

Integration Validation and Troubleshooting

9

Overview

This chapter assumes that:

- The switch has been administered.
- The hardware necessary for integration has been installed.
- The Lucent™ INTUITY™ system has been administered for switch integration.
- The Lucent 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 Lucent 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 Lucent 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 9-1](#)) 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 9-1. 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 9-1](#)) 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 9-1](#)).
4. Enter the time for the first log entry you want to view in the **Time :** field (see [Table 9-1](#)).

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 9-1](#)).

■ 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 9-1](#)).
7. Press **F6** (CANCEL) three times to return to the Lucent INTUITY Main Menu ([Figure 9-1](#)).

Table 9-1. Switch Integration Log Window — Field Descriptions

Field	Description	Values
<switch> Integration	Displays the switch selected on the Switch Selection window (Figure 9-2).	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 MM DD YYYY, where: <div><div>■ MM is the month (range 1-12)</div><div>■ DD is the day (range 1-31)</div><div>■ YYYY is the year</div></div>
Time:		Format HH MM SS, where: <div><div>■ HH is the hour in the 24-hour system (range 0-23)</div><div>■ MM is the minute (range 0-59)</div><div>■ SS is the second (range 0-59)</div></div>
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.	<div><div>■ RDR</div><div>■ SWINDIP</div><div>■ WTR</div><div>■ ALL</div></div>
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 9-2](#)).

- 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 calls 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 9-2. 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 9-2](#)):

Table 9-2. 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 9-3](#)):

Table 9-3. 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 9-4](#)):

Table 9-4. 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>	Identifies the call as: <ul style="list-style-type: none">■ DIR_INT (direct internal)■ DIR_EXT (direct external)■ NA_INT (no answer internal) (This category includes call forward, all calls.)■ NA_EXT (no answer external)■ BUSY_INT (busy internal)■ BUSY_EXT (busy external) For DIR_INT, NA_INT, and BUSY_INT calls, both the CLI and CP are shown. For DIR_EXT, NA_EXT, and BUSY_EXT calls, only the CP is shown.
CHANNEL<number>	The Lucent INTUITY channel number for the call.
CHANEXT	The Lucent INTUITY extension number for the call.


 **NOTE:**
Either one of these fields may be displayed, depending on the switch. If the CHANNEL<number> is not displayed, its default value is -1. (Channel-to-extension mapping is done on the Voice Equipment window as part of voice system administration.)

Table 9-4. Serial SWINDIP (Parsed/Translated) — Field Descriptions — Continued

Field	Description
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 Lucent INTUITY system sends to the switch. The other provides information on the status of the updates.

Serial WTR MWI request entries contain the following data ([Table 9-5](#)):

Table 9-5. 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 Lucent INTUITY system.
TTY	The name of the serial device used for the call.
AUDIX EXTN	The INTUITY AUDIX® extension number.
XLAT EXTN	The translated extension number. The number of digits may differ from that in the AUDIX EXTN depending on how the dial plan is administered on the Dial Plan Translation window in the call data interface.

Serial WTR MWI status entries contain the following data ([Table 9-6](#)):

Table 9-6. Serial WTR (MWI Status) — Field Description

Field	Description
MWI_SUCCESS or MWI_FAIL	Indicates whether the requested MWI update occurred.

Continued on next page

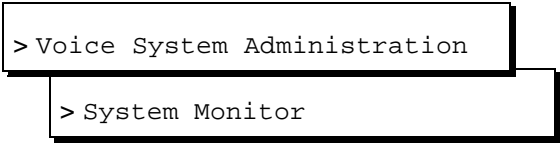
Table 9-6. Serial WTR (MWI Status) — Field Description — Continued

Field	Description
<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 “Setting MWI Parameters” in Chapter 9, “Lucent Intuity Administration for Centrex Switch Integration” .) “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 Lucent INTUITY Main Menu ([Figure 9-1](#)) and select



The system displays the System Monitor - Voice Channels window ([Figure 9-3](#)).

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

Figure 9-3. System Monitor Window

- 2. Press **Ⓢ3** (CANCEL) twice to return to the Lucent 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.

1. Access the System Monitor - Voice Channels window.

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

2. Verify that all the purchased and activated voice channels are on-hook at the start of the testing.
3. Press **F8** (CHG-KEYS).
4. Press **F1** (CHG-RATE).

The system displays the Change Refresh Rate window.

5. Enter **1** to change the refresh rate to every 1 second.
6. Press **F3** (SAVE).
7. 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 **INSERT**, the channel is probably improperly mapped on the Lucent 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 Lucent 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 Lucent 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 Lucent INTUITY voice channel, one at a time.
3. Use the System Monitor window to verify that the correct channel is accessed from the switch.

Validating 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 Lucent 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 Lucent 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 9-7](#) to troubleshoot problems with the integration.

Table 9-7. Troubleshooting Scenarios

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

Table 9-7. Troubleshooting Scenarios — Continued

Trouble	Possible Reason	Possible Solutions
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 Lucent INTUITY system.	Contact your remote support center to ensure that the MWI update flag is set to y on the MWI Parameters window (Figure 9-5).
	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.
Transfers fail	Incorrect transfer administration for Lucent 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 Lucent INTUITY transfer function times out due to a mismatch in the tone parameters between the switch and the Lucent 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 Lucent INTUITY system. See information on the Dial Tone window and the Tone Capture and Analysis window in Appendix C, "Troubleshooting Procedures", in the system installation book for your platform.
Calls are not disconnected upon caller hangup	<ul style="list-style-type: none">■ The switch disconnect wink, tone, or silence is not recognized.■ The far-end disconnect tone is not recognized.	Contact your remote support center for further assistance if necessary.
Outcalling fails	The switch dial tone is not recognized.	

Continued on next page

Table 9-7. Troubleshooting Scenarios — *Continued*

Trouble	Possible Reason	Possible Solutions
Fax outcalling fails.	<ul style="list-style-type: none">■ The fax cng tone is not detected because the tone level is too low.■ The defaults for the fax transmit and receive gains may not be appropriate.	Contact your remote support center for assistance.

