">Figure 9-2</a> ).  | Display only.  |
| INTUITY<br>Extension<br>Length:      | Specifies the number of digits used in the Avaya INTUITY mailbox.  | 3 to 10 integers.<br><br>Must be the same as the number of digits administered for the switch prefix combined with the number of digits for the (start or end) extension number.   |
| Switch<br>Network<br>Access<br>Code: | <b>⇒ NOTE:</b><br>This field is not used for Centrex switch integrations because it applies only in networked switch configurations.   |  |
| Switch<br>Prefix                     | Specifies the initial part of the code sent by the switch as part of the call information. For Centrex switches, it is typically the NNX code used in the North American Numbering Plan scheme. For example, if the extension length on the Avaya INTUITY system is 4 and the call information is 8604000, then 860 is the switch prefix and 4000 is the INTUITY mailbox number. | The dialing number obtained by combining the switch prefix with any number in the range between the start and end extension number must be a unique number. No overlaps are allowed. The final translated number must provide a unique fixed-length INTUITY extension.           |
| Switch<br>Start Ext.                 | Specifies the first extension number in the range of allowed extension numbers.  | The number of digits specified for the start and end extension numbers must be identical and must match the dial plan. For example, to specify the range 200-3999, enter: <ul style="list-style-type: none"> <li>■ Start extension 0200</li> <li>■ End extension 3900</li> </ul> |
| Switch End<br>Ext.                   | Specifies the last extension number in the range of allowed extension numbers.   |  |

*Continued on next page*

Table 9-6. Dial Plan Translation Window— Field Descriptions — *Continued*

| Field          | Description  | Values  |
|----------------|--|---|
| INTUITY Prefix |  <b>NOTE:</b><br>This field is not used for Centrex switch integrations because it applies only in networked switch configurations.   |   |
| Switch Number  | Number that uniquely identifies the switch in the Avaya INTUITY system and is used to address it. The Avaya INTUITY system uses this number to differentiate between system subscribers on different switches.<br><br>For Centrex switch integrations switch networking is not normally done, so there is typically only one switch. | Maximum of 3 digits, range 1-999.   |
| Remote [Y/N]   | Specifies whether the administered switch identified in the Switch Number field is a remote switch on the network or a local switch.<br><br>For Centrex switch integrations, switch networking is not normally done.   | <ul style="list-style-type: none"><li>■ y for remote</li><li>■ n for local (direct)</li></ul> The default is n (local). For Centrex switch integrations there is typically only one (local) switch. |

Examples

The following example illustrates an entry used in the case where the switch sends 7 digits and the INTUITY extension length is 4 digits. The first 3 digits are stripped off.

Table 9-7.

| INTUITY extension length = 4 |                   |                 |                |           |              |
|------------------------------|-------------------|-----------------|----------------|-----------|--------------|
| Switch Prefix                | Switch Start Ext. | Switch End Ext. | INTUITY Prefix | Switch ID | Remote [Y/N] |
| 860                          | 0000              | 9999            |                | 1         | N            |

The following example illustrates an entry used in the case where the switch sends 10 digits and the INTUITY extension length is 7 digits. The first 3 digits are stripped off.

**Table 9-8.**

| INTUITY extension length = 7 |                   |                 |                |           |              |
|------------------------------|-------------------|-----------------|----------------|-----------|--------------|
| Switch Prefix                | Switch Start Ext. | Switch End Ext. | INTUITY Prefix | Switch ID | Remote [Y/N] |
| 212                          | 8600000           | 8609999         |                | 1         | N            |

## Setting the Hunt Group Translations

Use this procedure to assign the Tip/Ring port channels to hunt groups. This procedure is used only for switches that use simplified message desk interface (SMDI) protocol to enable multiple hunt group administration. Specifically, the procedure assigns to an Avaya INTUITY channel the message desk number (MDN) and switch channel logical terminal number (LTN) that the switch passes in the call information. To complete the procedure you will need information from the central office (CO) in [Table 2-3](#) in [Chapter 2, "Planning for Centrex Switch Integration"](#).

### ⇒ NOTE:

If you are using a single UCD or hunt group for Intuity AUDIX, do not complete this procedure.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Switch Interface Administration

> Call Data Interface

> System Translation

> Hunt Group Translation

The system displays the first of four screens of the Hunt Group Translation window ([Figure 9-7](#)). If the parameters have been previously administered, the system displays the current values. To access the next screen, press **NEXT PAGE** (F5). To return to the previous screen, press **PREV PAGE** (F4).

| Hunt Group Translation |                     |                         |                 |                     |                         |
|------------------------|---------------------|-------------------------|-----------------|---------------------|-------------------------|
| DMS100 Integration     |                     |                         | Screen 1 of 4   |                     |                         |
| INTUITY Channel        | Message Desk Number | Logical Terminal Number | INTUITY Channel | Message Desk Number | Logical Terminal Number |
| 0                      | 000                 | 001                     | 1               | 000                 | 002                     |
| 2                      | 001                 | 003                     | 3               | 002                 | 004                     |
| 4                      | 003                 | 005                     | 5               | 003                 | 006                     |
| 6                      | 004                 | 007                     | 7               | 005                 | 008                     |
| 8                      | 006                 | 009                     | 9               | 007                 | 010                     |
| 10                     | 008                 | 011                     | 11              | 009                 | 012                     |
| 12                     | 010                 | 013                     | 13              | 010                 | 014                     |
| 14                     | 011                 | 015                     | 15              | 012                 | 016                     |

**Figure 9-7. Hunt Group Translation Window**

2. Enter the MDN that is to be mapped to INTUITY channel 0 in the Message Desk Number field associated with channel 0 (see [Table 9-9](#)).
3. Enter the LTN corresponding to the MDN in the Logical Terminal Number field associated with channel 0 (see [Table 9-9](#)).
4. Repeat Steps [2](#) and [3](#) for the other MDNs and LTNs you need to map.
5. Press **(F3)** (SAVE).

The system displays the following message:

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

6. Press **(F1)** (ACKNOWLEDG MESSAGE).
7. Press **(F6)** (CANCEL) four times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

Table 9-9. Hunt Group Translations Window— Field Descriptions

| Field                         | Description  | Values  |
|-------------------------------|--|---|
| <switch><br>Integration       | Displays the switch selected on the Switch Selection window ( <a href="#">Figure 9-2</a> ).  | Display only.   |
| INTUITY<br>channel            | Displays the maximum number of channels (0 through 63) that can be configured on the INTUITY system. Your system may have fewer than the maximum number of channels. | Display only. If a channel is not in use, do not map an MDN or LTN to it. Leave the corresponding Message Desk Number and Logical Terminal Number fields blank. |
| Message<br>Desk Number        | Specifies the MDN being mapped to the specified INTUITY channel.   | Maximum of 3 digits, range 1-999.   |
| Logical<br>Terminal<br>Number | Specifies the LTN being mapped to the specified Avaya INTUITY channel.   | 4 digits. Each MDN/LTN can be mapped to only one channel.   |

Example

The following example illustrates a simple scenario where six Avaya INTUITY system ports are used and the switch is configured to have two MDNs. The switch passes call information based on the MDN and the LTN. This must be interpreted as call information for a particular Avaya INTUITY port as follows.

