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System Reference

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Overview

This book, *LINCS Server Release 1.0 System Reference*, 585-313-210, contains information on basic troubleshooting procedures for the most common system problems, diagnostics procedures, common system procedures, as well as a listing of system alarms and messages.

Intended Audiences

This book is intended primarily for the:

- On-site service technician
- System administrators.

Secondary audiences include the field support personnel.

We assume that the primary users of this book have completed the LINCS server hardware installation and maintenance training course (see [Using the CD-ROM Documentation \(page xxxviii\)](#)).

Conventions Used in This Book

Understanding the typography and other conventions used in this book is necessary to interpret the information.

Note: Any screens shown in this book are examples only. The screens you see on your system may be similar, but not exactly the same in all cases.

Terminology

- 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 on the keyboard. 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 system displays menus, screens, and windows. Menus ([Figure 1](#)) present options from which you can choose to view another menu, or a screen or window. Screens and windows both show ([Figure 2 on page xxix](#) and [Figure 3 on page xxx](#)) and request ([Figure 4 on page xxx](#) and [Figure 5 on page xxxi](#)) system information.

Figure 1. Example of LINC'S Menu

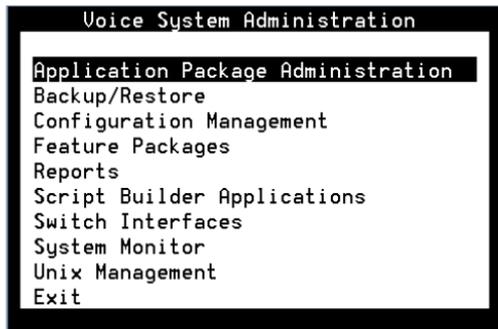


Figure 2. Example of LINC S Screen Showing Information

UnixWare Installation Primary Hard Disk Partitioning

In order to install LINC S, you should reserve a UNIX system partition (a portion of your hard disk's space) containing 100% of the space on your primary hard disk. After you press 'ENTER' you will be shown a screen that will allow you to create new partitions, delete existing partitions or change the active partition of your primary hard disk (the partition that your computer will boot from).

WARNING: All files in any partition(s) you delete will be destroyed. If you wish to attempt to preserve any files from an existing UNIX system, do not delete its partitions(s).

The UNIX system partition that you intend to use on the primary hard disk must be at least 4200 MBs and labeled "ACTIVE."

Press 'ENTER' to continue

Figure 3. Example of LINCS Window Showing Information

```
3 Shut Down the Machine
Users currently logged on:
root      console    Jul  8 06:39
root      pts000     Jul  8 08:48
```

Figure 4. Screen Requesting Information

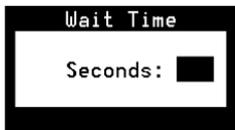
```
UNIX System Installation                               Set Slice Sizes

Please select whether you would like the recommended slice
sizes or would like to customize the slice sizes.

Your choices are:
1. Recommended Slice Sizes
2. Customize Slice Sizes

Press '1' or '2' followed by 'ENTER': 1
```

Figure 5. Example of LINC S Window Requesting Information



Keyboard and Telephone Keypad Representations

- Keys that you press on your terminal or PC are represented as small, capitalized **BOLD** text. For example, an instruction to press the enter key is shown as

Press **ENTER**.

- Two or three keys that you press at the same time on your terminal or PC (that is, you hold down the first key while pressing the second and/or third key) are represented as a series of small, capitalized **BOLD** text separated by the + sign. For example, an instruction to press and hold “Alt” while typing the letter “d” is shown as

Press **ALT+D**

- Function keys on your terminal, PC, or system screens, also known as soft keys, are represented as small, capitalized **BOLD** text followed by the function or value of that key enclosed in parentheses. For example, an instruction to press function key 2 is shown as
Press **F2** (Choices).
- Keys that you press on your telephone keypad are represented as **bold** text. For example, an instruction to press the first key on your telephone keypad is shown as
Press **1** to record a message.

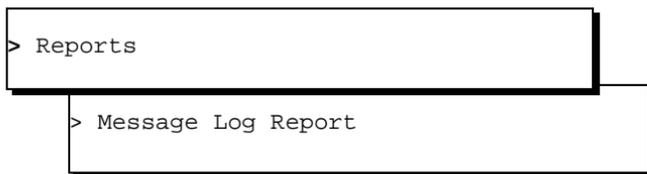
Screen Displays

- System messages, field names, and prompts that appear on the screen are shown in `type-writer text`, as shown in the following examples:
 - ~ Enter the number of ports to be dedicated to outbound traffic in the `Maximum Simultaneous Ports` field.
 - ~ Enter **y** in the `Message Transfer?` field.
 - ~ The system displays the following message:
`Installation in progress.`

- The sequence of menu options that you must select to display a specific screen or submenu appears in a series of boxes.

Example:

Start at the Voice System Administration menu and select:



In this example, you would access the Voice System Administration menu and select the Reports menu. From the Reports menu, you would then select the Message Log Report window.

Some Screen Simulations

Text in a simulated screen display appears in `type-writer` text.

Example:

```
QuickStart - Data Recovery Rescue
Copyright(c) 1997-1999 by Enhanced Software Technologies, Inc.
Serial# 8200-999                               Version: 1.3.13

Backup  Verify  Recover  Duplicate  Configure  Exit
System  System  System  Diskette  QuickStart  and Reboot
```

Items That May or May Not Appear

Grayed-out type represents optional items that may or may not appear in a given display.

Example:

Once the backup is complete, the system displays a message similar to the following:

```
The Differential UNIX backup is now complete. Please remove
the tape and label it as "Differential UNIX Backup, created
August 30, 1999. "
```

Other Typography

Command Text

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

Example 1: Enter **change-switch-time-zone** at the `Enter` command prompt.

Example 2: Type **high** or **low** in the `Speed:` field.

- Command variables are shown in ***bold proportional italic*** type when they are part of what you must type in, and in italics when they are not part of the command line, for example:

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

- Command options are shown inside square brackets, for example:

Enter **connect *switchname* [-c] [-b | -w]**

Cross References and Hypertext

[Blue, underlined](#) type indicates a cross reference or hypertext link that will take you to another location in the document when you click on it.

Safety and Security Alert Labels

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

Related Resources

Additional training material and documentation is available for you to learn more about the LINCS Server product.

Training

For more information on LINCS Server training, call the BCS Education and Training Center at one of the following numbers:

- Organizations within Lucent Technologies (904) 636-3261
- Lucent Technologies customers and all others (800) 256-8988

Documentation

Appendix A, "Documentation Guide," in *LINCS Server System Description*, 585-313-209, provides an overview of all the books in the LINCS library that are mentioned in this book.

Additional Suggested Documentation

It is suggested that you also obtain and use the following book for information on security and toll fraud issues:

- *GBCS Products Security Handbook*, 555-025-600

Obtaining Printed Versions of the Documentation

See [Printing the Documentation \(page xxxix\)](#) for information on how to print this document.

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Using the Button Bar

The button bar can take you to the book's Index, table of contents, main menu, and glossary. It also lets you update your documents. Click the corresponding button to jump to the section you want to read.

Using Hypertext Links

Hypertext-linked text appears in blue, italics, and underlined. These links are shortcuts to other sections or books.

Navigating with Double Arrow Keys

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Searching for Topics

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Displaying Figures

If lines in figures appear broken or absent, increase the magnification. You might also want to print a paper copy of the figure for better resolution.

Printing the Documentation

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- 2 Select **File | Print**.
- 3 Enter the page range you want to print, or select **All**. Note that the print page range is different from the page numbers on the documents (they print two to a page).
- 4 The document prints.
- 5 Close the file. Do not leave this file open while viewing the electronic documents.

Printing Part of a Document

To print a single page or a short section, you can print directly from the online version of the document:

- 1 Select **File | Print**.
- 2 Enter the page range you want to print, or select **Current**.

The document prints, one screen per side, two sides per sheet.

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1 Troubleshooting

Overview

This chapter provides the on-site technician or system administrator with repair procedures for the most common system procedures. The following assumptions are made in this chapter:

- You have checked the Message Log for any relevant messages. See “Message Log Report,” in Chapter 7, “Common Administration” of *LINCS Server Administration*, 585-313-507, for the procedure to run the report.
- The procedures in the second column of the tables are intended to provide a starting point to isolate a problem and may not be exhaustive.
- The procedures in the second column assume general editing knowledge and script familiarity, as most of the commands and procedures are performed from the command line.
- You have already performed a visual inspection of the system.

Repairing Power-Up Troubles

Power-up troubles are those that occur when first turn the system on. [Table 1](#) lists the indications related to power-up troubles:

Table 1. Repairing Power-Up Troubles

Indication	Corrective Action
The system will not power up.	<ol style="list-style-type: none"><li data-bbox="431 373 957 401">1 Verify that the platform is receiving power.<li data-bbox="431 422 1120 481">2 Verify all external system connections (power cords and monitor cables) are correct.<li data-bbox="431 502 1048 530">3 Verify all external system connections are secure.

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Table 1. Repairing Power-Up Troubles

Indication	Corrective Action
<p data-bbox="67 194 385 288">During start-up, the system displays the following message:</p> <pre data-bbox="67 308 325 391">Shared memory is marked as invalid. cvis_menu exiting.</pre>	<ol style="list-style-type: none"><li data-bbox="431 194 1122 256">1 Stop the voice system. See Stopping the Voice System (page 161) in Chapter 3, Common System Procedures.<li data-bbox="431 277 1122 339">2 Start the voice system. See Starting the Voice System (page 158) in Chapter 3, Common System Procedures.<li data-bbox="431 360 671 386">3 Enter cvis_menu<li data-bbox="431 407 732 433">4 If the problem persists:<ol style="list-style-type: none"><li data-bbox="462 453 760 479">a Stop the voice system.<li data-bbox="462 500 1028 557">b Enter cp /vs/shmem/devtbl vs/shmem/devtbl.old<li data-bbox="462 572 833 598">c Enter rm /vs/shmem/devtbl<li data-bbox="462 614 760 640">d Start the voice system.

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Table 1. Repairing Power-Up Troubles

Indication	Corrective Action
<p>When the system boots, it displays messages in the message log report or on the console similar to the following:</p> <p>Unable to attach shared memory, Bad DEVTBL, and/or VROP respawning too rapidly.</p>	<ol style="list-style-type: none">1 Stop the voice system. See Stopping the Voice System (page 161) in Chapter 3, Common System Procedures.2 Enter cp /vs/shmem/devtbl /vs/shmem/devtbl.old3 Enter rm /vs/shmem/devtbl4 Start the voice system. See Starting the Voice System (page 158) in Chapter 3, Common System Procedures.

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Repairing Boot-Up Troubles

Boot-up troubles are those that occur when the system crashes and reboots itself or when you reboot the system. [Table 2 on page 5](#) lists the indications and possible repair procedures related to boot-up troubles.

Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
<p>Cards are not recognized during boot up.</p>	<ol style="list-style-type: none"> 1 Enter pkginfo pg 2 Make sure the driver software is installed (LSPS, SSP, CWB2, etc.). 3 Check the circuit cards. See Checking the Circuit Cards (page 48) in Chapter 2, Diagnostics. 4 Make sure that cards have the proper switch settings.
<p>When the system boots, it displays messages in the message log report or on the console similar to the following:</p> <pre>Unable to attach shared memory, Bad DEVTBL, and/or VROP respawning too rapidly.</pre>	<ol style="list-style-type: none"> 1 Stop the voice system. See Stopping the Voice System (page 161) in Chapter 3, Common System Procedures. 2 Enter cp /vs/shmem/devtbl /vs/shmem/devtbl.old 3 Enter rm /vs/shmem/devtbl 4 Start the voice system. See Starting the Voice System (page 158) in Chapter 3, Common System Procedures.

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Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
<p>The system displays the following message:</p> <pre>Non-system disk or disk error. Replace and hit any key to continue.</pre>	<ol style="list-style-type: none">1 Check the diskette drive and confirm that it is empty.2 Check the cartridge tape drive and confirm that it is empty.3 Check the power connections.4 Reboot the system. See Rebooting the UNIX System (page 168) in Chapter 3, Common System Procedures.
<p>The system passes run level four then reboots continuously (rolling reboot).</p>	<ol style="list-style-type: none">1 Power off the platform immediately after the system reboots.2 Remove one optional circuit card (for example, SSP).3 Reboot the system. See Rebooting the UNIX System (page 168) in Chapter 3, Common System Procedures.4 Repeat step 1 through step 3 until the system reboots properly.5 Replace the circuit cards.

Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
A file system check shows a file system with 0 files, 0 blocks, or 0 free.	<ol style="list-style-type: none"><li data-bbox="449 194 1143 315">1 Verify the disk partition was adequate. See “Recommended Disk Partitions” in Chapter 5, “Installing Base System Software,” in <i>LINCS Server Maintenance</i>, 585-313-126.<li data-bbox="449 339 860 367">2 Remove unnecessary data files.<li data-bbox="449 391 1143 481">3 If the problem persists, restore the system software from the backup tape. See Restoring the System in Chapter 3, Common System Procedures. <p data-bbox="479 505 1107 595">If no backup is available, reload the system software. See the following chapters in <i>LINCS Server Maintenance</i>, 585-313-126:</p> <ul data-bbox="479 619 1131 730" style="list-style-type: none"><li data-bbox="479 619 1041 647">~ Chapter 5, “Installing Base System Software”<li data-bbox="479 660 1053 688">~ Chapter 6, “Installing LINCS Server Software”<li data-bbox="479 702 1131 730">~ Chapter 7, “Installing the Optional Feature Software”

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Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
The system hangs after a reboot and the screen is blank.	<ol style="list-style-type: none"><li data-bbox="449 194 1096 221">1 Check the diskette drive and confirm that it is empty.<li data-bbox="449 242 835 269">2 Check the power connections.<li data-bbox="449 290 1078 317">3 Check the hard disk drive indicator light for activity.<li data-bbox="449 337 1138 399">4 Reboot the system. See Rebooting the UNIX System (page 168) in Chapter 3, Common System Procedures.

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Repairing Application-Related Troubles

These troubles are experienced when the voice system is not taking calls or when the voice system is taking calls but the application is not working as expected. There are a number of subgroups for application troubles, such as speech, database, Text-to-Speech, Speech Recognition, and FAX. [Table 3 on page 9](#) lists the indications and possible repair procedures related to these troubles.

Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
The voice system is ringing but is not answering the telephone or the voice system is busy.	<ol style="list-style-type: none">1 Enter display card all2 Check the status of all the circuit cards.3 Make sure PLAY/CODE, and/or TTS, is assigned to an INSERTV (in service) SSP or LSPS card.4 Check if the application is properly assigned to the channel(s).5 Make sure the application contains an action to answer the phone.6 Check the Message Log Report for messages indicating that TSM is respawning due to too many channels in the system. If so use the following steps:<ol style="list-style-type: none">a Use /etc/conf/bin/idthune to increase NCHANNELS tunable parameter.b Use /etc/conf/bin/idbuild -B to rebuild the kernel.c Reboot the system.

Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
<p>The voice system answers the call, but does not play any speech.</p>	<ol style="list-style-type: none">1 Scan the Message Log Report for messages related to the trouble.2 Enter display card all3 Verify that the spadm script is not assigned to any channels.4 Check the status of all the circuit cards.5 If spadm is assigned, reassign the channel to the correct script name. See Chapter 3, "Voice System Administration," of <i>LINCS Server Administration</i>, 585-313-507.6 Place test calls to determine if this is occurring on every channel.7 If this occurs only on certain channels, it could be a hardware problem. Place the problem channels in a MANOOS state until the card can be replaced.8 Enter trace tsm chan all tee /tmp/trace.out This sends the trace output to the console and to the file /tmp/trace.out9 Review the trace output for failure indications or error messages.

Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
All calls are dropped.	<ol style="list-style-type: none"> 1 Scan the Message Log Report for messages related to the trouble. 2 Enter who -rpb 3 Search for different time stamps on the processes. A recent date different from most of the others may indicate the process respawned. 4 Record the scenario that caused the problem. 5 If the process is specific to a feature package, see the trouble table for that feature package in this chapter.
A FAX fails to print.	<ol style="list-style-type: none"> 1 See the repair procedure for FAX001 (page 248) in Chapter 4. Alarms and Log Messages.
A FAX record operation fails.	<ol style="list-style-type: none"> 1 See the repair procedure for FAX002 (page 249) in Chapter 4. Alarms and Log Messages.

Repairing Administrative Troubles

Administrative troubles are those that occur while performing a task you have initiated (for example, a trouble arises while performing a backup of the system software). [Table 4](#) contains troubles related to administrative tasks.

Table 4. Repairing Administrative Troubles

Indication	Corrective Action
UNIX commands are failing or the disk reported failures.	<ol style="list-style-type: none"><li data-bbox="356 408 753 433">1 Scan the Message Log Report.

1 of 2

Table 4. Repairing Administrative Troubles

Indication	Corrective Action
ccasum never finishes its cron job.	<ol style="list-style-type: none"> 1 Determine if you are transferring to more than 100 numbers. If you are, kill the cron job by completing Steps a through c: <ol style="list-style-type: none"> a Enter ps -ef grep ccasum b Search for the parent process id (PID) for ccasum (it is located in the second column from the left). c Enter kill -9 pid# where <i>pid#</i> is the PID number. 2 Create an index for ccasum by completing Steps a through c: <ol style="list-style-type: none"> a Log in to SQL*Plus as sti/sti b Enter create index cca_idx on cca(phone_num); c Enter :quit to exit the SQL*Plus Utility. 3 When the call traffic is light, enter /vs/bin/util/ccasum 4 Enter /vs/bin/util/ccadel when ccasum is finished.
Using the vi editor causes a core dump.	<ol style="list-style-type: none"> 1 To split the file into multiple segments, enter split -n filename name where <i>-n</i> is the number of lines in each piece (1000 is the default, <i>filename</i> is the name of the files you want to split, and <i>name</i> is the new segment you are creating).

Repairing Operational Troubles

Operational troubles are experienced with the physical components of the voice system, such as a blank monitor or an inoperable modem. These troubles can occur at any time. [Table 5 on page 15](#) contains troubles related to operational tasks.

Table 5. Repairing Operational Troubles

Indication	Corrective Action
The monitor screen is blank, but the voice system is still taking calls.	<ol style="list-style-type: none">1 Check the power on the voice system. If on, place a test call to the system.2 Check the LED on the monitor. If on, check the contrast and brightness controls on the monitor.3 Check the monitor connection to the voice system.4 Unplug/plug in the monitor cable to the voice system.5 Check the on/off switch on the monitor.6 Log in remotely to check out the system and see if the voice system is taking calls.7 If the problem persists, replace the monitor and/or the video controller module on the IOB.
The alarm buzzer on the TAM is sounding.	Enter alarm_cutoff at the UNIX system prompt.

1 of 2

Table 5. Repairing Operational Troubles

Indication	Corrective Action
The shutdown and init commands will not bring the system down.	<ol style="list-style-type: none">1 Perform a hard reboot of the system. See Rebooting the UNIX System (page 168) in Chapter 3, Common System Procedures, for the procedure.

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Repairing Feature Licensing Troubles

Feature Licensing troubles are those that occur when the user is unable to access certain features of the system. [Table 6](#) contains troubles related to operational tasks.

Table 6. Repairing Feature Licensing Troubles

Indication	Corrective Action
Feature licensing is no longer active.	<ol style="list-style-type: none">1 If the name of your system has been changed, notify field support personnel.

Repairing Other Voice System Troubles

The following tables contain some general trouble areas that do not fall into the other classes listed above. Specifically, these troubles include:

- Call-transferring troubles
- Performance-related troubles
- Speech-related troubles
- Diagnostic troubles
- Touch-tone input troubles
- Report troubles
- Channel state troubles

Repairing Call-Transfer Troubles

[Table 7](#) lists the repair procedures for repairing call-transfer troubles.

Table 7. Repairing Call Transfer Troubles

Indication	Corrective Action
Voice System not transferring calls properly.	<ol style="list-style-type: none">1 Scan the Message Log Report.2 Verify the values on the Switch Administration screen as described in Chapter 4, "Switch Interface Administration," of <i>LINCS Server Administration</i>, 585-313-507. If this screen has changed, complete the following Steps a through d:<ol style="list-style-type: none">a Save the values.b Stop the voice system. See Stopping the Voice System (page 161) in Chapter 3, Common System Procedures.c Start the voice system. See Starting the Voice System (page 158) in Chapter 3, Common System Procedures.d Reinstall the application.
	<i>1 of 2</i>

Table 7. Repairing Call Transfer Troubles

Indication	Corrective Action
Voice System not transferring calls properly. (cont)	<p>3 Try to transfer a call manually, by completing the following Steps a through d:</p> <p>Note: You need an analog telephone for this test.</p> <ul style="list-style-type: none">a Plug the line going into the voice system into the telephone.b Place the call to this telephone.c Answer the call.d Try to transfer to another extension. <p>4 Assign the feature test script to the channel and place test calls.</p> <p>5 Enter trace tsm chan all trip tee /tmp/trace.out</p> <p>6 Check the logic of the application that is doing the transfer.</p>
	<i>2 of 2</i>

Repairing Performance Troubles

[Table 8](#) lists the repair procedure for performance troubles.

Table 8. Repairing Performance Troubles

Indication	Corrective Action
<ul style="list-style-type: none">• The system is slow or delayed in speaking.• The system performance is degraded. For example:<ul style="list-style-type: none">~ Speech breaks are occurring~ There is bad response time to commands	<ol style="list-style-type: none">1 Reduce the load. See Reducing Load (page 23).

Repairing Diagnostics Troubles

[Table 9 on page 21](#) lists the repair procedures for repairing diagnostics troubles.

Table 9. Repairing Diagnostics Troubles

Indication	Corrective Action
Card diagnostics failed.	Check the circuit cards. See Checking the Circuit Cards (page 48) in Chapter 2, Diagnostics .

Repairing Touch-Tone Input Troubles

[Table 10](#) lists the repair procedures for repairing touch-tone input troubles.

Table 10. Repairing Touch-Tone Input Troubles

Indication	Corrective Action
User touch-tone input is not being correctly interpreted by the system.	<ol style="list-style-type: none">1 Verify the action to collect data from the caller matches the intended use in the script.2 If this is channel related (that is, the trouble only appears on a particular channel) and you have another card, see if the trouble occurs on the other card. If not, replace the original card. See Chapter 2, "Installing or Replacing Circuit Cards," in <i>LINCS Server Maintenance</i>, 585-313-126.

Repairing Report Troubles

[Table 11](#) lists the repair procedures for repairing report troubles.

Table 11. Repairing Report Troubles

Indication	Corrective Action
Call data reports are not accurate or they are not complete.	<ol style="list-style-type: none">1 Determine if there is any additional free space in the database by entering dbfrag2 Scan the Message Log Report.

Repairing Channel/Card State Troubles

[Table 12](#) lists the repair procedures for repairing channel/card state troubles.

Table 12. Repairing Channel/Card State Troubles

Indication	Corrective Action
Channel/card is in state Manoos.	Restore the channel or card by entering restore channel/card channel#/card# See Appendix A, "Summary of Commands," in <i>LINCS Server Administration</i> , 585-313-507.

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Table 12. Repairing Channel/Card State Troubles

Indication	Corrective Action
Channel/card is in FOOS state.	Enter display channel <i>channel number</i> 3 If T1.5, PRIB, or PRID is displayed, check the error log for a message in the range TWIP013–TWIP018. Follow the recommended repair procedure for that message.
Channel/card is in BROKEN state.	Follow the repair procedure for message MTC003 (page 289) provided in Chapter 4, Alarms and Log Messages .

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Reducing Load

This repair procedure is provided to enable application developers and system administrators to troubleshoot the root cause of system problems. Problems related to performance depend on a wide range of variables; understanding the nature of the problem requires a good understanding of the attributes of the system which effect performance.

Note: Every system must have a minimum of 128 Mbyte of memory.

The information provided in this section is platform related. Rule out application related performance problems first before proceeding with this procedure.

Identifying Performance Problems

Most performance-related problems become noticeable through either reports of slow response time from end users or performance- or load-related error messages in the alarm log.

Reports of Poor Response Time

If poor response time is reported but no load-related messages are reported to the alarm log, it is likely that the response time delays are a result of:

- Database transactions
- Delays in custom database interface processes (DIPs) or customer IRAPI processes
- Large, complex applications

An application rarely experiences unacceptable delays because of voice processing (playing and coding phrases and recognizing touch tones) without alarms in the alarm log. Voice processing shows little change in response time as system load increases. Typically, if load increases to a point where the system cannot serve voice processing requests in real time, alarms are logged.

Reports of System Inaccessibility

Typically, if load increases to a point where the system cannot serve voice processing requests in real time, alarms are logged. However, if the system is inaccessible, the alarms logged are also inaccessible. UNIX interprocess communication (IPC) message queues may indicate that the system may be nearing its load threshold.

Load-Related Messages in the Alarm Log

Load-related messages in the alarm log indicate that voice processing cannot be carried out in real time because of excessive system load. Components of the system which affect voice processing include:

- CPU complex
- Memory
- Hard disk drives

Identifying Load Culprits

Before attempting to analyze the application for load liabilities, it is important to remember that processing external to the application may be the cause of load related problems. Check that none of the following occur at times when load-related alarms are reported:

- Excessive use of call data event tracking
 - Reading of large (more than 500 records) database tables that are not indexed
 - Reading of and writing to database tables exclusively
 - Use of the system monitor program with a fast refresh rate
- A fast refresh rate is anything less than the default rate of 5 seconds.
- Requests for call data reports during peak load periods

- Performance of other operation, administration, and maintenance (OA&M) functions (includes backups, speech administration, etc)
- System cron jobs

Note: Every day at 12:15 a.m. all call data is summarized. If this coincides with even low voice processing activity, alarms may be reported. A possible solution is to modify the crontab entry for a time with less load.

If sources of external load have been ruled out, continue with the following sections.

Checking CPU Resources

To check the CPU resources, do the following:

- 1 Enter **sar**

The system displays the CPU Resources screen ([Figure 6 on page 27](#)).

Figure 6. CPU Resources Screen

```
00:00:00%usr %sys %wio %idle
01:00:00 0 0 0 100
02:00:00 0 0 0 100
03:00:00 0 0 0 100
04:00:00 0 0 0 100
05:00:00 0 0 0 100
06:00:00 0 0 0 100
07:00:00 0 0 0 100
08:00:00 0 0 0 100
08:20:00 0 0 0 100
08:40:00 0 0 0 100
09:00:00 0 0 0 99
09:20:00 0 0 0 99
09:40:00 0 4 1 95
10:00:00 9 43 3 45
10:20:00 10 36 2 52
10:40:00 10 23 2 65
11:00:00 9 23 2 65
11:20:00 2 4 1 93
11:40:00 0 0 0 99
```

Note: To display current CPU usage every 5 seconds for 50 seconds, enter **sar 5 50**

If the CPU Resources screen shows CPU usage (the sum of columns 2 and 3, `usr + sys`) over 60 percent during the busy hour or when alarms are logged, it is likely that alarms are a result of over utilization of CPU resources.

The output of the second command should only be considered during the busy hour and CPU usage should again be below 60 percent. If either of these tests show CPU utilization consistently over 60 percent it is likely that the CPU is the problem.

See [Reducing Load on the CPU \(page 38\)](#).

Checking Disk Resources

To check the disk resources, do the following:

- 1 Enter **`sar -c`** or **`sar -c 5 50`**

The system displays the Disk Resources screen ([Figure 7 on page 29](#)).

Figure 7. Disk Resources Screen

	scall/s	sread/s	swrit/s	fork/s	lwpcr/s	exec/s	rchar/s	wchar/s
14:23:46								
14:23:51	389	92	12	2.00	0.00	3.40	45977	1011
14:23:56	646	130	99	1.40	0.00	2.20	49849	9142
14:24:01	404	98	16	1.40	0.00	2.20	47136	4298
14:24:06	401	89	13	2.20	0.00	3.60	45524	594
14:24:11	127	27	5	0.00	0.00	0.00	341	1181
14:24:16	92	23	1	0.00	0.00	0.00	320	286
14:24:21	108	21	1	0.00	0.00	0.00	291	1259
14:24:26	245	83	4	0.00	0.00	0.00	789	1281
14:24:31	468	133	34	1.40	0.00	2.20	49135	2470
14:24:36	95	26	4	0.00	0.00	0.00	812	3436
14:24:41	74	21	1	0.00	0.00	0.00	291	1916
14:24:46	226	41	33	0.00	0.00	0.00	1406	2134
14:24:51	100	22	2	0.00	0.00	0.00	297	1926
14:24:56	125	23	1	0.00	0.00	0.00	354	1916

Note: If the sum of the `rchar/s` and `wchar/s` columns is consistently greater than 320000 during the busy hour, then it is likely that the disk is the problem. See [Reducing Load on the CPU \(page 38\)](#) for repair procedures.

Checking Memory Resources

To check the CPU resources, do the following:

- 1 Enter `sar -p` or `sar -p 5 50`

The system displays the Memory Resources screen ([Figure 8 on page 30](#)).

