INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Overview

Page 2-1

Planning for Centrex Switch Integration

2

Overview

> $\equiv$ **NOTE:**
> Some of the procedures are now Web-based administration. For more information, see the Help on the appropriate page.

Planning for the integration of the Intuity AUDIX system with Centrex switches requires the customer to:

- Obtain information needed during the integration process, including parameters to administer on the Intuity AUDIX screens or pages 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.

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Worksheets

Page 2-2

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:

■ 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.

■ 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.

■ You can use multiple hunt groups with the Intuity AUDIX 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.

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Central Office Requirements

Page 2-3

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. ■ Flashing light?	

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Central Office Requirements

Page 2-4

Table 2-1.   Worksheet for Providing Central Office Requirements

Information Needed by the CO	Information Provided to the CO
Extension numbers for the two test subscribers for acceptance testing.	1.
	2.
Expected use of the automated attendant and outcalling features. ■ Separate multi-line hunt group (MLHG) required ■ More than one hunt group required	

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2   Planning for Centrex Switch Integration
Planning for Central Office Requirements

Page 2-5

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

Information Needed by the CO	Information Provided to the CO
Integration with 3A translator (5ESS switch *only)***:**	
■ The distance from the customer site to the switch.	
— Over 1 km (0.62 mi) — network terminator unit needed	
— 1 km (0.62 mi) or less — network terminator unit *not* needed	
■ Source of the customer's 3A translator and/or a network terminator unit (NT1U-200, NT1U-220 or NT1U-230).	
— From the CO	
— Purchased elsewhere	
Integration with 202T modem *only*:	
■ Source of 202T modem:	
— Supplied by Avaya	
— Not supplied by Avaya	
■ Modem settings (see Chapter 6, Setting the 202T Modem) — to be checked against the settings provided by the CO (see Table 2-2).	
Integration with direct connection (DMS-100 and SL-100 switches *only)* or customer-supplied modem (any Centrex switch):	
Type of cable needed:	
■ Straight RS-232	
■ Null modem	

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Central Office Requirements

Page 2-6

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
All integrations:	
■ 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.	
■ The range of extensions (for example, 0000-9999).	
■ The number of digits in the dial plan.	
Integration with 202T modem *only***:**	
Modem settings — to be checked against the settings provided to the CO (see Table 2-1).	
Integration with 3A translator (5ESS switch *only***):**	
■ Version number of the switch.	
■ Number of digits being sent by the switch: — 7 — 10	
■ 2B1Q encoding usage: — Yes — No	
■ The business customer ID (BCID).	
■ The LCEN (line card equipment number).	

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 for more information about connectivity.

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for the 3A Translator

Page 2-8

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 page. (For information about setting this field, see Setting the Serial Interface Parameters in Chapter 8, Intuity AUDIX LX Administration for Centrex Switch Integration.)

      > **NOTE:**
      > A baud rate of 1200 is recommended.

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

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Call Forwarding

Page 2-9

— 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.

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

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Hunt Groups

Page 2-10

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.

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.

- The appropriate translations on the switch so that calls can be forwarded to the Avaya INTUITY system and the appropriate MWI indication 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, (see Setting the Hunt Group Translations in Chapter 8, Intuity AUDIX LX 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 pages on the Avaya INTUITY system to provide current information. Complete the following procedure to get the information from the pages.

1. Start at the Administration main menu and select:

    Voice Administration

    The system displays the Voice Equipment page.

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 2-1) if necessary.

3. When you finish recording the channel numbers, Click **Return to Main** to return to the main menu..

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Hunt Groups

Page 2-13

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. PT	CH N	PHO NE	MDN	LTN	CD. PT	CH N	PHO 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	

Continued on next page

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Hunt Groups

Page 2-14

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

MDN	LTN	CD. PT	CH N	PHO NE	MDN	LTN	CD. PT	CH N	PHO NE
		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	
		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 (), 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.PT	CHN	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 2-1.   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.

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Intuity AUDIX Administration

Page 2-16

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 Intuity AUDIX Administration

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

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Intuity AUDIX Administration

Page 2-17

Table 2-5.   Worksheet for Intuity AUDIX Administration Pages

Page	Fields

Serial Interface
 	
For full information, see [Setting the Serial Interface Parameters](#) in [Chapter 8, Intuity AUDIX LX Administration for Centrex Switch Integration](#)
	`Data Bits: (default=7)`
	`Stop Bit(s): (default=1)`
	`Start Bit(s): (default=1)`
	`Baud Rate: (default=1200)`
	`Parity: (default=E)`
	`Flow Control [Y/N]: (default=N)`
	
	Serial Ports:
	
	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.

> ⇒ **NOTE:**
> The defaults provided on the Serial Interface page will be correct for most integrations.

Table 2-5.   Worksheet for Intuity AUDIX Administration Pages — *Continued*

Page	Fields
Device Assignment	`Link Test [Y/N]:` `Link Test Interval` (seconds):

For full information, see Setting the MWI Device Assignments in Chapter 8, Intuity AUDIX LX Administration for Centrex Switch Integration

> **NOTE:**
> For Nortel DMS-100 and SL-100 switches, the link test field must be set to **n** (no). The Link Test Interval and Link Test Number fields are not used.

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 Intuity AUDIX Administration Pages — *Continued*

Page	Fields

MWI Parameters
 	
For full information, see <u>Setting MWI Parameters</u> in <u>Chapter 8, Intuity AUDIX LX Administration for Centrex Switch Integration</u>
	`MWI On Prefix:`
	`MWI On Suffix:`
	`MWI Off Prefix:`
	`MWI Off Suffix:`
	`MWI Updates [Y/N]:`
	`Background Refresh:`
	`Background Interval:`
	`Background Updates:`
	`Broadcast Interval:`
	`Broadcast Updates:`
	`Block Start Time:`
	`Block End Time:`

Hunt Group Translation For full information, see <u>Setting the Hunt Group Translations</u> in <u>Chapter 2, Planning for Centrex Switch Integration</u>	➡ **NOTE:** Use the worksheet for channel mapping and MDN test (<u>Table 2-3</u>).

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Intuity AUDIX Administration

Page 2-20

Table 2-5. Worksheet for Intuity AUDIX Administration Pages — *Continued*

Page	Fields					
Dial Plan Translation	INTUITY Extension Length: Switch Network Access Code:					
For full information, see Setting the Dial Plan Translations in Chapter 8, Intuity AUDIX LX Administration for Centrex Switch Integration	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.					

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Intuity AUDIX Administration

Page 2-21

Table 2-**5.   Worksheet for Intuity AUDIX Administration Pages — *Continued***

Page	Fields					
Dial Plan Translation (*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.						

INTUITY AUDIX LX Release 1.0
Centrex Integration

Issue 1
May 2002

2 Planning for Centrex Switch Integration
Planning for Intuity AUDIX Administration

Page 2-22