Table 9-10.

| INTUITY<br>Channel | Message<br>Desk Number | Logical<br>Terminal<br>Number | INTUITY<br>Channel | Message<br>Desk Number | Logical<br>Terminal<br>Number |
|--------------------|------------------------|-------------------------------|--------------------|------------------------|-------------------------------|
| 0                  | 000                    | 001                           | 1                  | 000                    | 002                           |
| 2                  | 001                    | 003                           | 3                  | 002                    | 004                           |
| 4                  | 003                    | 005                           | 5                  | 003                    | 006                           |

Stopping and Starting the Voice System

To execute any changes you have made to the switch integration administration windows in the procedures in this chapter, you must stop and then restart the voice system.



**CAUTION:**

*Only stop the voice system when it is absolutely necessary. All calls in progress will be disconnected. Users calling the AUDIX system will hear a fast busy signal. Callers sent to AUDIX coverage will hear ringing with no answer.*

Use this procedure to stop and restart the voice system.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Customer/Services Administration

> System Management

> System Control

> Stop Voice System



**NOTE:**

Be sure to select Stop Voice System. Do not select Shutdown Voice System.

The system displays the Wait Time window ([Figure 9-8](#)).



**Figure 9-8. Wait Time Window**

2. Enter a time between 60 and 600 seconds as the time to wait for calls in progress.
3. Press **F3** (SAVE).

The system displays the following message:

The voice System has stopped  
Press ENTER to continue...

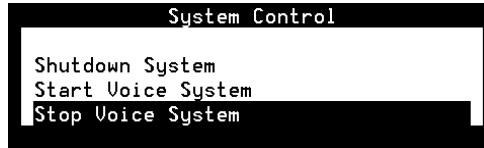


**NOTE:**

The system waits until all calls in progress disconnect before stopping the voice system.

4. Press **ENTER**.

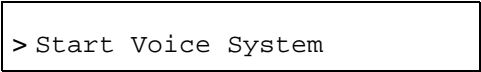
The system displays the System Control menu ([Figure 9-9](#)).



---

**Figure 9-9. System Control Menu**

5. Select



```
> Start Voice System
```

The system displays the following message:

```
Startup of the Voice System is complete  
Hit Acknowledge key to continue...
```

6. Press **[F1]** (ACKNOWLEDG MESSAGE).
7. The system redisplay the System Control window ([Figure 9-9](#)).
8. Press **[F6]** (CANCEL) three times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

# Integration Validation and Troubleshooting

# 10

---

## Overview

This chapter assumes that:

- The switch has been administered.
- The hardware necessary for integration has been installed.
- The Avaya™ INTUITY™ system has been administered for switch integration.
- The Avaya INTUITY system has been stopped and restarted to activate the changes made for switch administration.

Coordination and cooperation with the switch administrator may be required to validate and troubleshoot the integration.

---

## Purpose

This chapter contains procedures and guidelines to validate and troubleshoot a Centrex switch integration with the Avaya INTUITY system.

## Integration Validation

---

The following procedures are used to validate the integration:

- [“Viewing the Switch Integration Logs”](#)
- [“Verifying the Channel Mapping”](#)
- [“Verifying the MDN Mapping”](#)
- [“Validating the Port Connectivity”](#)
- [“Validating Call Forwarding Scenarios”](#)
- [“Validating Transfers”](#)
- [“Validating Call Disconnection”](#)
- [“Validating MWI Updates”](#)
- [“Validating the Automated Attendant”](#)



### NOTE:

Several procedures require you to view the System Monitor window. See [“Viewing the System Monitor”](#) below for the procedure to do so.

Some procedures require you to view the Switch Integration Log window. See [“Viewing the Switch Integration Logs”](#) below for the procedure to do so.

## Viewing the Switch Integration Logs

---

Use this procedure to view the log entries generated by the various switch integration processes. You can select the entries by date and time or by process. Or, by selecting an event sequence number, you can view only those entries associated with a specified event. Usually, selecting an event by sequence number presupposes that you have first viewed the log to obtain the number of the event of interest. The log records the most recent 2000 events, and its contents are rolled over.

If calls are made to the system and the switch integration logs:

- Contain the normally expected data, then calls are integrated
- Contain no data, calls are not integrated
- Are missing some of the normally expected data, the switch is most likely administered incorrectly. Contact your remote support center for assistance.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

```
> Switch Interface Administration
```

```
> Call Data Interface
```

```
> Switch Integration Log
```

The system displays the Switch Integration Log window ([Figure 10-1](#)) with the current date and time displayed.

Switch Integration Log

DMS100 Integration

MM/DD/YYYY HH:MM:SS

Start Date : 6/13/1997 Time : 11:15:0

Source : ALL

Sequence Number :

System Time : 11:23:19

**Figure 10-1. Switch Integration Log Window**

2. Do you want to view log entries by sequence number?
  - If yes, enter the sequence number in the `Sequence Number:` field (see [Table 10-1](#)) and go to [Step 6](#).
  - If no, go to [Step 3](#).
3. Enter date for the first log entry you want to view in the `Start Date:` field (see [Table 10-1](#)).
4. Enter the time for the first log entry you want to view in the `Time:` field (see [Table 10-1](#)).

The time must be earlier than that displayed in the `System Time:` field.

5. Do you want to select entries by process type?
  - If yes, enter the name of process for which you want to view entries in the `Source` field (see [Table 10-1](#)).
  - If no, enter **ALL** in the `Source` field.
6. Press **F3** (DISPLAY).  
 The system displays the log data you selected, up to a maximum of 2000 entries (see the examples following [Table 10-1](#)).
7. Press **F6** (CANCEL) three times to return to the Avaya INTUITY Main Menu ([Figure 9-1](#)).

**Table 10-1. Switch Integration Log Window — Field Descriptions**

| Field                   | Description   | Values   |
|-------------------------|---|--|
| <switch><br>Integration | Displays the switch selected on the Switch Selection window ( <a href="#">Figure 9-2</a> ).   | Display only.  |
| Start Date:             | Selects events logged in the specified interval up to a maximum of 2000 events. If you use the <code>Sequence Number:</code> field, the system ignores data in these fields and the <code>Source:</code> field. | Format <i>MM DD YYYY</i> , where: <ul style="list-style-type: none"> <li>■ <i>MM</i> is the month (range 1-12)</li> <li>■ <i>DD</i> is the day (range 1-31)</li> <li>■ <i>YYYY</i> is the year</li> </ul>                                    |
| Time:                   |   | Format <i>HH MM SS</i> , where: <ul style="list-style-type: none"> <li>■ <i>HH</i> is the hour in the 24-hour system (range 0-23)</li> <li>■ <i>MM</i> is the minute (range 0-59)</li> <li>■ <i>SS</i> is the second (range 0-59)</li> </ul> |

*Continued on next page*

**Table 10-1. Switch Integration Log Window — Field Descriptions — *Continued***

| Field             | Description  | Values   |
|-------------------|--|--|
| Source :          | Selects the name of a switch integration process for display. The display includes all events logged by this process from the 2000 events currently contained in the log. If you use the <code>Sequence Number :</code> field, the system ignores data in this field and the <code>Start Date:</code> and <code>Time:</code> fields. | <ul style="list-style-type: none"> <li>■ RDR</li> <li>■ SWINDIP</li> <li>■ WTR</li> <li>■ ALL</li> </ul> |
| Sequence Number : | Specifies a sequence number that corresponds to a logged event. If you use this field, the system ignores the other fields in the window. The display includes all data logged with the specified sequence number from the 2000 events currently contained in the log.   | A 5-digit number.  |
| System Time :     | Displays the system time as a convenience.   | Display only. The format is the same as in the <code>Time :</code> field.                                |

## Overview of Log Contents

Log entries for Centrex (serial) integrations are generated by the RDR, SWINDIP, and WTR processes ([Figure 10-2](#)).