Figure 8. Memory Resources Screen

	atcb/s	atfree/s	atmiss/s	pgin/s	ppgin/s	pfilt/s	ufilt/s	slock/s
14:27:30								
14:27:35	43.20	21.40	1.40	0.20	0.20	20.40	31.20	0.00
14:27:40	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00
14:27:45	0.60	0.40	1.00	0.40	1.00	0.00	0.40	0.00
14:27:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:27:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:28:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:28:05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:28:10	0.40	0.20	0.00	0.00	0.00	0.00	0.20	0.00
14:28:15	25.20	1.20	1.40	0.00	0.00	23.80	18.20	0.00
14:28:20	3.60	0.40	3.60	3.40	3.60	3.20	4.40	0.00
14:28:25	21.00	0.60	1.20	0.00	0.00	20.20	13.00	0.00
14:28:30	68.20	10.00	22.40	14.40	20.00	49.40	67.20	0.00
14:28:35	16.40	12.20	3.20	4.80	11.20	0.00	24.60	0.00
14:28:40	2.60	0.00	0.80	0.80	0.80	0.00	20.80	0.00
14:28:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:28:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:28:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14:29:00	0.20	0.00	1.20	1.20	1.20	0.20	1.20	0.00
14:29:05	0.20	0.00	0.60	0.20	0.40	0.20	0.40	0.00
14:29:10	0.80	0.80	0.00	0.00	0.00	0.00	0.80	0.00
14:29:15	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00

- 2 Check the column labeled `vflt/s`. Note if this value is consistently close to or greater than 50.00 and continue with [step 3](#).

Note: Processes being created and terminated regularly will also cause `vflt/s` to increase. If this is the case, memory may be sufficient, but the creation of processes is forcing the operating system to *page* processes to disk and back into memory. When processes are paged, they respond more slowly and speech processing may be interrupted.

3 Enter `sar -g` or `sar -g 5 50`

The system displays the Memory Resources screen ([Figure 9](#)).

Figure 9. Memory Resources Screen

	pgout/s	ppgout/s	ufree/s	pfree/s	uscan/s
14:32:49					
14:32:54	0.00	0.00	0.00	0.00	0.00
14:32:59	0.00	0.00	0.00	0.00	0.00
14:33:04	0.00	0.00	0.00	0.00	0.00
14:33:09	0.00	0.00	0.00	0.00	0.00
14:33:14	0.00	0.00	0.00	0.00	0.00
14:33:19	0.00	0.00	0.00	0.00	0.00
14:33:24	0.00	0.00	0.00	0.00	0.00
14:33:29	0.00	0.00	0.00	0.00	0.00
14:33:34	0.00	0.00	0.00	0.00	0.00
14:33:39	0.00	0.00	0.00	0.00	0.00
14:33:44	0.00	0.00	0.00	0.00	0.00
14:33:49	0.00	0.00	0.00	0.00	0.00
14:33:54	0.00	0.00	0.00	0.00	0.00
14:33:59	0.00	0.00	0.00	0.00	0.00
14:34:04	0.00	0.00	0.00	0.00	0.00
14:34:09	0.00	0.00	0.00	0.00	0.00
14:34:14	0.00	0.00	0.00	0.00	0.00

- 4** Check the column labeled `pgscan/s`. Note if this value is consistently close to or greater than 100 and continue with [step 5](#).

5 Enter `sar -r`

The system displays the Memory Resources screen ([Figure 10 on page 32](#)).

Figure 10. Memory Resources Screen

	freemem	freeswap
00:00:00		
01:00:00	4783	69125
02:00:00	4889	69155
03:00:00	4889	69155
04:00:01	4888	69155
05:00:01	4887	69136
06:00:00	4885	69135
07:00:00	4886	69136
08:00:00	4887	69155
08:20:00	4884	69136
08:40:00	4890	69193
09:00:00	4887	69136
09:20:00	4884	69135
09:40:00	4671	69121
10:00:00	4518	68978
10:20:00	4502	68958
10:40:00	4501	69027
11:00:00	4177	68797
11:20:00	3988	68660
11:40:01	3648	68580

- 6 Check the column labeled `freemem`. Note if this value is consistently close to or less than 100.
- 7 If two or more values consistently follow the pattern listed below, see [Reducing Memory Usage \(page 40\)](#) for more information.

```
vflt/s > 50.00
```

```
pgscan/s > 100
```

```
freemem < 100
```

Also, make sure that the appropriate number of SSP circuit cards in your system are assigned the VOICE function. See “SSP Functions” in Chapter 3, “Voice System Administration,” of *LINCS Server Administration*, 585-313-507.

Reducing Load for Database

The following should be considered to reduce load because of use of the local database.

- For large tables (over 500 records) that are being read by the application, indexing the tables reduces the access time and impact on system performance. However, note that making changes to indexed tables can also impact system performance.
- The insert (add) record operation is a much faster operation than the update (change) operation. One way to replace a change record with an add record is to add records to a table during the normal call hours and write a shell routine using SQL*PLUS to summarize and delete records during nonpeak hours.
- Attempt using SQL*Views to encapsulate common database queries which require multiple accesses on a single table or accesses from multiple tables.
- Keep in mind that each call data event is a unique record in more than one table. Therefore, every time a call data event is accessed, the database table is updated at the end of the call.

Reducing Load for Custom DIPs/IRAPI Processes

Since DIPs can vary widely in size and complexity there is little specific information that can be given about DIP performance. In general, DIPs should:

- Avoid using excessive memory (more than 200 pages)
- Avoid creating new processes (by using **fork(2)** and **exec(2)** or **system(3)**)
- Rely on minimal communication with the script to reduce message sending

Reducing Load for Voice Processing

The information below simply attempts to give a step-by-step approach to reducing speech-processing load.

Voice Play

Voice play performance is affected by the:

- Coding algorithm
- Phrase length
- Speech pool

Coding Algorithm Coding algorithm primarily determines how much data must be transferred to do voice processing. Coding algorithms such as SBC16, ADPCM16, and CELP16 pack 4 seconds of speech in a single 8-Kbyte block and show the best performance. PCM64 is at the other extreme of the spectrum; it packs 1 seconds of speech in a single block, and therefore requires the system to do four times the work in the same time. ADPCM32 is the standard coding rate. ADPCM32 is a middle ground between performance and sound quality. It packs 3 seconds per block. SBC24 packs 3 seconds per block. Sound quality must be considered before moving to the SBC16 or ADPCM16 coding algorithms.

Phrase Length Short phrases (less than 2 seconds for ADPCM32), particularly when played back-to-back (such as through a single action), place more load on the system than a single longer phrase. The load manifests itself as increased CPU usage, memory occupancy and, if the speech pool size (see the following paragraph) is larger than the speech buffer cache, disk accesses.

For optimal performance, phrase length should be as close to the total capacity of its block count as possible. Block count is the number of speech blocks required to contain the phrase. If speech does not use blocks efficiently, space is wasted in memory and since data is copied over from disk in block sized chunks, disk accesses and CPU usage increase. For example, a phrase that uses an odd number of seconds (that is, 1, 3, 5, etc) uses only 50 percent of a block, whereas a 2-second phrase uses the entire block. However, the system utilizes CPU and disk resources more efficiently when speaking a 5-second phrase rather than 5 individual 1-second phrases.

Placing longer phrases into one step is much better than using separate short phrases.

Speech Pool

The speech pool is the quantity of speech data required by an application. It can be thought of as the *working set* for those familiar with virtual memory operating system terminology. The voice system caches speech in main memory. This is called the speech buffer cache, and it allows speech data to be reused without having to constantly retrieve it from disk. If all the active speech data can fit into memory simultaneously, the voice system will not have to continually access the disk for speech data. This results in a substantial savings in both CPU usage and disk accesses. If, however, the speech pool size is larger than the speech buffer cache, then the voice system will have to access the disk more frequently for speech. The larger the speech pool, the more likely speech will have to be read from disk.

Calculating speech pool size requires knowing which phrases are usually played during normal script processing and how many blocks of speech these phrases require. See the paragraph above regarding block capacity for various coding algorithms. Calculating the size of the buffer cache requires a meticulous analysis of the application and an understanding on how users progress through a typical call scenario.

The size of the buffer cache is tunable by adding the `nbufs` parameter in the `/vs/data/spchconfig` file. VROP sets this value dynamically based on the number of telephone network connections in the system. The entry in the `/vs/data/spchconfig` file overrides the VROP setting. Note that you may not set this value to more than 250. A system showing signs of heavy disk activity, a large speech pool, and no appreciable paging activity may be a candidate for specifying the `nbufs` parameter. Modifying this dynamically assigned value should be done with extreme caution. Making this number too large may result in system paging, which is the worst condition the voice system can get into with respect to performance.

Reducing Load for Voice Play

Reducing load because of voice play requires maximizing speech buffer efficiency, matching the speech pool size to the speech buffer cache, or considering the use of different coding rates which pack more speech into a single block or disk load balancing.

Maximal speech buffer efficiency may be achieved through the concatenation of several small phrases into a single larger phrase. The common practice of trimming silence from the ends of phrases and replacing the silence with short silent phrases is particularly inefficient. Playing silence to introduce delays is also inefficient. Try using the **sleep** instruction as described in Appendix A, "Summary of Script Instructions," of *Intuity™ CONVERSANT® System Version 7.0 Application Development with Advanced Methods*, 585-313-203.

Matching the speech pool size with the speech buffer cache may be achieved through increasing speech buffer efficiency as described above, and ensuring that phrases are shared both with and between applications.

Voice Code

Performance because of voice code is affected similar to voice play with respect to phrase length and coding algorithm. Voice coding differs in speech pool size. All coded phrases are *new*; that is, there is no benefit from the speech buffer cache. It is likely that coded phrases will force other phrases to be flushed from the cache. Coding also requires a write to disk for each phrase coded. These two factors combine to increase load on the disk. Increased disk load because of coding may be addressed by switching coding algorithms, reducing channel counts or code times, or balancing the disk load.

Reducing Load on the CPU

Application types making heavy use of CPU resources typically include those with heavy voice processing or local database loads. See [Reducing Load for Voice Processing \(page 34\)](#) and [Reducing Load for Database \(page 33\)](#) for more information. If these software components do not appear to be responsible, the following sections suggest other possibilities.

Inefficient DIPs

See [Reducing Load for Custom DIPs/IRAPI Processes \(page 34\)](#).

Run Away Processes

If the **sar(1m)** command consistently shows 0 percent idle time, it is likely that a process is in an infinite loop. The process can be identified with **ps(1m)** by examining the change in its CPU time and run status. If it is a system process, contact a service representative. If it is a user process, repair as required.

Inefficient Scripts

Script developers can write applications that inherently use system resources inefficiently or are extremely large and complex. Since scripts are interpreted, using the script language for anything other than basic call flow control may result in unacceptable inefficiencies. Code segments performing complex lexical or arithmetic calculations should be considered as candidates for DIPs. Also, increase efficiency by creating modular applications that execute sub-applications from a main application. For example, a main application could allow a user to select a language application (that is, a version of an application in a particular language). The user input would then execute the language application from the main application.

Reducing Disk Usage

Applications making heavy use of voice processing or a local database typically place heavy loads on the disk. See [Reducing Load for Voice Processing \(page 34\)](#) and [Reducing Load for Database \(page 33\)](#). If problems persist, consider rechecking paging activity and memory usage. Also, consider adding more disks to your platform.

Reducing Memory Usage

If you have concluded that your system does not have sufficient memory, the first thing to consider is the processes you have running. Be sure to check [Identifying Load Culprits \(page 25\)](#) to rule out the effects of external processing. [Table 13](#) lists the processes that can be terminated if they are not providing a service to the application.

Table 13. Processes Which May Be Terminated

lpsched	This process is only required if a line printer is being used with the system. The command <code>/usr/lib/lpshut</code> can be used to turn off the lp scheduler. You may also rename the S80lp file from the <code>/etc/rc2.d</code> directory to s80lp . This action prevents the process from being execute during startup, but maintains the file on the system should the scheduler be needed in the future.
Network	Some networking processes such as rwhod and routed may be unnecessary.
sysmon	Do not run sysmon in systems with insufficient memory.

If no processes can be eliminated, be sure that all the packages on your system are being used and are not occupying memory unnecessarily.

Also be aware that script size, both code and data, affects memory usage. Application scripts should be shared across channels whenever possible, and redundant code and data should be eliminated.

Finally, if the `nbufs` parameter has been specified in the `/vs/data/spchconfig` file and a large number is specified (see [Speech Pool \(page 36\)](#)), consider reducing `nbufs`. The effect of reducing `nbufs` may be an increase in disk accesses for speech, however, the voice system is more tolerant of disk accesses for speech than for paging.

Overview

This chapter describes procedures for the system used by the on-site technician or system administrator to diagnose trouble with the LINCS Server system.

Checking Cable Connections

To check cable connections, do the following:

- 1 Route calls away from the system during this procedure.
- 2 Make sure that you know the type of card to be checked.
- 3 Write down the message text to make note of the card number.
- 4 Shutdown the operating system. See [Shutting Down the Operating System \(page 166\)](#), in [Chapter 3, Common System Procedures](#), for the procedure.

- 5 Check the cable connections to be sure they are properly connected to the appropriate cards.

If a cable is not seated properly, reseal the cable and continue with [step 6](#).

If the cables appear to be inserted properly, complete [step a](#) and [step b](#) before continuing with [step 6](#).

- a Remove the circuit card from the system. See Chapter 2, “Installing or Removing Circuit Cards,” in *LINCS Server Maintenance*, 585-313-126.
- b Replace the circuit card. See Chapter 2, “Installing or Replacing Circuit Cards” in *LINCS Server Maintenance*, 585-313-126.

Note: Do not reseal the cables on the circuit card.

- 6 Reboot the operating system. See [Rebooting the UNIX System \(page 168\)](#) in [Chapter 3. Common System Procedures](#), for the procedure.
- 7 Enter **diagnose card card number**

where *card number* is the number of the identified circuit card.

If the circuit card passes diagnostics, replace the cables you removed earlier and restore the system to service.

If the circuit card fails diagnostics, replace the circuit card and restore the system to service. See Chapter 2, “Installing or Replacing Circuit Cards” in *LINCS Server Maintenance*, 585-313-126.

If the circuit card does not pass the diagnostic, continue with the procedure, [Checking the Backplane Slot \(page 44\)](#).

Checking the Backplane Slot

To check the backplane slot, do the following:

- 1 Shut down the system. See [Shutting Down the Operating System \(page 166\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 2 Change the slot in which the circuit card resides.
- 3 Login as root.
- 4 Start the voice system. See [Starting the Voice System \(page 158\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 5 Enter **display card *card number***
where *card number* is number of the affected circuit card.

If the circuit card state has changed to MANOOS, enter:

restore card *card number*

where *card number* is the number of the affected circuit card.

You have repaired the circuit card problem.

If the circuit card state has not changed to MANOOS, continue with the procedure [Checking the Switch Settings](#).

Checking the Switch Settings

To check the switch settings, do the following:

- 1 Check the circuit card for proper switch settings. See Chapter 2, “Installing or Replacing Circuit Cards” in *LINCS Server Maintenance*, 585-313-126.
- 2 Check the switches to ensure a clean closure.
- 3 Check the chips on the card.
If any are not properly seated, reseal them.
- 4 Reboot the system. See [Rebooting the UNIX System \(page 168\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 5 Login as root.

- 6 Start the voice system. See [Starting the Voice System \(page 158\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 7 Enter **display card *card number***
where *card number* is number of the affected circuit card.

If the circuit card state has changed to MANOOS, enter:
restore card *card number*
where *card number* is the number of the affected circuit card.

You have repaired the circuit card.