- Each serial RDR entry contains the raw data sent from the switch for one call.
- Serial SWINDIP entries associated with the serial RDR entry contain the corresponding parsed and translated call data.
- Each serial WTR entry logs data about one message waiting indicator (MWI) update.
- Data fields are separated by a forward slash (/).
- The log displays the last 2000 messages only.

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

**Figure 10-2. Example of Serial Switch Integration Log**

Each type of serial log entry contains two lines. The first line for all types identifies the entry as follows ([Table 10-2](#)):

**Table 10-2. Serial Integration Log — All Entries — Event ID**

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

**Serial RDR Log Entries**

Serial RDR entries contain the following data ([Table 10-3](#)):

**Table 10-3. Serial RDR (Raw) — Field Descriptions**

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

## Serial SWINDIP Log Entries


Serial SWINDIP entries contain the following data ([Table 10-4](#)):

**Table 10-4. Serial SWINDIP (Parsed/Translated) — Field Descriptions**

| Field                 | Description   |
|-----------------------|---|
| Parsed and Translated | Indicates the data stream sent from the switch after parsing or translation, respectively.  |
| <call type>           | <p>Identifies the call as:</p> <ul style="list-style-type: none"> <li>■ DIR_INT (direct internal)</li> <li>■ DIR_EXT (direct external)</li> <li>■ NA_INT (no answer internal)<br/>(This category includes call forward, all calls.)</li> <li>■ NA_EXT (no answer external)</li> <li>■ BUSY_INT (busy internal)</li> <li>■ BUSY_EXT (busy external)</li> </ul> <p>For DIR_INT, NA_INT, and BUSY_INT calls, both the CLI and CP are shown. For DIR_EXT, NA_EXT, and BUSY_EXT calls, only the CP is shown.</p> |

*Continued on next page*

**Table 10-4. Serial SWINDIP (Parsed/Translated) — Field Descriptions — Continued**

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

## Serial WTR Log Entries

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

Serial WTR MWI request entries contain the following data ([Table 10-5](#)):

**Table 10-5. Serial WTR (MWI Requests) — Field Description**

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

*Continued on next page*

Serial WTR MWI status entries contain the following data ([Table 10-6](#)):

**Table 10-6. Serial WTR (MWI Status) — Field Description**

| Field                      | Description  |
|----------------------------|--|
| MWI_SUCCESS or<br>MWI_FAIL | Indicates whether the requested MWI update occurred.   |
| <MWI string>               | A string that contains the INTUITY AUDIX extension number for which the MWI is updated plus any prefix or suffix needed to turn the MWI on or off. (MWI prefixes and suffixes are administered on the MWI Parameters window. See <a href="#">“Setting MWI Parameters”</a> in <a href="#">Chapter 9, “Avaya INTUITY Administration for Centrex Switch Integration”</a> .) “Padding” characters, such as periods (. . .) may also be included in the string. |

## Viewing the System Monitor

Several procedures used to validate an integration use the System Monitor - Voice Channels window. Use this procedure to view the System Monitor - Voice Channels window.

1. Start at the Avaya INTUITY Main Menu ([Figure 9-1](#)) and select

> Voice System Administration

> System Monitor

The system displays the System Monitor - Voice Channels window ([Figure 10-3](#)).

| System Monitor - Voice Channels |             |               |                |              |               |
|---------------------------------|-------------|---------------|----------------|--------------|---------------|
| Channel                         | Calls Today | Voice Service | Service Status | Caller Input | Dialed Digits |
| 0                               | 0           |               | *On Hook       |              |               |
| 1                               | 10          |               | *On Hook       |              |               |
| 2                               | 21          |               | *On Hook       |              |               |
| 3                               | 4           |               | *On Hook       |              |               |
| 4                               | 12          | AUDIX         | Talking        | 12345#       |               |
| 5                               | 0           |               | *On Hook       |              |               |

**Figure 10-3. System Monitor Window**

- Press **F3** (CANCEL) twice to return to the Avaya INTUITY Main Menu.

## Verifying the Channel Mapping

To test the channel mapping, you must display the system monitor and call each channel. Use the worksheet for channel mapping and MDN (message desk number) test for the list of numbers to call ([Table 2-3](#) in [Chapter 2, "Planning for Centrex Switch Integration"](#)). Use this procedure to test the channel mapping.

- Access the System Monitor - Voice Channels window.  
For the procedure to do so, see ["Viewing the System Monitor"](#) above.
- Verify that all the purchased and activated voice channels are on-hook at the start of the testing.
- Press **F8** (CHG-KEYS).
- Press **F1** (CHG-RATE).  
The system displays the Change Refresh Rate window.
- Enter **1** to change the refresh rate to every 1 second.
- Press **F3** (SAVE).
- Call each phone number on the worksheet and verify that the correct channel answers by viewing the system monitor.

When the system answers, the system monitor changes the service status for the channel from On Hook to Talking. If any of the channels fails to answer when the extension is dialed and the system lists the channel as **INSERV**, the channel is probably improperly mapped on the Avaya INTUITY system or the switch is not processing the call correctly.

## Verifying the MDN Mapping

---

Verify that the correct MDN (message desk number) is associated with the correct channel(s). To do so, call the hunt group number (leading number of the hunt) and watch the system answer on the System Monitor - Voice Channels window. Use the worksheet for extension numbers for test for the telephone numbers to call (see [Table 2-4](#) in [Chapter 2, "Planning for Centrex Switch Integration"](#)).

### NOTE:

For this procedure, the switch must have been provisioned to support the multiple hunt groups.

1. Access the System Monitor - Voice Channels window.

For the procedure to do so, see ["Viewing the System Monitor"](#) above.

2. Place a call using one of the hunt group numbers or one of the extensions that should be forwarded to a call coverage path.
3. View the System Monitor window and verify that one of the channels associated with the MDN answers.

The system should answer in one of the following ways:

- For an MDN used for an INTUITY AUDIX® call forwarding coverage path, the system plays either the AUDIX greeting, "Your call is being answered by AUDIX," or the subscriber's personal greeting.
- For an MDN associated with INTUITY AUDIX message retrieval, the system plays the message retrieval greeting:

"Welcome to AUDIX. For help at any time, press star H.  
Please enter extension and pound sign."

- For an MDN associated with an Automated Attendant, the system plays the Automated Attendant's greeting.
- For an MDN associated with another application such as INTUITY Lodging, the system answers with the application's greeting.

If the system answers with the wrong prompt or with a request for the extension number for the person for whom you wish to leave a message, the test failed. This usually indicates one of the following:

- The channel numbers have changed and the channels have not been re-mapped or the channel has been improperly mapped on the Avaya INTUITY system.
- The physical connection is incorrect or loose.
- The MDN or the channels on the switch may be improperly administered.
- The MDNs and the channel have been improperly mapped on the Avaya INTUITY Hunt Group Administration window.

4. Repeat Steps [2](#) and [3](#) for each hunt group, and verify that you receive the correct response.

## **Validating the Port Connectivity**

Use this procedure to test whether the ports are properly physically connected.

1. Access the System Monitor - Voice Channels window.

For the procedure to do so, see [“Viewing the System Monitor”](#) above.

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

## **Validating Call Forwarding Scenarios**

Use the procedure below to test coverage for call forwarding scenarios:

- Testing for Busy
- Testing for Forward All Calls and Call No Answer

### **Validating Busy**

Use this procedure to test call forwarding for busy extensions:

1. Busy out a subscriber extension.
2. Call the busy extension.
3. Verify that the call follows the correct call forwarding coverage path and that the Avaya INTUITY system plays the busy greeting.
4. Repeat this procedure for the other extensions to be tested.