If the circuit card state has not changed to MANOOS, continue with [step 8](#).
- 8 Shut down the system. See [Shutting Down the Operating System \(page 166\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 9 Reverse the switch settings of the suspect circuit card with a similar circuit card in the system.
- 10 Reboot the system. See [Rebooting the UNIX System \(page 168\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.
- 11 Login as root.
- 12 Start the voice system. See [Starting the Voice System \(page 158\)](#), in [Chapter 3. Common System Procedures](#), for the procedure.

13 Enter **display card *card number***

where *card number* is number of the affected circuit card.

If the circuit card state has changed to MANOOS, enter:

restore card *card number*

where *card number* is the number of the affected circuit card.

If the problem migrates with the switch setting, it is attributable to a software problem and not a hardware problem.

If the problem remains with the suspect circuit card, replace the suspect circuit card. See Chapter 2, “Installing or Replacing Circuit Cards” in *LINCS Server Maintenance*, 585-313-126.

Checking the Circuit Cards

If the [Checking the Backplane Slot \(page 44\)](#) and [Checking the Switch Settings \(page 45\)](#) procedures have been attempted and the problem still exists, the problem may be attributed to another circuit card in the system. To determine which card, do the following:

- 1 Run diagnostics on all remaining cards in the system by entering:
diagnose card all
- 2 Observe the diagnostics for any failures.

If any circuit card fails diagnostics, perform the [Checking the Backplane Slot \(page 44\)](#) and [Checking the Switch Settings \(page 45\)](#) procedures on that circuit card to determine if it is the source of the problem.

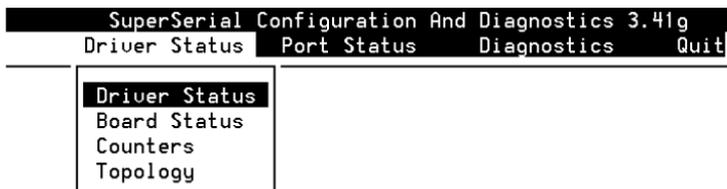
If all cards pass diagnostics, contact your service representative.

Checking an Equinox SuperSerial Circuit Card

To check an Equinox SuperSerial circuit card, enter **/usr/bin/ssdiag** at the Unix system prompt.

The system displays the SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)).

Figure 11. SuperSerial Configuration and Diagnostics Screen



The SuperSerial Configuration and Diagnostics screen contains a menu bar at the top with the options:

- Driver Status
- Port Status
- Diagnostics
- Quit

Use the right and left arrow keys on the keyboard to move between the menu bar options.

Use the up and down arrow keys to move between menu options.

Press **ENTER** to select a menu option.

Press **F1** for help.

Select `Quit` to exit.

Driver Status Menu The Driver Status menu includes:

- Driver Status
- Board Status
- Counters
- Topology

Driver Status

To display the drive status, do the following.

- 1 Starting at the SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)).
- 2 Select `Driver Status` from the menu bar at the top of the page.
- 3 Select `Driver Status` from the menu.

The system displays the Driver Status window ([Figure 12 on page 51](#)).
Your system display may be slightly different.

Figure 12. Driver Status Window

```
Driver Status
Equinox SSP STREAMS Device Driver, Version 3.41g
Copyright (c) 1994 Equinox Systems Inc., All Rights Reserved.
Number of boards found: 1
```

The Driver Status window displays the device driver's current configuration including the driver version, number of boards configured, and the number of boards found.

- 4 Press **Esc** to return to the Driver Status menu.

Board Status

To display the board status, do the following:

- 1 Starting at the SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)).
- 2 Select `Driver Status` from the menu bar at the top of the page.
- 3 Select `Board Status` from the menu.

The system displays the Board Status menu ([Figure 13 on page 52](#)). Your system display may be slightly different.

Figure 13. Board Status Window

Board Status			
Board Type	Address	Size	I/O
SST-8C	0xFE9E0000	0x10000	0x9

4 Press **Esc** to return to the Driver Status menu.

Port Status Menu

The options are available on the Port Status menu:

- Breakout Box
- Data Scope
- Termio
- Private Flags
- Check Monitors
- Modules
- Register Dump
- Reset Port

These options allow the system to show certain port characteristics. This section discusses the use of Breakout Box and Register Dump for diagnostic purposes.

Breakout Box

The Breakout Box display is a real-time, dynamic representation of the RS-232 leads. It includes:

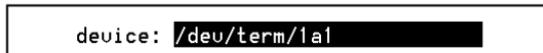
- Transmit rate
- Receive rate
- Total characters received
- Total characters transmitted
- Buffered data counts

This display is useful in troubleshooting wiring problems, chattering lines or devices (modems) and in monitoring load activity over a single line. Activity measurements can be taken by noting the Transmitted and Received counts and comparing them with other serial ports.

- 1 Starting at the SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)), select `Port Status`.
- 2 Select `Breakout Box`.

The system displays the Prompt window ([Figure 14](#)).

Figure 14. Prompt Window



- 3 Enter the name of the device to be verified.

The system displays the Port Status window ([Figure 15](#)). Your system display may be slightly different.

Figure 15. Port Status Window

```

                                     /dev/term/1a1
BAUD RATE=19200 DATA/STOP BITS=7/1 PARITY=EVEN
  OUTPUT                                INPUT
TD                                     RD                                     OFF
DTR                                    DCD                                    ON
RTS                                    CTS                                    ON
OUTFLOW                                DSR                                    OFF
Status                                 RI                                     OFF
                                     INFLOW                                ON
CPS                                     CPS                                     0
Transmitted                             95464   Received                             79563
Buffered                                 Buffered                                0

```

- 4 Press **Esc** to return to the Port Status menu.

Register Dump

The Register Dump option displays a real-time, dynamic window of the on-board registers. The data is in raw form and useful to only field technician personnel. It is used to obtain information about the hardware status and various software flags.

To display the Register Dump, do the following.

- 1 SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)), select `Port Status`.
- 2 Select `Register Dump`.

The system displays the Prompt window ([Figure 14 on page 53](#)).

- 3 Enter the name of the device to be verified.

The system displays the Register Dump window ([Figure 16 on page 56](#)).

Figure 16. Register Dump Window

```

Reg. dump for /dev/term/1a1
d50e aa01 7fd1 00b2 0011 0013 0000 0000
0102 fc42 0380 0041 0001 0000 0000 0000
0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0020 0006 0000 0a0d 5245
0a0d 5245 0000 c0a0 7fff 0000 7fd1 001b
0000 0000 0000 0020 0006 0000 0a0d 5245
0a0d 5245 0000 c0a0 7fff 0000 0000 000a

0000 aa55 0007 3a00 0000 1008 7fff 7fff
3a6e 4120 07f1 000c 329a 0000 0000 0000
8000 940b 0000 0000 0000 4000 0000 c401
000c 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000 0000 0000 0008
4454 0d54 0000 0000 97e0 0807 b61c 0807
7fd1 000e 2833 0000 0000 8000 0013 0011
0102 0255 0000 0000 c9c0 0807 a496 bffb

Press <F3> to write to file.

```

4 Press **Esc** to return to the Port Status menu.

Diagnostics Menu There are two options on the Diagnostics menu:

- Loopback
- Send

They are intended for the experienced user. The Loopback test is designed to diagnose the primary components and their functionalities. There are two types of loopback tests: internal and external.

The Send test simply writes a continuous stream of data to the specified port which is helpful in resolving wiring issues.

Serial Port External Loopback Test

Although the option for the serial port external loopback test appears on the screen, this option is not available. You should use the internal loopback test option.

Serial Port Internal Loopback Test

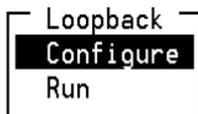
The internal loopback test is the same as the external loopback test except that it does not require that the transmit and receive pins be wired together. Because it does not test the full cabling of the port, the internal loopback test is not as thorough as the external loopback test.

To perform the serial port internal loopback test, do the following:

- 1 Starting at the SuperSerial Configuration and Diagnostics screen ([Figure 11 on page 49](#)), select `Diagnostics`.
- 2 Select `Loopback`.

The system displays the Loopback menu ([Figure 17](#)).

Figure 17. Loopback Menu



- 3 Select `Configure`.

The system displays the Loopback window ([Figure 18 on page 59](#)).

Figure 18. Loopback Window

```

Loopback
-----
Baud Rate:  38400
Verify:     Verify Input
Update:     1
Errors:     Continue on Errors
Loop Type:  Internal Loopback
Mode:       Single

Press <F3> to start.

```

4 Press F3 to run the loopback test.

Figure 19. Internal Loopback Window

Port	Xmit	Rcv	Errors	Rate
saa	156825	151264	0	3874
sab	156825	151237	0	3874
sac	156825	151258	0	3875
sad	156825	151230	0	3876
sae	156825	151219	0	3875
saf	156825	151195	0	3870
sag	156825	151170	0	3861
sah	156825	151160	0	3857

Note
ESC to exit
F2 Reset Errors
F3 Reset Test
F4 Refresh Screen

Database Diagnostics

To check the ORACLE database free space, do the following:

- 1 Execute the **dbfrag** command.

The system displays the System Tablespace screen ([Figure 20](#)).

Note: The data in your System Tablespace screen may be different from the data shown in [Figure 20](#).

Figure 20. System Tablespace Screen

SYSTEM Tablespace, Space is in Oracle Blocks (4096 Bytes/Block)							
ALLOCATED	FREE	% FREE	AVG/FRAG	LARGEST	FRAGMENTS	DB_FILES	ROLLBACK
2500	393	15.72	131	387	3	1	150

USERS Tablespace, Space is in Oracle Blocks (4096 Bytes/Block)							
ALLOCATED	FREE	% FREE	AVG/FRAG	LARGEST	FRAGMENTS	DB_FILES	ROLLBACK
31250	26356	84.34	13178	26136	2	1	715

See Chapter 5, “Database Administration,” and Appendix A, “Summary of Commands,” in *LINCS Server Administration*, 585-313-507, for information on the **dbfrag** command.

- 2 If the number in the %FREE field is less than 10, add more space to the database.

See Chapter 5, “Database Administration,” in *LINCS Server Administration*, 585-313-507, for information on increasing the database size.

Extents Diagnostics

An extent is a user defined unit of storage in the ORACLE “storage” clause when defining an ORACLE object. It is used as MINEXTENTS or MAXEXTENTS in the storage clause. An ORACLE object (that is, a table, an index, a rollback segment) grows one extent in size each time the object needs to be expanded.

When the maximum allowed number of extents is reached, the object will not be able to grow further. The object needs to be redefined so that either the size of each extent is increased or the initial object size is increased, to reduce the number of extents required for the storage of this object.

The maximum allowed number of extents in an LINCS Server system is 249.

To check the number of extents, do the following:

1 Enter **dbused**

The system displays the Space Allocated screen ([Figure 21](#)).

Note: The data in your Space Allocated screen may be different from the data shown in [Figure 21](#).

Figure 21. Space Allocated Screen

Usage for "sti/sti"

Space allocated to objects. Oracle Blocks (4096 Bytes/Block)

NAME	TYPE	TBLSPACE	BLOCKS	MBYTES	EXTENTS	MAX_EXTENTS
SERVICE	TABLE	USERS	260	1.02	1	249
CDHSUM	TABLE	USERS	5	.02	1	249
CALL	TABLE	USERS	260	1.02	1	249
CCASUM	TABLE	USERS	5	.02	1	249
TRASUM	TABLE	USERS	20	.08	3	249
LDBCOLS	TABLE	USERS	5	.02	1	249
EVENTS	TABLE	USERS	1350	5.27	7	249
EVSUM	TABLE	USERS	5	.02	1	249
CCA	TABLE	USERS	100	.39	1	249
Catalog	TABLE	USERS	5	.02	1	121
RCS	TABLE	USERS	3	.01	1	121
S1	INDEX	USERS	260	1.02	1	249
C1	INDEX	USERS	260	1.02	1	249
E1	INDEX	USERS	1350	5.27	7	249

- 2 Compare the value in the `EXTENTS` column to the value in the `MAX_EXTENTS` column.
- 3 If the value in the `EXTENTS` column is greater than or equal to the value in the `MAX_EXTENTS` column, the table has reached its maximum size.
- 4 Redefine the database table storage. See Chapter 5, “Database Administration,” in *LINCS Server Administration*, 585-313-507, for information on increasing the database size.

You have completed this procedure.

ORACLE Network Diagnostics

To check the ORACLE network, do the following:

- 1 Determine the machine name. See Chapter 5, “Database Administration,” in *LINCS Server Administration*, 585-313-507.
- 2 Enter **telnet *host_name***

where *host_name* is the name of the remote machine to which the database process is connected.

If the log in prompt appears on the screen, the network appears to be functioning properly. Continue with [step 3](#).

If the log in prompt does not appear on the screen, the network is not functioning properly. Contact the network support personnel for help.

3 Press **CTRL** to return to the local machine.

4 Enter **netstat -a**

The system displays output similar to that in [Figure 22](#):

Figure 22. Sample Output of netstat -a Command

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	(state)
tcp	0	0	*.*	*.*	CLOSED
tcp	0	0	cpc5.login	cbgbcs.cb.lucent.1020	ESTABLISHED
tcp	0	0	cpc5.telnet	cbgbcs.cb.lucent.58407	ESTABLISHED
tcp	0	0	cpc5.telnet	cbgbcs.cb.lucent.57778	ESTABLISHED
tcp	0	0	cpc5.1063	sigma.1521	ESTABLISHED
tcp	0	0	cpc5.1062	sigma.1521	ESTABLISHED
tcp	0	0	*.1061	*.*	LISTEN
tcp	0	0	*.1060	*.*	LISTEN
tcp	0	0	*.671	*.*	LISTEN
tcp	0	0	*.1058	*.*	LISTEN
tcp	0	0	*.1059	*.*	LISTEN
tcp	0	0	cpc5.login	*.*	CLOSED
tcp	0	0	cpc5.telnet	cbgbcs.cb.lucent.60101	ESTABLISHED
tcp	0	0	*.printer	*.*	LISTEN
tcp	0	0	*.listen	*.*	LISTEN
tcp	0	0	*.chargen	*.*	LISTEN
tcp	0	0	*.daytime	*.*	LISTEN
tcp	0	0	*.discard	*.*	LISTEN
tcp	0	0	*.echo	*.*	LISTEN
tcp	0	0	*.time	*.*	LISTEN

- 5 Verify that the remote machine name appears on the screen under the `Foreign Address` column and the corresponding state field shows `ESTABLISHED`.

If the remote machine name does not appear, contact network support personnel for help.

If the remote machine name appears on the screen, verify that the ORACLE SQL*Net package is installed on the remote machine.

- 6 Verify that the network tunable parameters are correct according to the recommendations in *Intuity™ CONVERSANT® System Version 7.0 Communication Development*, 585-313-202.
- 7 Verify the database connection by completing the following [step a](#) through [step c](#):
 - a Invoke the ORACLE utility SQL*PLUS by entering
`/oracle/bin/sqlplus sti/sti`

The system displays the following message:

`SQL>`
 - b Connect the SQL*PLUS session to the remote database by entering
`connect sti/sti \@host_name`

The *host_name* is name of the remote machine.