### **Validating Forward All Calls and Call No Answer**

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

Use this procedure to test for Forward All Calls and Call No Answer for all subscribers:

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

## **Validating Transfers**

---

Use this procedure to test transfers for all subscribers:

1. From an INTUITY AUDIX mailbox, use the “\*T” option to transfer to another AUDIX mailbox.
2. Monitor the transfer time

The transfer time should be approximately 5 to 8 seconds.

## **Validating Call Disconnection**

---

Use this procedure to test call disconnect for all subscribers:

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

If there is no call progress tone in the message, disconnect is working correctly.

## **Validating MWI Updates**

---

Use this procedure to test MWI (message waiting indicator) updates for all subscribers:

1. Leave a voice message for the subscriber.
2. After the message is left, check that the MWI is turned on.

## **Validating the Automated Attendant**

---

Use this procedure to test the automated attendant for all subscribers (if configured):

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

## **Integration Troubleshooting**

---

Use the information in [Table 10-7](#) to troubleshoot problems with the integration.

**Table 10-7. Troubleshooting Scenarios**

| Trouble  | Possible Reason        | Possible Solutions  |
|--|------------------------|---|
| Calls not integrated   | Bad serial connection. | <ol style="list-style-type: none"> <li>1. Check the connection using an RS232 mini-tester or a serial breakout box.</li> <li>2. Ensure that the transmit data and receive data leads are crossed properly.</li> <li>3. Try the connection both with and without a null modem.</li> <li>4. Try different adapters (DCE or DTE) with or without null modem until the correct combination works.</li> </ol> <p>For information on cable connections, see Appendix E, "Cable Connectivity," in the <i>System Installation</i> book for your platform. See also <a href="#">Chapter 4, "Hardware Installation for 5ESS Switch Integration with the 3A Translator"</a>, and <a href="#">Chapter 7, "Hardware Installation for Centrex Switch Integration with the 202T Modem"</a>.</p> <p><b>⇒ NOTE:</b><br/>If these solutions do not clear the trouble, contact your remote support center.</p> |
|  |                        | <ul style="list-style-type: none"> <li>■ Check the parameter settings on the Serial Interface window in the Avaya INTUITY system. For information on the window, see <a href="#">"Setting the Serial Interface Parameters"</a> in <a href="#">Chapter 9, "Avaya INTUITY Administration for Centrex Switch Integration"</a>.</li> <li>■ Work with the switch administrator to check the parameter settings on the switch.</li> </ul>   |
| 3A translator or 202T modem incorrectly installed or configured. |                        | <ul style="list-style-type: none"> <li>■ For information on the 3A translator see <a href="#">Chapter 4, "Hardware Installation for 5ESS Switch Integration with the 3A Translator"</a>, and <a href="#">Chapter 5, "Programming the 3A Translator"</a>.</li> <li>■ For information on the 202T modem see <a href="#">Chapter 6, "Setting the 202T Modem"</a>, and <a href="#">Chapter 7, "Hardware Installation for Centrex Switch Integration with the 202T Modem"</a>.</li> </ul>  |
|  |                        | <ul style="list-style-type: none"> <li>■ Work with the switch administrator to correct the translations.</li> </ul>   |
| Incorrect switch translations.                                   |                        | Work with the switch administrator to correct the translations.   |

*Continued on next page*

**Table 10-7. Troubleshooting Scenarios — *Continued***

| <b>Trouble</b>                    | <b>Possible Reason</b>  | <b>Possible Solutions</b>   |
|-----------------------------------|---|---|
| MWI updates do not occur properly | See the reasons above for calls not integrated.   | See the solutions above for calls not integrated.   |
|                                   | Inappropriate switch setup.   | Request that the switch administrator check the administration for translations, class of service, and subscriber setup.  |
|                                   | Incorrect parameters or parameter mismatch between the switch and the Avaya INTUITY system. | Contact your remote support center to ensure that the MWI update flag is set to <b>y</b> on the MWI Parameters window ( <a href="#">Figure 9-5</a> ).                               |
|                                   | Incorrect switch settings for class or service or subscriber setup.                         | Work with the switch administrator to correct the switch settings.  |
|                                   | Station set capability to register MWI updates.   | This problem may not be correctable. If the station is programmed to receive calls from multiple numbers but has only one MWI, then MWI updates for all but one number may be lost. |

***Continued on next page***

**Table 10-7. Troubleshooting Scenarios — Continued**

| <b>Trouble</b>                                | <b>Possible Reason</b>   | <b>Possible Solutions</b>   |
|---|--|---|
| Transfers fail                                | Incorrect transfer administration for Avaya INTUITY AUDIX®.  | Verify the transfer restrictions administered for the INTUITY AUDIX system.   |
|   | Inappropriate transfer restrictions set on the switch.   | Work with the switch administrator to check any transfer restrictions set on the switch.  |
|   | Dial tone is not detected and the Avaya INTUITY transfer function times out due to a mismatch in the tone parameters between the switch and the Avaya INTUITY system.  | Work with the switch administrator to check the tone parameters on the switch, or use the Tone Capture and Analysis window to check the switch tones. Verify that matching parameters are set on the Avaya INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, "Troubleshooting Procedures", in the system installation book for your platform. |
| Calls are not disconnected upon caller hangup | <ul style="list-style-type: none"> <li>■ The switch disconnect wink, tone, or silence is not recognized.</li> <li>■ The far-end disconnect tone is not recognized.</li> </ul>                                  | Contact your remote support center for further assistance if necessary.   |
| Outcalling fails                              | The switch dial tone is not recognized.  |   |
| Fax outcalling fails.                         | <ul style="list-style-type: none"> <li>■ The fax cng tone is not detected because the tone level is too low.</li> <li>■ The defaults for the fax transmit and receive gains may not be appropriate.</li> </ul> | Contact your remote support center for assistance.  |

# Glossary

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## Numerics

### 5ESS Switch

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

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## A

### accessed message

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

### ACA

See *automatic circuit assurance*.

### ACD

See *automatic call distribution*.

### activity menu

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

### ADAP

See *administration and data acquisition package*.

### address

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

### adjunct

A separate system closely integrated with a switch, such as an Avaya 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 Avaya INTUITY system. The alarm log is stored in a software file on disk and can be accessed either locally or remotely on a terminal connected to the system.

**alarms**

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

**alphanumeric**

Consisting of alphabetic and numeric symbols or punctuation marks.

**ALT**

See *assemble, load, and test*.

**American wire gauge (AWG)**

A standard measuring gauge for nonferrous conductors.

**AMIS**

See *Audio Messaging Interchange Specification*.

**AMIS prefix**

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

**analog networking**

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

**analog signal**

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

**announcement**

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

**announcement fragment**

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

**antistatic**

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

**API**

See *application programming interface*.

**application**

A computer software program.

**application identifier**

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

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

**application programming interface (API)**

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

**assemble, load, and test (ALT)**

The Avaya factory process that preloads software, installs hardware, and tests the system prior to shipping.

**ASP**

advanced signal processor

**asynchronous communication**

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

**asynchronous data unit (ADU)**

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

**asynchronous transmission**

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

**attendant console**

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

**Audio Messaging Interchange Specification (AMIS)**

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

**Audio Information Exchange (AUDIX)**

A complete messaging system accessed and operated by touch-tone telephones and integrated with a switch.

**audit**

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

**AUDIX**

See *Audio Information Exchange*.