- c If the screen displays the following message the network and remote database are functioning:

```
connected
```

Continue with [step 8](#).

If connected does not appear on the screen, contact the database administrator of the remote machine for help.

- 8 Exit from the SQL*PLUS utility by entering **quit**

LAN Trace Utilities

The LAN activity can be traced using the following commands:

- **netstat**
- **ping**

The LAN trace utilities enable the field service personnel to diagnose problems on the customer's LAN. The LAN trace utilities have the following disadvantages:

- Only traffic on the subnet to which the product is attached can be traced.
- When traffic on the LAN is very heavy, some packets may be lost because the server cannot keep up with the flow.

Using the netstat Command

The **netstat** command is used to display statistics about each network interface and socket, and statistics about the network routing table.

Use the **netstat** command with the following attributes:

- **-a** — display the state of all sockets and all routing table entries
- **-f *address_family*** — limits the statistics or address control block reports to those of the specified family

Note: The address family can be inet for the AF_INET family or unix for the AF_UNIX family

- **-g** — display the multicast group memberships for all interfaces, use the option.
- **-i** — display the state of the interfaces that are used for TCP/IP traffic
- **-m** — display the STREAMS statistics
- **-n** — display the network addresses as numbers
- **-p** — display the address resolution tables, use the **-p** option.
- **-r** — display the routing tables
- **-s** — display the per-protocol statistics
- **-v** — display additional information for the sockets and the routing table
- **-l *interface*** — display the state of a particular interface

- **-M** — display the multicast routing tables
- **-P *protocol*** — limit the display of statistics or state of all sockets to those applicable to protocol

For more information on the **netstat** command, see Appendix A, “Summary of Commands” in *LINCS Server Administration*, 585-313-507.

Using the ping Command

The **ping** command indicates whether a remote host can be reached. It can also display statistics about packet loss and delivery time. Use the **ping** command with the following attributes:

- **-d** — set the SO_DEBUG socket option
- **-I** — send the packet to the given host and back again
- **-L** — turn off loopback of multicast packets
- **-n** — display the network addresses as numbers
- **-r** — bypass the normal routing tables and send directly to a host on an attached network
- **-R** — set the IP record route option and store the route of the packet inside the IP header

- **-v** — list any ICMP packets, other than ECHO_RESPONSE, that are received
- **-i** — specify the outgoing interface to use for multicast packets
- **-l** — specify the interval between successive transmissions
- **-t ttl** — specify the IP time to live for multicast packets

For more information on the **ping** command, see Appendix A, “Summary of Commands” in *LINCS Server Administration*, 585-313-507.

Simple Network Management Protocol

SNMP is the current working standard of the TCP/IP protocol suite concerned with network management information. The SNMP feature on the LINCS Server allows network system administrators to use SNMP to consolidate the monitoring of remote systems from a central location. This remote monitoring takes place over a TCP/IP LAN or WAN. The SNMP feature makes this monitoring possible by providing a means for:

- Remote managed elements (LINCS Server systems) to send alarm and resolution event notifications to a central management workstation
- The management workstation to get system status information from the remote managed elements

Management Information Bases Available with LINC Server SNMP

The SNMP agent provides the following:

- Support for the standard Management Information Base (MIB)-II definition
- A private MIB defined by Lucent Technologies

MIB-II Compliance

The SNMP agent is MIB-II compliant; however, not all MIB-II variables are supported.

Private MIB

In addition to MIB-II support, the SNMP agent provides a private (enterprise-specific) MIB for the following system information

- File system check
- IPC message queue status
- Voice system status
- Voice channels in service
- Software packages installed
- Circuit card information (display card)
- Channel information (includes channel number, card and port, state, service name, assignments, etc.)
- Service and DNIS information

- Hardware information (includes platform type, installed memory, size of the hard disk drive)
- Major, minor, and warning alarms active on the system

See [MIB Definition](#) later in this chapter.

SNMP Configuration

You must configure both HP Openview and the SNMP agent on the LINC Server system to communicate with each other. See HP Openview documentation for details on how to complete this and to confirm communication between the manager and agent applications.

Customizing SNMP for HP Openview

To customize HP Openview for LINC Server, do the following:

Note: The following procedure must be done at least once to configure HP Openview for the LINC Server. If you are monitoring multiple LINC Servers with a single HP Openview, you must only perform this procedure once.

- 1 Enter `/vs/bin/util/snmp/util/snmpConfig.sh`
- 2 Enter **9**
- 3 Enter **1** (Enter `/Change` FTP login information). This allows you to transfer files to the management station (HP Openview).

- 4 Enter the IP address for the management station.
 - 5 Enter login and password, and then the user directory as **/tmp/ov**
- Note:** The /tmp/ov directory must be created on the HP Openview prior to this procedure.
- 6 Enter **2** (FTP Intuity MIBs) to transfer Intuity MIBs.
 - 7 Enter **3** (FTP HP Openview files) to transfer HP Openview related files.
 - 8 Log onto the HP Openview.

If the HP management workstation has been configured to manage a product before, you will need to remove the previous configuration files:

- a Enter **rm \$OV_SYMBOLS/C/Computer/Intuity100**
- b Enter **rm \$OV_BITMAPS/C/Computer/intuity***
- c Enter **rm \$OV_FIELDS/C/intuity100**
- d Enter **vi \$OV_CONF/C/oid_to_sym**

Remove the line that specifies the symbol for Intuity 100.

- 9 Enter **cd /tmp/ov**
- 10 Enter **chmod 744 setupIntuity.sh**
- 11 Enter **./setupIntuity.sh**

Changing the Group Variable Names

You may change the group variable names contained in the default configuration file.

- 1 Enter **/vs/bin/util/snmp/util/snmpConfig.sh**
- 2 Enter **6** (listAgtConfig) to list the MIB-II group variable values.
 - ~ **SysDescr** — The description of the system (default: Intuity SNMP Agent - Lucent Technologies)
 - ~ **SysLocation** — The location of the system (default: down on the farm)
 - ~ **SysContact** — The owner of the system (default: System Administrator)
- 3 Change SysLocation to a meaningful location.
- 4 Make any other desired changes to the group variables.
- 5 Enter **8** (chgMgrAdd) to change the management station's IP address if desired.

Configuring the LINC Server for the HP Openview

To configure the system for the HP Openview, do the following:

- 1 Enter **cd /vs/bin/util/snmp/conf**
- 2 Enter **vi mrglist**
- 3 Enter **<Mgmtstation Name> public**, where **<Mgmtstation Name>** is the name of the HP Openview workstation.
- 4 Enter **mkdir -p /vs/bin/util/snmp/data**

- 5 Enter **`/vs/bin/util/snmp/util/snmpstart.sh`** to start the SNMP process and register the `alarmMon.sh` process with `inittab`.
- 6 Enter **`ps -ef`**
- 7 Verify the following processes are running:
 - ~ `snmpdm`
 - ~ `mib2agt`
 - ~ `csagt`
 - ~ `Alarmon.sh`

Guidelines for Using SNMP

This section provides guidelines for using SNMP on the LINC Server:

Getting Information from SNMP Agents

Once the MIB definition file is downloaded into HP Openview, you have access to the private (enterprise-specific) SNMP features on the LINC Server. See HP Openview documentation for information on how to integrate the LINC Server SNMP feature with HP Openview.

Setting Polling Intervals

You can set the time intervals at which the HP Openview polls the SNMP agents on the LINCS Server systems. Set the polling interval low enough to give you information when you need it, but high enough that the polling does not slow down operations.

Note: Lucent Technologies strongly recommends that you *not* use a polling interval of less than 15 minutes, as that puts a strain on system resources and slows down operations.

Obtaining MIB variables

Retrieve MIB variables one at a time. If you attempt to retrieve MIB variables all at once, this can cause idle time to fall below normal values.

Setting the Timeout Interval

Set the timeout interval on the HP Openview for more than 60 seconds. This value will allow the LINCS Server enough time to respond to data requests. If the timeout interval is smaller than 60 seconds, data may not be available within the requested interval, thereby causing timeouts.

MIB Definition

```
CORNERSTONE-MIB DEFINITIONS ::= BEGIN
IMPORTS
    enterprises, OBJECT-TYPE, MODULE-IDENTITY
        FROM SNMPv2-SMI
    DisplayString, IPAddress, TimeTicks
        FROM SNMPv2-TC;
```

```

lucent                OBJECT IDENTIFIER ::= { enterprises 1751 }
lucentProducts        OBJECT IDENTIFIER ::= { lucent 1 }
lucentMibs            OBJECT IDENTIFIER ::= { lucent 2 }
intuityProducts       OBJECT IDENTIFIER ::= { lucentProducts 10 }
intuityMibs           OBJECT IDENTIFIER ::= { lucentMibs 10 }
platformMIB           MODULE-IDENTITY

    LAST-UPDATED      "9705010000Z"
    ORGANIZATION      "Lucent Technologies, Bell Labs"
    CONTACT-INFO      ""
    DESCRIPTION
    "MIB Module for Cornerstone Platform Entities"
    ::= { intuityMibs 2 }

csSystemStatus        OBJECT IDENTIFIER ::= { platformMIB 1 }
csSsMtce              OBJECT IDENTIFIER ::= { csSystemStatus 1 }
csSsVs                OBJECT IDENTIFIER ::= { csSystemStatus 2 }

csSwInst              OBJECT IDENTIFIER ::= { platformMIB 2 }
csHwInst              OBJECT IDENTIFIER ::= { platformMIB 3 }

ssMtceFsChk          OBJECT-TYPE
    SYNTAX              DisplayString
    MAX-ACCESS          read-only
    STATUS              current
    DESCRIPTION         "file system check. This
                        variable returns a string stating whether the
                        check passed or failed."
    ::= { csSsMtce 1 }

```

```
ssMtceIpcQChk      OBJECT-TYPE
                   SYNTAX      DisplayString
                   MAX-ACCESS    read-only
                   STATUS        current
                   DESCRIPTION    "Ipc Queue Check.  This variable
                                   returns a string stating whether the check
                                   passed or failed."
                   ::= { csSsMtce 2 }

ssVsStat           OBJECT-TYPE
                   SYNTAX      DisplayString
                   MAX-ACCESS    read-only
                   STATUS        current
                   DESCRIPTION    "Status of Voice Sytem. Returns
                                   a string saying whether it is up or down
                                   depending on the run level being 4 and some
                                   processes in the running state"
                   ::= { csSsVs 1 }

ssVsPurchvcprt    OBJECT-TYPE
                   SYNTAX      INTEGER(0..64)
                   MAX-ACCESS    read-only
                   STATUS        current
                   DESCRIPTION    "Number of purchased voice
                                   ports."
                   ::= { csSsVs 2 }

ssVsSvcvcprt      OBJECT-TYPE
                   SYNTAX      INTEGER(0..64)
                   MAX-ACCESS    read-only
```

```

STATUS      current
DESCRIPTION "number of voice ports in
service"
 ::= { csSsVs 3 }

ssVsPurchrspch OBJECT-TYPE
SYNTAX      INTEGER(0..2000)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "purchased hours of speech"
 ::= { csSsVs 4 }

ssVsUsedhrspch OBJECT-TYPE
SYNTAX      INTEGER(0..2000)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "used hours of speech"
 ::= { csSsVs 5 }

ssVsPothrspch OBJECT-TYPE
SYNTAX      INTEGER(0..2000)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "potential hours of speech"
 ::= { csSsVs 6 }

swInstPkg    OBJECT-TYPE
SYNTAX      SEQUENCE OF PkgInfo
MAX-ACCESS  not-accessible
STATUS      current

```

```

DESCRIPTION "Info on software packages
installed. This output is the same as
pkginfo on unix provides with the -l -c
options i.e. long and the category intuition"
::= { csSwInst 1 }

pkgInfo          OBJECT-TYPE
SYNTAX           PkgInfo
MAX-ACCESS       not-accessible
STATUS           current
DESCRIPTION      "Info on package"
INDEX            { pkgNumber }
::= { swInstPkg 1 }

PkgInfo          ::=
SEQUENCE {pkgNumber INTEGER, pkgDescr
DisplayString}

pkgNumber        OBJECT-TYPE
SYNTAX           INTEGER(0..50)
MAX-ACCESS       not-accessible
STATUS           current
DESCRIPTION      "Index for package description"
::= { pkgInfo 1 }

pkgDescr        OBJECT-TYPE
SYNTAX           DisplayString
MAX-ACCESS       read-only
STATUS           current
DESCRIPTION      "package description"

```

```

                                ::= { pkgInfo 2 }

displayCard                      OBJECT-TYPE
                                SYNTAX SEQUENCE OF CardStatus
                                MAX-ACCESS not-accessible
                                STATUS current
                                DESCRIPTION "table of entries with each
                                entry corresponding to description of each
                                card on the system. Info is same as output of
                                display card all except for channel info.
                                Output includes card number, state, class, os
                                index, name, options, and function"
                                ::= { csHwInst 1 }

cardStatus                       OBJECT-TYPE
                                SYNTAX CardStatus
                                MAX-ACCESS not-accessible
                                STATUS current
                                DESCRIPTION "entry for each card"
                                INDEX { dsplCardNum }
                                ::= { displayCard 1 }

CardStatus ::=
                                SEQUENCE {
                                    dsplCardNum    INTEGER,
                                    dsplInfo       DisplayString
                                }

dsplCardNum                      OBJECT-TYPE
                                SYNTAX INTEGER(0..24)

```

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "card number"
 ::= { cardStatus 1 }

dsplInfo      OBJECT-TYPE
SYNTAX        DisplayString
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "card information"
 ::= { cardStatus 2 }

displayChan   OBJECT-TYPE
SYNTAX        SEQUENCE OF ChanStatus
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "table of entries with each
entry corresponding to one channel. Info
includes channel number, card and port,
state, state change time, service name,
phone, group, opts and type"
 ::= { csHwInst 2 }

chanStatus    OBJECT-TYPE
SYNTAX        ChanStatus
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "entry for each channel"
INDEX         { dsplCsChanNum }

```

```

::= { displayChan 1 }

ChanStatus ::=
SEQUENCE {
    dsplCsChanNum INTEGER,
    dsplCsChanInfoDisplayString
}

dsplCsChanNum OBJECT-TYPE
SYNTAX          INTEGER(0..96)
MAX-ACCESS      not-accessible
STATUS          current
DESCRIPTION     "chan number"
::= { chanStatus 1 }

dsplCsChanInfo OBJECT-TYPE
SYNTAX          DisplayString
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "chan info"
::= { chanStatus 2 }

displaySvcs OBJECT-TYPE
SYNTAX SEQUENCE OF Svcs
MAX-ACCESS      not-accessible
STATUS          current
DESCRIPTION     "List of services provided on
the system. Info includes serial number and
service name"
::= { csHwInst 3 }

```

```

svcs                OBJECT-TYPE
                    SYNTAX          Svcs
                    MAX-ACCESS      not-accessible
                    STATUS           current
                    DESCRIPTION      ""
                    INDEX            { svcNum }
                    ::= { displaySvcs 1 }

Svcs ::= SEQUENCE {
    svcNum    INTEGER,
    svcName   DisplayString
}

svcNum        OBJECT-TYPE
              SYNTAX          INTEGER(0..50)
              MAX-ACCESS      not-accessible
              STATUS           current
              DESCRIPTION      "Service Name"
              ::= { svcs 1 }

svcName       OBJECT-TYPE
              SYNTAX          DisplayString
              MAX-ACCESS      read-only
              STATUS           current
              DESCRIPTION      "Service Name"
              ::= { svcs 2 }

displayDnis   OBJECT-TYPE
              SYNTAX          SEQUENCE OF DnisAniSvcGp

```

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "display dnis an ani service

groups"
 ::= { csHwInst 4 }

dnisAniSvcGp  OBJECT-TYPE
SYNTAX       DnisAniSvcGp
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION  "One row corresponding to one
service with info on called from and to
numbers and calling from and to numbers"
INDEX        { dnisIdx }
 ::= { displayDnis 1 }

DnisAniSvcGp ::=
SEQUENCE {
    dnisIdx      INTEGER,
    dnisEntry    DisplayString
}

dnisIdx       OBJECT-TYPE
SYNTAX        INTEGER(0..100)
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "Index for entries displayed"
 ::= { dnisAniSvcGp 1 }

dnisEntry     OBJECT-TYPE

```

```

SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "Display dnis entry"
 ::= { dnisAniSvcGp 2 }

dsplAssgn   OBJECT-TYPE
SYNTAX SEQUENCE OF AssgnEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION "Table of assignments to
channels with channel number, service name
and startup service"
 ::= { csHwInst 5 }

assgnEntry  OBJECT-TYPE
SYNTAX      AssgnEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION "Entry for one channel "
INDEX       { dspChanNum }
 ::= { dsplAssgn 1 }

AssgnEntry ::=
SEQUENCE {
    dspChanNum      INTEGER,
    dspAssgnEntry  DisplayString
}

```

```

dspChanNum      OBJECT-TYPE
                 SYNTAX      INTEGER(0..96)
                 MAX-ACCESS  not-accessible
                 STATUS      current
                 DESCRIPTION  "Channel Number"
                 ::= { assgnEntry 1 }

dspAssgnEntry   OBJECT-TYPE
                 SYNTAX      DisplayString
                 MAX-ACCESS  read-only
                 STATUS      current
                 DESCRIPTION  "Entry for Services assigned"
                 ::= { assgnEntry 2 }

hwMtce         OBJECT-TYPE
                 SYNTAX      SEQUENCE OF HwInfo
                 MAX-ACCESS  not-accessible
                 STATUS      current
                 DESCRIPTION  "A sequence of items regarding
                 the hardware installed on the system. This
                 info includes chassis type, installed memory,
                 hard drive info, and serial card installed"
                 ::= { csHwInst 6 }

hwInfo         OBJECT-TYPE
                 SYNTAX      HwInfo
                 MAX-ACCESS  not-accessible
                 STATUS      current
                 DESCRIPTION  ""
                 INDEX       { dummyidx }

```

```

                                ::= { hwMtce 1 }

HwInfo                          ::=
                                SEQUENCE {
                                    dummyidx      INTEGER,
                                    hwChassis      DisplayString,
                                    hwInstMem      DisplayString,
                                    hwHd          DisplayString,
                                    hwSerial       DisplayString
                                }

dummyidx                         OBJECT-TYPE
SYNTAX                          INTEGER(0..1)
MAX-ACCESS                      not-accessible
STATUS                          current
DESCRIPTION                      "Dummy index since hwinfo is only
                                one row"
                                ::= { hwInfo 1 }

hwChassis                       OBJECT-TYPE
SYNTAX                          DisplayString
MAX-ACCESS                      read-only
STATUS                          current
DESCRIPTION                      "Chassis type"
                                ::= { hwInfo 2 }

hwInstMem                       OBJECT-TYPE
SYNTAX                          DisplayString
MAX-ACCESS                      read-only
STATUS                          current

```

```

DESCRIPTION  "Installed memory"
::= { hwInfo 3 }

hwHd         OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "Hard Drive Size and scsi id"
::= { hwInfo 4 }

hwSerial     OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "Serial Card Installed or not"
::= { hwInfo 6 }

hwVs         OBJECT-TYPE
SYNTAX SEQUENCE OF VsEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION "table of vs hardware installed
on system with one row per card"
::= { csHwInst 7 }

vsEntry      OBJECT-TYPE
SYNTAX      VsEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION "row with entries for one card"

```

```

INDEX      { vsCard }
 ::= { hwVs 1 }

VsEntry ::=
SEQUENCE {
    vsCard      INTEGER,
    vsCardInfo  DisplayString
}

vsCard
OBJECT-TYPE
SYNTAX      INTEGER(0..24)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION "Card number"
 ::= { vsEntry 1 }

vsCardInfo
OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "OS Index"
 ::= { vsEntry 2 }

hwRaidExists
OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "Does this system have RAID on
it? yes/no"

```

```

:= { csHwInst 8 }

hwRaidOk          OBJECT-TYPE
SYNTAX            DisplayString
MAX-ACCESS        read-only
STATUS            current
DESCRIPTION       "Display whether RAID is in
normal, critical or rebuild status"
 ::= { csHwInst 9 }

hwRaidStat        OBJECT-TYPE
SYNTAX            DisplayString
MAX-ACCESS        read-only
STATUS            current
DESCRIPTION       "Display RAID drive status
logical, physical"
 ::= { csHwInst 10 }

csAlarms          OBJECT IDENTIFIER ::= { platformMIB 4 }

csMajAlarms       OBJECT-TYPE
SYNTAX            INTEGER (0..255)
MAX-ACCESS        read-only
STATUS            current
DESCRIPTION       "Number of active major alarms
on the system"
 ::= { csAlarms 1 }

csMinAlarms       OBJECT-TYPE
SYNTAX            INTEGER (0..255)

```

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "Number of active minor alarms on
the system"
 ::= { csAlarms 2 }

csWrnAlarms   OBJECT-TYPE
SYNTAX        INTEGER (0..255)
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "Number of active warning alarms
on the system"
 ::= { csAlarms 3 }

csCriAlarms   OBJECT-TYPE
SYNTAX        INTEGER (0..255)
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "Number of active critical
alarms on the system"
 ::= { csAlarms 6 }

csAlarmsCurrLvl  OBJECT-TYPE
SYNTAX        INTEGER { normal(0), warning(1),
minor(2), major (3), critical (4) }
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "Highest level/severity of the
active alarms.  This is used by the alarm

```

```

        trap events to determine the color of the
        Interchange object."
        ::= { csAlarms 4 }

-- the alarm table contains a list of all the active alrms in
the system.
-- the columns available are: application id, alarm code, alarm
level and
-- a text string with the remaining fields.

csAlarmTable      OBJECT-TYPE
                  SYNTAX SEQUENCE OF CsAlarmEntry
                  MAX-ACCESS    not-accessible
                  STATUS        current
                  DESCRIPTION   "A table of all the active
                  alarms in the system"
                  ::= { csAlarms 5 }

csAlarmEntry      OBJECT-TYPE
                  SYNTAX CsAlarmEntry
                  MAX-ACCESS    not-accessible
                  STATUS        current
                  DESCRIPTION   "alarm entry - uniquely
                  identified by the application/module code and
                  alarm code"
                  INDEX { csAlarmApp, csAlarmCode }
                  ::= { csAlarmTable 1 }

CsAlarmEntry ::= SEQUENCE {
    csAlarmIndex      INTEGER (0..255),

```

```

        csAlarmApp      OCTET STRING,
        csAlarmCode     INTEGER (0..65535),
        csAlarmLvl      INTEGER,
        csAlarmText     DisplayString,
        csAlarmEvnInfo  DisplayString
    }

csAlarmIndex      OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    MAX-ACCESS     read-only
    STATUS         current
    DESCRIPTION   "Index into the active alarms
    table"
    ::= { csAlarmEntry 1 }

csAlarmApp        OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..3))
    MAX-ACCESS     read-only
    STATUS         current
    DESCRIPTION   "Two letter application code of
    the module raising the alarm. Typical modules
    - MT: maintenace, VP: platform etc"
    ::= { csAlarmEntry 2 }

csAlarmCode       OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    MAX-ACCESS     read-only
    STATUS         current

```

```
DESCRIPTION "Application/module specific
code of the alarm."
::= { csAlarmEntry 3 }

csAlarmLvl OBJECT-TYPE
SYNTAX INTEGER { normal(0), warning(1),
minor(2), major(3), critical(4) }
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Severity/level of the alarm,
can take the following values normal,
critical, major, minor, warning. The normal
value indicates a resolution event and is
only used by the alarm traps."
::= { csAlarmEntry 4 }

csAlarmText OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Text string of the other fields
in the alarm. This may be subdivided into
each individual field if required in later
versions."
::= { csAlarmEntry 5 }

csAlarmEvnInfo OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
```

```
DESCRIPTION "maintenance log - contains the
event-id, type and description"
 ::= { csAlarmEntry 6 }

csTraps OBJECT IDENTIFIER ::= { platformMIB 5 }

csTrapAlarms NOTIFICATION-TYPE
OBJECTS { csAlarmText, csAlarmEvnInfo,
csAlarmsCurrLvl }
STATUS current
DESCRIPTION "Traps sent by the agent for
alarm and resolution events."
 ::= { csTraps 1 }