**autodelete**

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

**automated attendant**

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

**automatic call distribution (ACD)**

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

**automatic circuit assurance (ACA)**

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

**automatic message scan**

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

**autoprint**

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

**autoscan**

See *automatic message scan*.

**AWG**

See *American wire gauge*.

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## B

**background testing**

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

**backplane**

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

**backup**

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

**basic input/output system (BIOS)**

A system that contains the buffers for sending information from a program to the actual hardware device for which the information is intended.

**basic call transfer**

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

**basic rate access**

See *basic rate interface*.

**basic rate interface (BRI)**

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

**binary synchronous communications (BSC)**

A character-oriented synchronous link protocol.

**BIOS**

See *basic input/output system*.

**body**

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

**boot**

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

**boot filesystem**

The filesystem from which the system loads its initial programs.

**BRI**

See *basic rate interface*.

**broadcast messaging**

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

**BSC**

See *binary synchronous communications*.

**buffer**

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

**bulletin board**

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

**bundling**

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

**bus**

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

**busy-out/release**

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

---

**C**

**CA**

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

**call accounting system (CAS)**

A software device that monitors and records information about a calling system.

**call-answer**

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

**call-answer language choice**

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

**callback number**

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

**call classification analysis (CCA)**

A process that enables application designers to use information available within the system to classify the disposition of originated and transferred calls.

**call coverage**

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

**call data handler process (CDH)**

A software process that accumulates generic call statistics and application events.

**call detail recording (CDR)**

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

**call detail recording utility (CDRU)**

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

**call delivery**

See *message delivery*.

**call-distribution group**

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

**call management system (CMS)**

An inbound call distribution and management reporting package.

**called tone (CED tone)**

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

**called subscriber information (CSI)**

The identifier for the answering fax endpoint. This identifier is sent in the T.30 protocol and is generally the telephone number of the fax endpoint.

**calling tone (CNG tone)**

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

**call vectoring**

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

**card cage**

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

**cartridge tape drive**

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

**CAS**

See *call accounting system*.

**CCA**

See *call classification analysis*.

**CDH**

See *call data handler process*.

**CDR**

See *call detail recording*.

**CDRU**

See *call detail recording utility (CDRU)*.

**CED tone**

See *called tone*.

**CELP**

See *code excited linear prediction*.

**central office (CO)**

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

**central processing unit (CPU)**

The component of the computer that manipulates data and processes instructions coming from software.

**channel**

A telecommunications transmission path for voice and/or data.

**channel capacity**

A measure of the maximum bit rate through a channel.

**class of restriction (COR)**

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

**class of service (COS)**

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

**clear to send (CTS)**

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

**client**

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

**CMS**

See *call management system*.

**CNG tone**

See *calling tone*.

**CO**

See *central office*.

**COR**

See *class of restriction*.

**COS**

See *class of service*.

**code excited linear prediction (CELP)**

An analog-to-digital voice coding scheme.

**collocated**

An Avaya INTUITY system installed in the same physical location as the host switch. See also *local installation*.

**collocated adjunct**

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

**comcode**

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

**command**

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

**community**

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

**compound message**

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

**configuration**

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

**controller circuit card**

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

**COS**

See *class of service*.

**coverage path**

The sequence of alternate destinations to which a call to a subscriber on an Avaya INTUITY system is automatically sent when it is not answered by the subscriber. This sequence is set up on the switch, normally with the Avaya 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**

**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 Avaya 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 Avaya INTUITY system and an Avaya switch. The DCIU is a high-speed synchronous data link that communicates with the common control switch processor over a direct memory access (DMA) channel that reads data directly from FP memory.

**data link**

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

**data service unit (DSU)**

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

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

**data set**

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

**data terminal equipment (DTE)**

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

**DBP**

See *data base processor*.

**DCE**

See *data communications equipment*.

**DCIU**

See *data communications interface unit*.

**DCP**

See *digital communications protocol*.

**DCS**

See *distributed communications system*.

**debug**

See *troubleshooting*.

**dedicated line**

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

**default**

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

**default community**

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

**default print number**

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

**delivered message**

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

**demand testing**

Testing performed on request (usually by service personnel).

**diagnostic testing**

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

**dial-ahead/dial-through**

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

**dial string**

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

**dialed number identification service (\*DNIS\_SVC)**

An available channel service assignment on the Avaya INTUITY system. Assigning this service to a channel permits the Avaya INTUITY system to interpret information from the switch and operate the appropriate application for the incoming telephone call.

**DID**

See *direct inward dialing*.

**digital communications protocol (DCP)**

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

**digital networking**

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

**digital signal processor (DSP)**

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

**DIP switch**

See *dual in-line package switch*.

**direct inward dialing (DID)**

The ability for an outside caller to call an internal extension without having to pass through an operator or attendant.

**direct memory access (DMA)**

A quick method of moving data from a storage device directly to RAM, which speeds processing.

**directory**

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

**display terminal**

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

**distributed communications system (DCS)**

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

**distribution list**

See *mailing list*.

**DMA**

See *direct memory access*.

**DNIS**

See *dialed number identification service*.

**domain**

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

**DSP**

See *digital signal processor*.

**DSU**

See *data service unit*.

**DTE**

See *data terminal equipment*.

**DTMF**

See *dual tone multifrequency*.

**dual in-line package (DIP) switch**

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

**dual language greetings**

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

**dual tone multifrequency (DTMF)**

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

---

**E**

**EIA interface**

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

**ELA**

See *Enhanced-List Application*.

**electronic mail**

See *e-mail*.

**electrostatic discharge (ESD)**

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

**e-mail**

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

**enabled/disabled**

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

**endpoint**

See *fax endpoint*.

**enhanced call transfer**

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

**Enhanced-List Application (ELA)**

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

**enhanced serial data interface (ESDI)**

A software-controlled and hardware-controlled method used to store data on magnetic peripherals.

**equipped/unequipped**

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

**error message**

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

**errors**

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

**escape from reply**

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

**escape to attendant**

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

**ESD**

See *electrostatic discharge*.

**ESDI**

See *enhanced serial data interface*.

**event**

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

---

## F

**facilities restriction level (FRL)**

A value that determines which types of calls the subscribers of a switch are allowed to make.

**facility out-of-service (FOOS)**

State of operation during which the current channel is not receiving a dial tone and is not functioning.

**facsimile**

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

**fax**

See *facsimile*.

**fax addressing prefix**

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

**fax endpoint**

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

**fax print destination prefix**

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

**field**

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

**FIFO**

See *first-in/first-out*.

**file**

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

**filename**

Alphanumeric characters used to identify a particular file.

**file redundancy**

See *mirroring*.

**file system**

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

**first-in/first-out (FIFO)**

A method of processing telephone calls or data in which the first call or data to be received is the first call or data to be processed.

**F key**

See *function key*.

**FNPA**

See *foreign numbering-plan area code*.

**FOOS**

See *facility out-of-service*.

**foreign exchange (FX)**

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

**foreign numbering-plan area code (FNPA)**

An area code other than the local area code that must be dialed to call outside the local geographical area.

**format**

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

## **FRL**

See *facilities restriction level*.

## **function**

Individual steps or procedures within a mailbox activity.

## **function key (F key)**

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

## **FX**

See *foreign exchange*.

---

# **G**

## **Generic 1, 2, or 3**

Avaya switch system software releases, designed for serving large communities of System 75 and System 85 subscribers.

## **generic tape**

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

## **GOS**

See *grade of service*.

## **grade of service (GOS)**

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

## **guaranteed fax**

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

## **guest password**

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

---

# **H**

## **hard disk drive**

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

## **hardware**

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

**header**

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

**help**

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

**host switch**

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

**hunt group**

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



**I**

**I/O**

Input/output.

**IDI**

See *isolating data interface*.

**IMAPI**

See *INTUITY messaging application programming interface*.

**INADS**

See *initialization and administration system*.

**information service**

See *bulletin board*.

**initialization**

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

**initialization and administration system (INADS)**

A computer-aided maintenance system used by remote technicians to track alarms.

**initialize**

To start up the system for the first time.

**input**

A signal fed into a circuit or channel.

**integrated services digital network (ISDN)**

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

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

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

**interface**

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

**internal e-mail**

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

**interrupt request (IRQ)**

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

**INTUITY AUDIX Digital Networking**

An Avaya INTUITY feature that allows customers to link together up to 500 remote Avaya INTUITY machines for a total of up to 500,000 remote subscribers. See also *digital networking*.

**INTUITY Message Manager**

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

**INTUITY messaging application programming interface (IMAPI)**

A software function-call interface that allows INTUITY AUDIX to interact with Avaya INTUITY Message Manager.

**IRQ**

See *interrupt request*.

**ISDN**

See *integrated services digital network*.

**isolating data interface (IDI)**

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

**IVC6**

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

---

**J**

**jumper**

Pairs or sets of small prongs or pins on circuit cards and mother boards the placement of which determines the particular operation the computer selects. When two pins are covered, an electrical circuit is completed. When the jumper is uncovered, the connection is not made. The computer interprets these electrical connections as configuration information.

---

## K

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## L

### **label**

The name assigned to a disk device (either a removable tape cartridge or permanent drive) through software. Cartridge labels may have a generic name (such as “3.3”) to show the software release, or a descriptive name if for back-up copies (such as “back01”). Disk drive labels usually indicate the disk position (such as “disk00” or “disk02”).

### **LAN**

See *local area network*.

### **last-in/first-out (LIFO)**

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

### **LCD**

See *liquid crystal display*.

### **leave word calling (LWC)**

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

### **LED**

See *light emitting diode*.

### **LIFO**

See *last-in/first-out*.

### **light emitting diode (LED)**

A light on the hardware platform that shows the status of operations.

### **liquid crystal display (LCD)**

The 10-character alphanumeric display that shows the status of the system, including alarms.

### **load**

The process of reading software from external storage (such as disk) and placing a copy in system memory.

### **local area network (LAN)**

A network of PCs that communicate with each other and that normally share the resources of one or more servers. Operation of Avaya INTUITY Message Manager requires that the INTUITY AUDIX system and the subscribers' PCs be on a LAN.

### **local AUDIX machine**

The Avaya INTUITY system where a subscriber's INTUITY AUDIX mailbox is located. All subscribers on this home machine are called *local subscribers*.

### **local installation**

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

**local network**

An INTUITY AUDIX Digital Network in which all Avaya INTUITY systems are connected to the same switch.

**login**

A unique code a subscriber must enter to gain approved access to the Avaya INTUITY system. See also *password*.

**login announcement**

A feature enabling the system administrator and other designated subscribers to create a mail message that is automatically played to all INTUITY AUDIX subscribers every time they log in to the system.

**Lotus Notes**

Information management software for work groups that allows individuals to share and manipulate information over a local or wide area network

**LWC**

See *leave word calling*.

---

## M

**magnetic peripherals**

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

**mailbox**

A portion of disk memory allotted to each Avaya INTUITY system subscriber for creating and storing outgoing and incoming messages.

**mailing list**

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

**maintenance**

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

**major alarm**

An alarm detected by Avaya INTUITY software that affects at least one fourth of the Avaya INTUITY ports in service. Often a major alarm indicates that service is affected.

**MANOOS**

See *manually out-of-service*.

**manually out-of-service**

State of operation during which a unit has been intentionally taken out of service.

**MAP**

See *multi-application platform*.

**mean time between failures**

The average time a manufacturer estimates will elapse before a failure occurs in a component or system.

**media type**

The form a message takes. The media types supported by the Avaya INTUITY system are voice, text, file attachments, and fax.

**memory**

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

**menu**

A list of options displayed on a computer terminal screen or spoken by a voice processing system. Subscribers choose the option that reflects what action they want the system to take.

**menu tree**

The way in which nested automated attendants are set up.

**message categories**

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

**message component**

A media type included in a multimedia message. These types include voice, text, file attachments, and fax messages.

**message delivery**

An optional Avaya 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 Avaya INTUITY subscribers that they have received new mail messages. An MWI can be an LED or neon lamp, or an audio tone (stutter dial tone).

**message waiting lamp (MWL)**

See *message-waiting indicator*.

**migration**

An installation that moves data to the Avaya INTUITY system from another type of Avaya messaging system, for example, from AUDIX R1, DEFINITY AUDIX, or AUDIX Voice Power.

**minor alarm**

An alarm detected by maintenance software that affects less than one fourth of the Avaya INTUITY ports in service, but has exceeded error thresholds or may impact service.

**mirroring**

An Avaya INTUITY system feature that allows data from crucial filesystems to be continuously copied to back-up (mirror) filesystems while the system is running. If the system has some problem where an original filesystem cannot be used, the backup filesystem is placed in service automatically.

**ML**

MERLIN LEGEND application identifier. See *application identifier*.

**mode code**

A string of touch-tones from aa switch in an inband integration. A mode code may send the INTUITY AUDIX system information such as call type, calling party, called party, and on/off signals for message waiting indicators.

**modem**

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

**modular**

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

**modular processor data module (MPDM)**

A data device that converts RS-232C or RS-449 protocol signals to digital communications protocol (DCP) used by System 75/85, Generic1, and Generic 3 switches. MPDMs can connect the Avaya INTUITY system to a switch DCIU or SCI link or connect terminals to a switch port card.

**MPDM**

See *modular processor data module*.

**MT**

Maintenance application identifier. See *application identifier*.

**MTBF**

See *mean time between failures*.

**multi-application platform (MAP)**

The computer hardware platform used by the Avaya INTUITY system.

**multilingual feature**

A feature that allows announcement sets to be active simultaneously in more than one language on the system. Mailboxes can be administered so that subscribers can hear prompts in the language of their choice.

**MWI**

See *message waiting indicator*.

---

## N

**networking**

See *INTUITY AUDIX Digital Networking*.

**networking prefix**

A set of digits that identifies an Avaya INTUITY machine.

**night attendant**

The automated attendant created on a MERLIN LEGEND switch that automatically becomes active during off-hours. The night attendant substitutes for one or more daytime attendants.

**not deliverable message**

A message that could not be delivered after a specified number of attempts. This usually means that the subscriber's mailbox is full.

**NPA**

See *numbering plan area*.

## NT

Networking application identifier. See *application identifier*.

## MWL

See *message waiting lamp*.

## numbering plan area

Formal name for 3-digit telephone area codes in North America. Within an area code, no two telephone lines may have the same 7-digit phone number. The code is often designated as *NXX*, to indicate the three digits.

---

# O

## off-hook

See *switch hook*.

## on-hook

See *switch hook*.

## on-line help

An Avaya INTUITY system feature that provides information about user interface windows, screens, and menus by pressing a predetermined key. See also *help*.

## open systems interconnection (OSI)

An internationally accepted framework of standards for communication between systems made by different vendors.

## operating system (OS)

The set of software programs that runs the hardware and interprets software commands.

## option

A choice selected from a menu, or an argument used in a command line to specify program output by modifying the execution of a command. When you do not specify any options, the command executes according to its default options.

## OS

See *operating system*.

## OSI

See *open systems interconnection*.

## outcalling

An Avaya INTUITY system feature that allows the system to dial subscribers' numbers to inform them they have new messages.

## outgoing mailbox

A storage area on the Avaya INTUITY system where subscribers can keep copies of messages for future reference or action.

---

## P

### **parallel transmission**

The transmission of several bits of data at the same time over different wires. Parallel transmission of data is usually faster than serial transmission.

### **password**

1. A word or character string recognized automatically by the Avaya INTUITY system that allows a subscriber access to his/her mailbox or a system administrator access to the system data base. 2. An alphanumeric string assigned to local and remote networked machines to identify the machines or the network. See also *login*.

### **password aging**

An INTUITY AUDIX feature that allows administrators to set a length of time after which a subscriber's AUDIX password or the administrator's system password expires. The subscriber or administrator must then change the password.

### **PBX**

See *private branch exchange*.

### **PC**

See *power converter*.

### **PDM (processor data module)**

See *modular processor data module (MPDM)*.

### **peripheral device**

Equipment such as a printer or terminal that is external to the Avaya INTUITY cabinet, but necessary for full operation and maintenance of the system. Also called a *peripheral*.

### **personal directory**

An INTUITY AUDIX feature that allows each subscriber to create a private list of customized names.

### **personal fax extension**

See *secondary extension*.

### **PI**

See *processor interface*.

### **PIB**

See *processor interface*.

### **pinouts**

The signal description per pin number for a particular connector.

### **PMS**

See *property management system*.

### **port**

A connection or link between two devices that allows information to travel to a desired location. For example, a switch port connects to an Avaya INTUITY voice port to allow a caller to leave a message.

### **POST**

See *power-on self test*.

### **power on self test (POST)**

A set of diagnostics stored in ROM that tests components such as disk drives, keyboard, and memory each time the system is booted. If problems are identified, a message is sent to the screen.

**priority call answer**

An INTUITY AUDIX feature that allows subscribers to designate a call answer message as a priority message. To make a message a priority message, the caller presses [2] after recording.

**priority messaging**

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

**priority outcalling**

An INTUITY AUDIX feature that works with the priority messaging feature by allowing the message recipient to elect to be notified by outcalling only when a priority message has been received. See also *priority messaging*.

**private branch exchange (PBX)**

An analog, digital, or electronic telephone switching system where data and voice transmissions are not confined to fixed communications paths, but are routed among available ports or channels. See also *switch*.

**private mailing list**

A list of addresses that only the Avaya INTUITY system subscriber who owns it can access.

**private messaging**

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

**processor data module (PDM)**

See *modular processor data module (MPDM)*.

**processor interface (PI)**

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

**programmed function key**

See *function key*.

**property management system (PMS)**

A product used by lodging establishments to automate the management of guest records, reservations, room assignments, and billing. In an integrated PMS environment, special software links the PMS to the Avaya INTUITY Lodging system so that both systems share a common set of messages and commands.

**protocol**

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

**public mailing list**

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

**pulse-to-tone converter**

A device connected to the switch that converts signals from a rotary pulses to touch tone signals. This device allows callers to use rotary telephones to access options in an Avaya INTUITY subscriber's mailbox or in an automated attendant.

---

## R

### RAM

See *random access memory*.

### random access memory (RAM)

The memory used in most computers to store the results of ongoing work and to provide space to store the operating system and applications that are actually running at any given moment.

### read-only memory (ROM)

A form of computer memory that allows values to be stored only once; after the data is initially recorded, the computer can only read the contents. ROM is used to supply constant code elements such as bootstrap loaders, network addresses, and other more or less unvarying programs or instructions.

### reboot

See *boot*.

### remote access

Sending and receiving data to and from a computer or controlling a computer with terminals or PCs connected through communication (that is, telephone) links.

### remote installation

A system, site, or piece of peripheral equipment that is installed in a different location from the host switch or system.

### remote maintenance

The ability of Avaya personnel to interact with a remote computer through a telephone line or LAN connection to perform diagnostics and some system repairs. See also *remote service center*.

### remote network

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

### remote service center

An Avaya or Avaya-certified organization that provides remote support to Avaya INTUITY customers. Depending upon the terms of the maintenance contract, your remote service center may be notified of all major and minor alarms and have the ability to remotely log in to your system and remedy problems. See also *remote maintenance*.

### remote terminal

A terminal connected to a computer over a telephone line.

### remote subscribers

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

### REN

See *ringer equivalence number*.

### reply loop escape

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

### reply to sender

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

**request to send (RTS)**

One of the control signals on an EIA-232 connector that places the modem in the originate mode so that it can begin to send.

**restart**

1. An Avaya INTUITY feature that allows INTUITY AUDIX subscribers who have reached the system through the call answer feature to access their own mailboxes by entering the ☐ R (Restart) command. This feature is especially useful for long-distance calls or for subscribers who want to access the Avaya INTUITY system when all the ports are busy. 2. The reinitialization of certain software, for example, *restarting* the messaging system.

**restore**

The process of recovering lost or damaged files by retrieving them from available back-up tapes, floppy diskette, or another disk device.

**retention time**

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

**reusable upgrade kit (RUK)**

A package shipped to the customer's site prior to an upgrade that contains materials the technician needs to complete the installation. This package includes an A/B switch box, a keyboard, a 25-foot coaxial cable, two T adapters, and terminations to a LAN circuit card. It remains the property of Avaya once the installation is finished.

**right-to-use (RTU) fee**

A charge to the customer to access certain functions or capacities that are otherwise restricted, for example, additional voice or networking ports or hours of speech storage. Avaya personnel can update RTU parameters either at the customer's site or remotely via a modem.

**ringer equivalence number (REN)**

A number required in the United States for registering your telephone equipment with a service provider.

**ROM**

See *read-only memory*.

**RS-232**

See *EIA interface*.

**RTS**

See *request to send*.

**RUK**

See *reusable upgrade kit*.

---

## S

**scan**

To automatically play mail messages, headers, or both.

**scheduled delivery time**

A time and/or date that an INTUITY AUDIX subscriber can assign to a message that tells the system when to deliver it. If a delivery time is omitted, the system sends the message immediately.

**screen**

That portion of the Avaya INTUITY user interface through which most administrative tasks are performed. Avaya INTUITY screens request subscriber input in the form of a command from the `enter` command : prompt.

**SCSI**

See *small computer system interface*.

**secondary extension**

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

**serial transmission**

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

**server**

A computer that processes and stores data that is used by other smaller computers. For Avaya INTUITY Message Manager, INTUITY AUDIX is the server. See also *client*.

**shielded cables**

Cables that are protected from interference with metallic braid or foil.

**SID**

See *switch integration device*.

**SIMM**

See *single in-line memory module*.

**simplified message service interface (SMSI)**

Type of data link connection to an integrated 1A ESS or 5ESS switch in the Avaya INTUITY system.

**simplified message desk interface (SMDI)**

Also known as station message desk interface. Type of data link from the central office that contains information and instructions for the Avaya INTUITY system. With SMDI, the caller need not re-enter the called number once the call terminates to the Avaya INTUITY system. See also *simplified message service interface*.

**single in-line memory module (SIMM)**

A method of containing random access memory (RAM) chips on narrow strips that attach directly to sockets on the CPU circuit card. Multiple SIMMs are sometimes installed on a single CPU circuit card.

**small computer systems interface (SCSI)**

An interface standard defining the physical, logical, and electrical connections to computer system peripherals such as tape and disk drives.

**SMDI**

See *station message desk interface*.

**SMDR**

See *station message detail recording*.

**SMSI**

See *simplified message service interface*.

**SP**

signal processor

## **SSP**

scaleable signal processor

## **station message desk interface (SMDI)**

See *simplified message desk interface*.

## **station message detail recording**

See *call detail recording (CDR)*.

## **subscriber**

A person who has been assigned the ability to access the INTUITY AUDIX Voice Messaging system.

## **surge**

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

## **surge protector**

A device that plugs into the telephone system and the commercial AC power outlet to protect the telephone system from damaging high-voltage surges.

## **SW**

Switch integration application identifier. See *application identifier*.

## **switch**

An automatic telephone exchange that allows the transmission of calls to and from the public telephone network. See also *private branch exchange (PBX)*.

## **switched access**

A connection made from one endpoint to another through switch port cards. This allows the endpoint (such as a terminal) to be used for several applications.

## **switch hook**

The device at the top of most telephones that is depressed when the handset is resting in the cradle (that is, when the telephone is *on hook*). This device is raised when the handset is picked up (that is, when the telephone is *off hook*).

## **switch-hook flash**

A signaling technique in which the signal is originated by momentarily depressing the switch hook.

## **switch integration**

Sharing of information between a messaging system and a switch to provide a seamless interface to callers and system subscribers. A fully integrated INTUITY AUDIX system, for example, answers each incoming telephone call with information taken directly from the switch. Such information includes the number being called and the circumstances under which the call was sent to it, for example, covered from a busy or unanswered extension.

## **switch integration device (SID)**

A combination of hardware and software that passes information from the switch to the Avaya INTUITY system thus allowing it to share information with non-Avaya switches. The operation of a SID is unique to the particular switch with which it interfaces.

## **switch network**

Two or more interconnected switching systems.

## **synchronized mailbox**

A mailbox that is paired with a corresponding mailbox in another domain and linked via software that keeps track of changes to either mailbox. When the contents of one mailbox change, the software replicates that change in the other mailbox.

## **synchronizer**

The name given to the trusted server by the e-mail vendor, Lotus Notes.

**synchronous communication**

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

**synchronous transmission**

A type of data transmission where the data characters and bits are exchanged at a fixed rate with the transmitter and receiver synchronized. This allows greater efficiency and supports more powerful protocols.

**System 75**

An advanced digital switch manufactured by Avaya Technologies that supports up to 800 lines for voice and data communications.

**System 85**

An advanced digital switch manufactured by Avaya Technologies that supports up to 3000 lines for voice and data communications.

**system configuration**

See *configuration*.

---

## T

**T.30**

The standard for Group III fax machines that covers the protocol used to manage a fax session and negotiate the capabilities supported by each fax endpoint.

**tape cartridge**

One or more spare removable cartridges required to back up system information.

**tape drive**

The physical unit that holds, reads, and writes to magnetic tape.

**TCP/IP**

See *transmission control protocol/internet protocol*.

**TDD**

See *telecommunications device for the deaf*.

**TDM**

See *time division multiplexing*.

**telecommunications device for the deaf (TDD)**

A device with a keyboard and display unit that connects to or substitutes for a telephone. The TDD allows a deaf or hearing-impaired person to communicate over the telephone lines with other people who have TDDs. It also allows a deaf person to communicate with the INTUITY AUDIX system.

**terminal**

See *display terminal*.

**terminal type**

A number indicating the type of terminal from which a subscriber is logging in to the Avaya INTUITY system. Terminal type is the last required entry before gaining access to the Avaya INTUITY display screens.

**terminating resistor**

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

**time division multiplexing (TDM)**

A method of serving multiple channels simultaneously over a common transmission path by assigning the transmission path sequentially to the channels, with each assignment being for a discrete time interval.

**tip/ring**

A term used to denote the analog telecommunications interface.

**tone generator**

A device acoustically coupled to a rotary telephone used to produce touch-tone signals.

**traffic**

The flow of attempts, calls, and messages across a telecommunications network.

**translations**

Software assignments that tell a system what to expect on a certain voice port or the data link, or how to handle incoming data. Translations customize the Avaya INTUITY system and switch features for subscribers.

**transmission control protocol/internet protocol (TCP/IP)**

A suite of protocols that allow disparate hosts to connect over a network. Transmission control protocol (TCP) organizes data on both ends of a connection and ensures that the data that arrives matches that which was sent. Internet protocol (IP) ensures that a message passes through all the necessary routers to the proper destination.

**T/R**

See *tip/ring*.

**troubleshooting**

The process of locating and correcting errors in computer programs (also called *debugging*) or systems.

**trusted server**

A server that uses IMAPI to access an INTUITY AUDIX mailbox on behalf of a subscriber and is empowered to do everything to a subscriber message that INTUITY AUDIX can do.

**TTS**

Text-to-Speech

---

## U

**UCD**

See *uniform call distribution*.

**Undelete**

An INTUITY AUDIX feature that allows subscribers to restore the last message deleted by pressing ☐ ☐.

**undelivered message**

A message that has not yet been sent to an INTUITY AUDIX subscriber's incoming mailbox. The message resides in the sender's outgoing mailbox and may be modified or redirected by the sender.

**unequipped**

See *equipped/unequipped*.

**unfinished message**

A message that was recorded but not approved or addressed, usually as the result of an interrupted INTUITY AUDIX session. Also called *working message*.

**uniform call distribution (UCD)**

The type of call-distribution group (or hunt group) of analog port cards on some switches that connects subscribers to the INTUITY AUDIX system. System 75, Generic 1, Generic 3, and some central office switches use UCD groups. See also *call-distribution group*.

**uninterruptable power supply (UPS)**

An auxiliary power unit that provides continuous power in cases where commercial power is lost.

**UNIX operating system**

A multi-user, multi-tasking computer operating system.

**upgrade**

An installation that moves an Avaya 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 ☐ ☐ ☒ (Hold) command. If the message is in the new category, message-waiting indication remains active (for example, the message-waiting lamp remains lit).

**UPS**

See *uninterruptable power supply*.

**U. S. 123**

An alternate announcement set in U. S. English whose prompts use numbers, not letters, to identify telephone keypad presses. For example, a prompt might say, "Press star three," instead of, "Press star D."

**user interface**

The devices by which subscribers access their mailboxes, manage mailing lists, administer personal greetings, and use other messaging capabilities. Types of user interfaces include a touch-tone telephone keypad and a PC equipped with Avaya INTUITY Message Manager.

**subscriber population**

A combination of different types of subscribers on which Avaya INTUITY configuration guidelines are based.

---

## V

**vector**

A customized program in the switch for processing incoming calls.

**VM**

Voice messaging application identifier. See *application identifier*.

**voice link**

The Avaya 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 Avaya INTUITY system on disk memory. Also called *voice mail*.

**voice port**

The IVC6 port that provides the interface between the Avaya INTUITY system and the analog ports on the switch.

**voice terminal**

A telephone used for spoken communications with the Avaya INTUITY system. A touch-tone telephone with a message-waiting indicator is recommended for INTUITY AUDIX subscribers.

**voicing**

1. Speaking a message into the Avaya INTUITY system during recording. 2. Having the system play back a message or prompt to a subscriber.

**VP**

Voice platform application identifier. See *application identifier*.

**VR**

Voice response application identifier. See *application identifier*.

---

## W

**WAN**

See *wide area network*.

**wide area network (WAN)**

A data network typically extending a local area network (LAN) over telephone lines to link with LANS in other buildings and/or geographic locations.

**window**

That portion of the Avaya INTUITY user interface through which you can view system information or status.

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