END
```

3 Common System Procedures

Overview

This chapter provides procedures to perform the most common procedures associated with the system, including:

- Cartridge tape and diskette drive operation
- Backup and restore
- Voice system administration
- Operating system administration

About Cartridge Drives and Tapes

Cartridge tapes provide for the storage of information used by the LINCS Server system. The CompactPCI reads information from and writes information to cartridge tapes through the tape drive. The tape drive is located in the upper right-hand corner of the platform.

The CompactPCI has a 4-Gbyte tape drive.

When to Change Cartridge Tapes

The manufacturers of the cartridge tapes recommend that you replace a tape after approximately 30 full-capacity write or read operations. For example, if two tapes are being alternated for the unattended nightly backup, replace both tapes every two months.

Inserting and Removing Cartridge Tapes

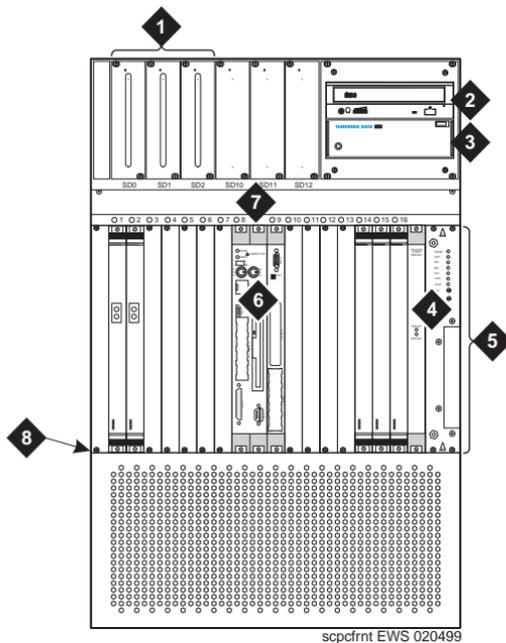
This section details the procedures for inserting and removing cartridge tapes from a 4-Gbyte tape drive.

Inserting the Cartridge Tape

To insert a 4-Gbyte cartridge tape, do the following:

- 1 Locate the tape drive on the front of the platform ([Figure 23 on page 98](#)).

Figure 23. Front View of the Platform

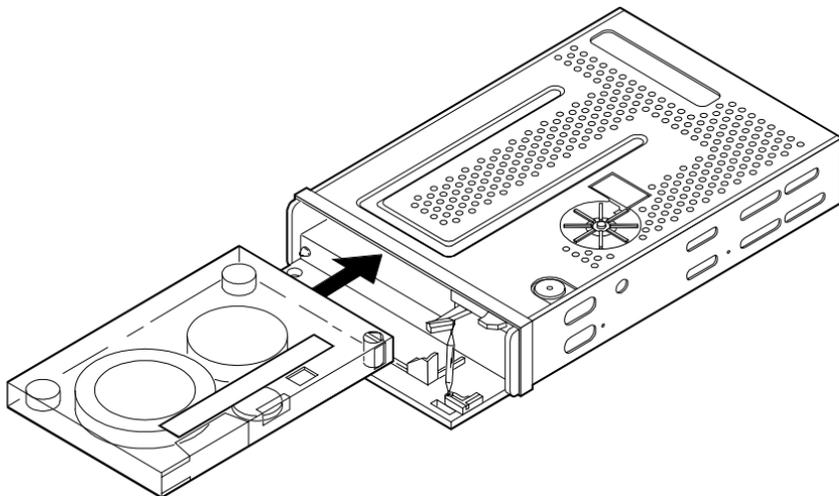


1. Hard disk drives
2. CD-Rom drive
3. Tape drive
4. Upper fans
5. Circuit card area
6. TAM
7. Filter panel

scpcfnt EWS 020499

- 2 Check the read/write dial to make sure that the tape is not write-protected. The small dial on the front of the tape should be in the horizontal position.
- 3 Complete [step a](#) through [step c](#) to insert the tape in the drive.
 - a Press the button on the upper right corner of the drive to open the drive door.
 - b Insert the tape ([Figure 24 on page 100](#)).
 - c Close the door to push in the tape.

Figure 24. Tape Insertion with a 4-Gbyte Tape Drive



Note: The light on the drive will blink when the drive is in use. If the light is lit and not blinking, the tape drive is idle.

Removing the Cartridge Tape

CAUTION:

You can only remove the tape when the drive is idle, that is, when the light is not blinking.

To remove a cartridge tape from the tape drive, do the following:

- 1 Press the button on the upper right corner of the drive to reveal part of the tape.
- 2 Pull out the tape.

About Diskette Drives and Diskettes

Diskettes can provide for the storage of information used by the LINCS Server system.

Types of Diskettes

The LINCS Server system is not shipped with disks. If you need disks, obtain unformatted 3.5-inch disks. The disks can be either:

- High density (1.44-Mbyte)
- Low density (720-Kbyte)

Inserting and Removing Diskettes

This section details the procedures for inserting and removing diskettes.

Inserting the Diskette

To insert a diskette, do the following:

- 1 Locate the diskette drive on the front of the CompactPCI ([Figure 23 on page 98](#)).
- 2 Check the read/write switch to make sure that the diskette is not write-protected.
- 3 Insert the diskette in the drive.

Note: The light on the diskette drive is on when the drive is in use. If the light is not on, the diskette drive is idle.

Removing the Diskette

You can only remove the diskette when the drive is idle, that is, when the light is not on.

To remove a diskette, do the following:

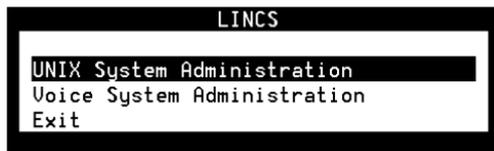
- 1 Press the button on the lower right corner of the diskette drive to reveal part of the diskette.
- 2 Pull out the diskette.

Formatting Diskettes

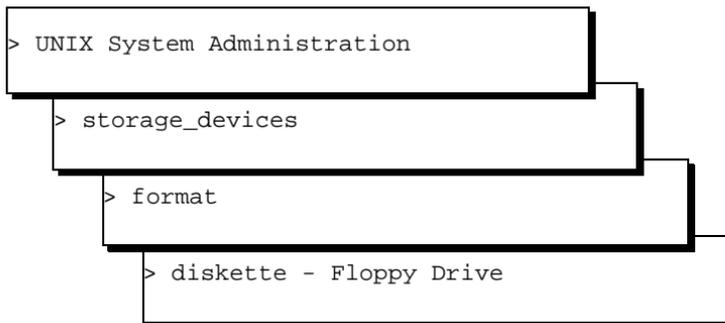
To format a diskette, do the following:

- 1 Start at the LINCSystem administration menu ([Figure 25](#)):

Figure 25. LINCSystem Administration Menu

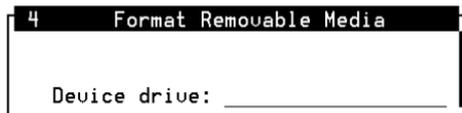


- 2 Select:



The system displays the Format Removable Media window ([Figure 26](#)).

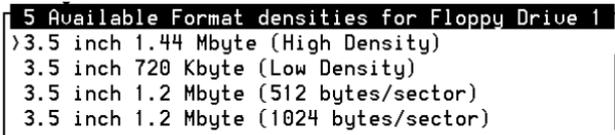
Figure 26. Format Removable Media Window



- 3 Verify that the diskette is not write-protected and insert the diskette into the disk drive.
- 4 Enter **diskette1** in the `Device drive:` field.
- 5 Press **F3** (Save).

The system displays the Available Format Densities for Floppy Drive 1 menu ([Figure 27](#)):

Figure 27. Available Format densities for Floppy Drive 1 Menu



- 6 Select **3.5 inch 1.44 Mbyte (High Density)** OR **3.5 inch 720 Kbyte (Low Density)** and press **Enter**.
- 7 Once the diskette is formatted, remove it from the disk drive.

Backing Up the LINCS Server System

Lucent Technologies suggests performing a full backup to baseline your system. The tools available for you to use to backup and restore your system are:

- QuickStart
- BRU (Backup/Restore Utility)
- **mkimage** command

Backing Up the System Using QuickStart

Definition

QuickStart provides a simple method to restore a failed disk drive to a working state. The QuickStart utility is used to copy a hard disk to tape to baseline your system and create a disaster recovery disk image.

The QuickStart tool comes on a floppy disk from which the machine is booted.

In order to have a complete shelf copy for disaster recovery, it is suggested that you complete the following:

- Perform the QuickStart on each disk to ensure a baseline. See [Creating a Disaster Recovery Tape \(page 106\)](#) for the procedures.
- Perform a full backup using the BRU tool. See [Backing Up the System Using BRU \(page 112\)](#) for the procedures.

Creating a Disaster Recovery Tape

To use QuickStart to create a disaster recovery tape or baseline your system, do the following:

- 1 Log in as root.
- 2 Type **shutdown -g0 -y**

The system shuts down and displays the following message:

Press any key to continue.

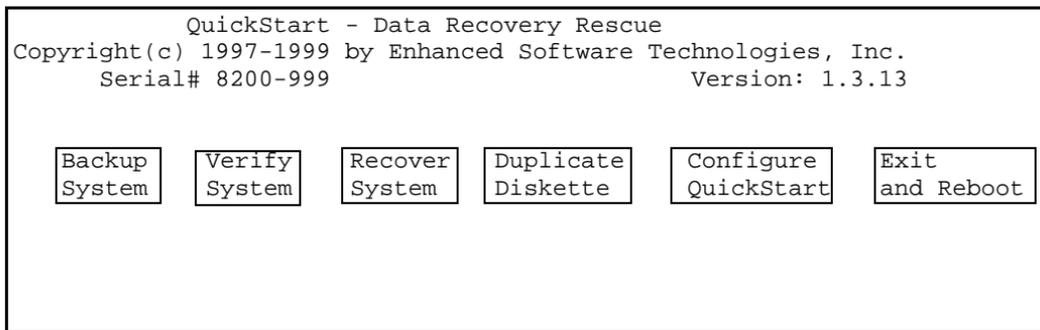
- 3 Insert the diskette labeled “QuickStart Data Rescue 1.3.13” into the diskette drive.
- 4 Press **ENTER**.

The system boots from the QuickStart diskette and displays the following message:

Detecting devices.

After a few minutes the system displays the QuickStart Data Rescue screen ([Figure 28](#)).

Figure 28. QuickStart Data Rescue Screen



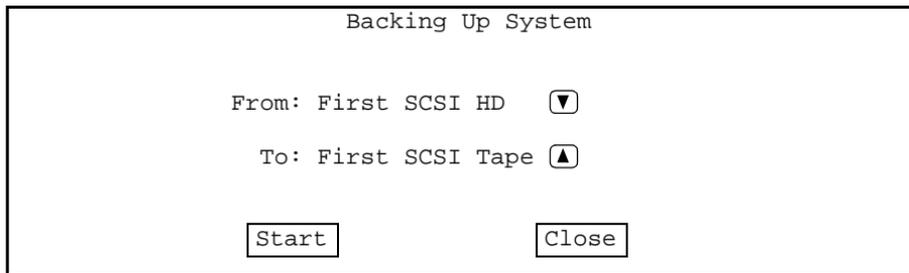
Use the **TAB** and **Shift+TAB** keys to move between the selection buttons.

Use the **SPACEBAR** or **ENTER** keys to activate your selection.

- 5 Insert a tape into the cartridge tape drive.
- 6 Select Backup System.

The system displays the Backing Up System screen ([Figure 29 on page 108](#)).

Figure 29. Backing Up System Screen



```
Backing Up System

From: First SCSI HD  ▾
To: First SCSI Tape  ▲

Start                Close
```

- 7 Use the **TAB** and **Shift+TAB** to move between the selection buttons. Use the **spacebar** or **Return** to activate your selection.
- 8 Select the down arrow key to select the hard disk drive containing the data you are backing up.
- 9 Select the up arrow key to select the tape drive that will store the data you.
- 10 Select **Start**.

The system displays the following message:

```
Warning: This will overwrite all data on your First SCSI tape
drive.
```

```
Continue  Cancel
```

11 Select Continue.

The system displays the following message:

```
Automatically verify archive?
```

```
Yes   No
```

12 Select Yes.

The system continues to display the Backing Up System screen ([Figure 30](#)) while providing continuous system backup status in the lower portion.

Figure 30. Backing Up System Screen

Backing Up System	
From: First SCSI HD	
To: First SCSI Tape	
%	
Total KB:	KBytes/Sec:
KB Completed:	Remaining:
Time Elapsed:	Remaining:
<input type="button" value="Cancel"/>	

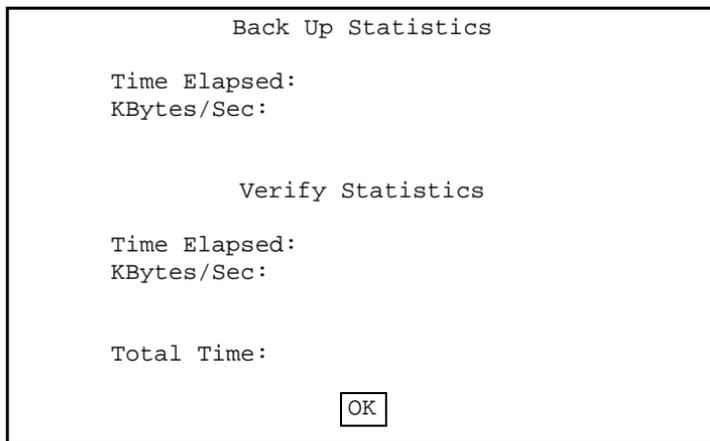
When the backup is complete, the system rewinds the tape and performs the automatic verification. The system displays the Verifying Backup screen ([Figure 31](#)) while providing continuous system verification status in the lower portion.

Figure 31. Verifying Backup Screen

Verifying Backup	
From: First SCSI HD	
To: First SCSI Tape	
<hr/>	
%	
<hr/>	
Total KB:	KBytes/Sec:
KB Completed:	Remaining:
Time Elapsed:	Remaining:
<input type="button" value="Cancel"/>	

The system displays the Backup and Verify Statistics screen ([Figure 32 on page 111](#)).

Figure 32. Backup and Verify Statistics Screen



- 13 Select `OK`.

The system displays the QuickStart Data Rescue screen ([Figure 28 on page 107](#)).

- 14 Remove the QuickStart boot floppy from the diskette drive and the backup tape from the cartridge tape drive.
- 15 Label the backup tape.
- 16 Select `Exit` and `Reboot`.

The system reboots to the LINCS server.

Backing Up the System Using BRU

The following section describes the procedure for backing up your system using the BRU.



WARNING:

Make sure you use the 4-Gbyte cartridge tapes when you back up your system.

Types of BRU

- Root, or disk-level, backup - This is used to save the entire contents of a hard disk and is good to perform to baseline your new system after initial load.
- Full, or UNIX-level - This is a backup of all files and file systems.
- Differential, or UNIX-level differential - this is a backup of files which have changed dates since the last full backup.

When to perform a BRU backup

There are no specific times or rules as to when to perform a BRU backup. The following are a few suggestions:

- When the system is new. Perform a root and/or full backup to baseline your system.
- When your system has been upgraded to a new software release. Perform a differential backup.
- After your system has been upgraded or reconfigured with new or different hardware. Perform a full and/or differential backup.
- When you notice performing a differential backup is taking a long time to complete. Perform a full backup.

Performing a Full Backup

This procedure can be performed while your system is up and running.

A full UNIX-level backup consists of two components:

- Estimate - this determines how much has changed since the last backup.
- Backup - this is the actual backup performance.

To perform a Full UNIX-level backup, do the following:

- 1 Starting at the LINC'S administration menu ([Figure 25 on page 103](#)), select Voice System Administration.

The system displays the Voice System Administration Menu ([Figure 33](#)):

Figure 33. Voice System Administration Menu

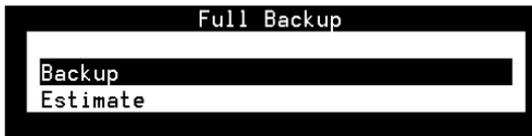
```
Voice System Administration
Application Package Administration
Backup/Restore
Configuration Management
Feature Packages
Reports
Script Builder Applications
Switch Interfaces
System Monitor
Unix Management
Exit
```

2 Select:

```
> Backup/Restore
  > Full Backup
```

The system displays the Full Backup menu ([Figure 34](#)):

Figure 34. Full Backup Menu



3 Select:



The system displays a message similar to the following message:

```
Please be patient, depending on the size of the backup this
could take several minutes

Performing Full Backup estimate...

bru:lvolume xxxxx files, xxxxxx archive blocks xxxxxx Kbytes

Please press <ENTER> to return to menu.
```

- 4** Make sure you have enough backup tapes available to store the system data.
- 5** Label each cartridge tape "Full UNIX Backup Tape *X*," where *X* is the number of the tape.

6 Press **ENTER**.

The system displays the Full Backup menu ([Figure 34 on page 115](#)).

7 Select:

```
> Backup
```

The system displays the following message:

```
Please put a tape in the drive.
```

```
Press <Enter> to continue or q to quit.
```

8 Insert the first tape into the cartridge tape drive.**9** Press **ENTER**.

Once the backup is complete, the system displays a message similar to the following:

```
The Full UNIX backup is now complete. Please remove the tape  
and label it as "Full UNIX Backup, created [today's date]"
```

10 Verify the backup tape. See [Verifying the BRU Backup \(page 122\)](#) for the procedure.

Performing a Differential Backup

Differential backups can be scheduled (to be performed at specified date(s) and time) or performed on demand.

To perform a Differential UNIX-level backup, do the following:

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:

```
> Backup/Restore
> Differential Backup
```

The system displays the Differential Backup menu ([Figure 35](#)):

Figure 35. Differential Backup Menu

```
Differential Backup
Backup
Estimate
Schedule
Check for next tape
```

2 Select:

```
> Estimate
```

The system displays a message similar to the following message:

```
Please be patient, depending on the size of the backup this
could take several minutes

Performing Differential Backup estimate...

bru:lvolume xxxxxx files, xxxxxx archive blocks xxxxxx Kbytes

Please press <ENTER> to return to menu.
```

- 3** Make sure you have enough backup tapes available to store the system data.
- 4** Label each cartridge tape with "Differential UNIX Backup Tape *X*," where *X* is the number of the tape.
- 5** Press **ENTER**.

The system displays the Differential Backup menu ([Figure 35 on page 117](#)).

6 Select:

```
> Backup
```

The system displays the following message:

```
Please put a tape in the drive.
```

```
Press <Enter> to continue or q to quit.
```

7 Insert the first tape into the cartridge tape drive.**8** Press **ENTER**.

Once the backup is complete, the system displays a message similar to the following:

```
The Differential UNIX backup is now complete. Please remove  
the tape and label it as "Differential UNIX Backup, created  
[today's date]"
```

9 Verify the backup tape. See [Verifying the BRU Backup \(page 122\)](#) for the procedure.

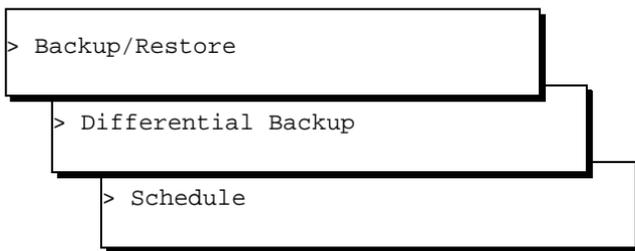
Scheduling a Differential UNIX-Level Backup

You can schedule a differential backup to be performed at a particular time on a weekly basis or on selected days during the week.

Note: Be sure to have a tape loaded in the tape drive for a backup scheduled at a time when no operator is available. The backup will wait for a tape to be inserted if there is not one already in the drive.

To schedule a differential UNIX-level backup, do the following:

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:



The system displays the Differential Backup Schedule window ([Figure 36 on page 121](#)).

Figure 36. Differential Backup Schedule Window



The screenshot shows a window titled "Backup Schedule" with a white background and a black border. The text is as follows:

Time:	02:30
Sunday:	NO
Monday:	YES
Tuesday:	YES
Wednesday:	YES
Thursday:	YES
Friday:	YES
Saturday:	NO

- 2 Set the hour at which the system backup will occur by completing [step a](#) through [step c](#):
 - a Use the left and right arrows on your keyboard to move within the `Time:` field.
 - b In the hour portion of the `Time:` field, enter number between 00 and 23.
 - c In the minute portion of the `Time:` field, enter a number between 00 and 59.

For example, entering 02:30 activates the backup process at 2:30 am.
- 3 Press the down arrow on your keyboard to move to the days of the week.

- 4 Type **YES** next to the day(s) that you want the differential backup to be performed.
- 5 Type **NO** next to the days that you do not want the differential backup to be performed.
- 6 Press **F3** (Save).

The system displays the Differential Backup menu ([Figure 35 on page 117](#)).

- 7 Press **F6** (Cancel) repeatedly to return to the main menu.

Verifying the BRU Backup

A backup tape can be verified using the system windows or the backup utility boot floppy. Verify your backup tape using the BRU once the system is in operation. Perform the verification on the same system or another system that has the BRU loaded. The BRU verifies:

- Differential backup tapes
- Full backup tapes
- Root backup tapes

To perform a verification, do the following:

- 1 Insert the backup tape into the tape drive.
- 2 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:

```
> Backup/Restore
> Verify Backup
> Differential/Full
```

Once the verification is complete, the system displays the following message:

```
The Backup Tape Verification is now complete. Please remove
the tape, check that the label reflects whether the tape
contains root, full, or differential backup data, date and
time it was created, then store it.
```

Backing Up the System Using `mkimage`

The following section describes the procedure for backing up your system using the `mkimage` command.

Note: The backup mechanisms described here should be used for backing up and restoring files on the same machine only.

The `mkimage` command backs up all files and speech to cartridge tapes. The `mkimage` command should only be used in the following situations:

- After initially loading a new system
- After upgrading to a new software release
- After upgrading hardware
- After reconfiguring the system

See Appendix A, “Summary of Commands,” in *LINC Server Administration*, 585-313-507, for additional information about the `mkimage` command.

Performing a `mkimage` Backup

To conduct a full system backup using `mkimage`, do the following:

- 1 Log in as root.
- 2 Stop the voice system. See [Stopping the Voice System \(page 161\)](#) for the procedure.
- 3 Enter `mkimage`

The system displays the following message:

```
The UNIX kernel will be rebuilt now.  This will take some
time.  Please wait.
```

```
WARNING: This process will put the system in single
         user mode!!!
```

```
Do you wish to continue (y/n)?
```

4 Enter **y**

The system displays the following message:

```
The system will now be put in single user mode.  Re-login
after the prompt and re-execute this command to continue the
mkimage process.
```

```
Console Login:
```

5 Continue with [Backing Up the Root File System \(page 125\)](#).

Backing Up the Root File System

To back up the root file system, do the following:

1 Log in as root.

2 Enter **mkimage**

The system displays the following message:

```
Checking the system run level:  Please wait
```

```
The system is in single user mode: Continuing
```

The following are approximate tape counts required for this backup for various tape drive sizes

150 Mbyte drive: X tape(s)

320 Mbyte drive: X tape(s)

525 Mbyte drive: X tape(s)

1.2 Gbyte drive: X tape(s)

2.0 Gbyte drive: X tape(s)

Be sure to number the cartridge tapes consecutively in the order they will be inserted.

Label the tapes 'CONVERSANT Image Tape x' where x indicates the insertion sequence. Also include the current date.

Note: Very large files, such as database files, take several minutes to backup. During this time you will not see any progress reported to the console. If the tape drive is running and the system disk light is flashing, the operation is in progress.

Please insert the first tape now. Press 'ENTER' to start image tape creation.

3 Label the appropriate number of cartridge tapes.

Label the tapes *LINC Image Tape x*, where *x* indicates the insertion sequence. Also include the current date on the label.

4 Insert the cartridge tape labeled "LINC Image Tape 1" into the cartridge tape drive.

5 Press ENTER.

The system takes approximately 30 minutes to load the information onto one cartridge tape.

If your system backup requires more than one cartridge tape, the system displays the following message:

```
End of medium on output  
Change to part 2 and press RETURN key. (q)
```

If your backup requires more than one tape, complete [step a](#) through [step d](#):

- a** Remove the cartridge tape labeled “LINCS Image Tape 1” from the cartridge tape drive.
- b** Insert the cartridge tape labeled “LINCS Image Tape 2” into the cartridge tape drive.
- c** Press **ENTER**.
- d** Repeat [step a](#) through [step c](#) for all necessary cartridge tapes.

If your backup does not require more than one tape, continue with [step 6](#).

- 6 When the system displays the following message, remove the last cartridge tape from the cartridge tape drive:

The image tapes will be verified now.

Make sure the tapes are inserted in the order they are made.

Press 'Enter' to start verification.

- 7 Press **ENTER**.

The system displays the following message:

Please insert the first tape now. Press 'Enter' to continue.

- 8 Insert the cartridge tape labeled "LINCS Image Tape 1" into the cartridge tape drive.

- 9 Press **ENTER**.

The system takes as long to verify a cartridge tape as it did to create it.

The system will prompt for additional tapes if necessary.

- 10 If your system has speech files located on a second disk, perform the [Backing Up the Speech Files \(page 129\)](#) procedure.

If your system has only one disk, continue with the [Verifying the mkimage Backup \(page 132\)](#) procedure.

Backing Up the Speech Files

If your system contains speech files on Hard Disk Drive 2, the system will display the following message:

```
The following are approximate tape counts required for this
backup for various tape drive sizes
```

```
150 Mbyte drive:      X tape(s)
```

```
320 Mbyte drive:      X tape(s)
```

```
525 Mbyte drive:      X tape(s)
```

```
1.2 Gbyte drive:      X tape(s)
```

```
2.0 Gbyte drive:      X tape(s)
```

Be sure to number the cartridge tapes consecutively in the order they will be inserted.

Label the tapes 'CONVERSANT Speech' Tape x where x indicates the insertion sequence. Also include the current date.

Note: Very large files, such as database files, take several minutes to backup. During this time you will not see any progress reported to the console. If the tape drive is running and the system disk light is flashing, the operation is in progress.

Please insert the first tape now. Press 'ENTER' to start image tape creation.

To back up the speech files, using the **mkimage** command, do the following:

- 1 Label the appropriate number of cartridge tapes.

Label the tapes *LINC Speech Tape x* where *x* indicates the insertion sequence. Also include the current date on the label.

- 2 Insert the cartridge tape labeled "LINC Speech Tape 1" into the cartridge tape drive.
- 3 Press **ENTER**.

The system takes approximately 30 minutes to load the information onto one cartridge tape.

If your system backup requires more than one cartridge tape, the system displays the following message:

```
End of medium on output  
Change to part 2 and press RETURN key. (q)
```

If your backup requires more than one tape, complete [step a](#) through [step d](#):

- a Remove the cartridge tape labeled "LINC Speech Tape 1" from the cartridge tape drive.
- b Insert the cartridge tape labeled "LINC Speech Tape 2" into the cartridge tape drive.

c Press **ENTER**.

d Repeat [step a](#) through [step c](#) for all necessary cartridge tapes.

If your backup does not require more than one tape, continue with [step 4](#).

- 4** When the system displays the following message, remove the last cartridge tape from the cartridge tape drive:

```
The speech tapes will be verified now.
```

```
Make sure the tapes are inserted in the order they are made.
```

```
Press 'Enter' to start verification.
```

- 5** Press **ENTER**.

The system displays the following message:

```
Please insert the first tape now. Press 'Enter' to continue.
```

- 6** Insert the cartridge tape labeled “LINCS Speech Tape 1” into the cartridge tape drive.

- 7** Press **ENTER**.

The system takes as long to verify a cartridge tape as it did to create it.

The system will prompt for additional tapes if necessary.

- 8** Continue with the [Verifying the mkimage Backup \(page 132\)](#) procedure.

Verifying the mkimage Backup

When the system is done verifying a cartridge tape it automatically reboots, returns to multi-user format, and displays the console login. To verify the back up, do the following:

- 1 Log in as root.
- 2 Enter **vi /SaveVsData/mkimage.log**

If the system displays the following message, the mkimage back up was successful.

```
Creation and verification of the CONVERSANT Image Tape is complete.
```

If the system does not display this message, the mkimage back up was not successful. Repeat the procedure.

Backing Up Speech Files and ORACLE Database Tables Using a LAN

Note: The backup server must have an ftp program. Most operating systems have a built in ftp program.

Identifying Speech Files and Database Tables

This section describes the procedures for identifying speech files and database tables.

Before the speech files can be backed up, you must:

- Locate the speech files
- Identify which talkfiles are being used

Locating Speech Files

To locate speech files, do the following:

- 1 Enter **grep SPEECHDIR /vs/data/irAPI.rc**

The system displays a message similar to the following message:

```
SPEECHDIR=/home2/vfs/talkfiles
```

This is the directory in which all of the speech files are located.

- 2 Enter **cd *directory name***

Note: Using the example in [step 1](#), enter **cd /home2/vfs/talkfiles**

3 Enter **ls**

The system displays a message similar to the following message:

```
1      100    102    104    106    108    110    112    201    40     9
10     101    103    105    107    109    111    2      206    41
```

These are the talkfiles used by all applications on the system.

Identifying Talkfiles To identify the talkfiles being used, do the following:

1 Enter **cd /speech/talk**

2 Enter **ls**

The system displays a message similar to the following message:

```
feature_tst.pl  transcribe.pl
```

3 View the .pl file associated with your application.

For example, to view the .pl file associated with the feature test application, enter **head feature_tst.pl**

The system displays a message similar to the following message:

```
1      Standard Speech for feature_tst sit.det 1000
Special Information Tone detected
recog.1.3.no 1001 to use recognition type 1-3 and no,
enter 4 to.test1002 To test
cant.dial.lu1003 unable to dial into line unit
full.cca.b.11004 For full cca call bridge enter 1#
```

- 4 Locate the first field in the first line of the output. This is the talkfile that application uses.

In the example above the feature test application uses talkfile 1.

- 5 Record the number.
- 6 Repeat [step 3](#) through [step 5](#) for all appropriate applications.

Identifying Database Tables

To identify the database tables the system uses, do the following:

- 1 Enter **cd /save directory**

where *save directory* is the name of the directory you want to use as the intermediate directory during a backup or restore.

- 2 Enter **sb_table -l application name**

where *application name* is the name of the application you are using.

The system displays a message similar to the following message:

```
TAB1  
TAB2  
TAB3  
TAB4  
TAB5
```

The tables listed in the message are the tables being used by the application.

3 Record the table names.

4 Enter **tb sav** *application_name tables*

where *application_name* is the name of the application you are using and *tables* are the tables recorded in [step 3](#).

Note: Table names are case sensitive and must be separated by spaces.

Note: An explanation of the **tb sav** command can be found by entering **tb sav**, without any additional arguments, on the system. See *LINCS Server Administration*, 585-313-507, for more information on system commands.

5 Repeat [step 2](#) though [step 4](#) for every application for which you want to save tables.

Backing Up Speech Files and Database Tables

This section provides the procedures for backing up speech files and database tables.

Backing Up Speech Files

To backup speech files, do the following:

Note: On the server, create a directory for each talkfile to be backed up. It is advisable to have the same directory names on your server as is on your system. For example, place files from talkfile 1 in a directory called 1.

Note: The following procedure applies to Windows NT or Windows 95 servers.

- 1 From a DOS prompt on the server, enter **cd *backup directory*** where *backup directory* is the name of the directory you want to use as the backup directory for the application speech.
- 2 Enter **ftp *machine address or name***
The system asks for the user login.
- 3 Enter an appropriate login id.
The system asks for the user password.
- 4 Enter the user password.

- 5 Enter **cd *directory name*** using the directory name entered in [step 2](#) of [Locating Speech Files](#) above.
- 6 Enter **prompt**

This command toggles between interactive mode on and interactive mode off. The system should be set to interactive mode off.
- 7 Enter **bin**

This command indicates binary transfer.
- 8 Enter **cd *talkfile***

where *talkfile* is the talkfile being used by the application. This is the file that was identified in [step 4](#) of [Identifying Talkfiles](#) above.
- 9 Enter **mget ***

This command copies all files in the directory.
- 10 If there are additional talkfiles which need to be backed up, complete the following [step a](#) through [step c](#) for each talkfile.
 - a Enter **cd *../new talkfile***
 - b Enter **lcd *../new backup directory***
 - c Enter **mget ***
- 11 Exit the ftp program.

Backing Up Database Tables

To backup database tables, do the following:

- 1 From a DOS prompt on the server, enter **cd *backup directory***

where *backup directory* is the name of the directory you want to use as the backup directory for the ORACLE tables.

- 2 Enter **ftp *machine address or name***

The system asks for the user login.

- 3 Enter an appropriate login id.

The system asks for the user password.

- 4 Enter the user password.

- 5 Enter **cd */save directory***

where *save directory* is the name of the directory in which the database tables were saved in [step 1](#) of [Identifying Database Tables](#) above.

- 6 Enter **prompt**

This command toggles between interactive mode on and interactive mode off. The system should be set to interactive mode off.

- 7 Enter **bin**

This command indicates binary transfer.

- 8 Enter **get *application name*** for every file that you created in [step 4](#) in [Identifying Database Tables](#) above.
where *application name* is the name of the application you are using.
- 9 Exit the ftp program.

Restoring the System

The following section describes the procedure for restoring your system. There are three tools available for you to use to restore your system:

- QuickStart disaster recovery
- BRU (Backup/Restore utility)
- **mkimage** command

Restore the System Using QuickStart

The following section describes the procedure for restoring the UNIX system using the QuickStart software.

To use QuickStart to restore UNIX, do the following:

- 1 Log in as root.
- 2 Type **shutdown -g0 -y**

The system shuts down and displays the following message:

Press any key to continue.

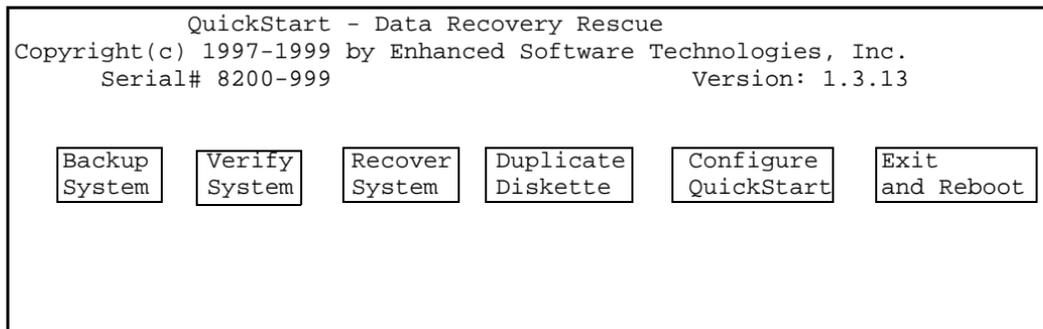
- 3 Insert the diskette labeled “QuickStart Data Rescue 1.3.13” into the diskette drive.
- 4 Press **ENTER**.

The system boots from the QuickStart diskette and displays the following message:

Detecting devices.

After a few minutes the system displays the QuickStart Data Rescue screen ([Figure 37](#)).

Figure 37. QuickStart Data Rescue Screen



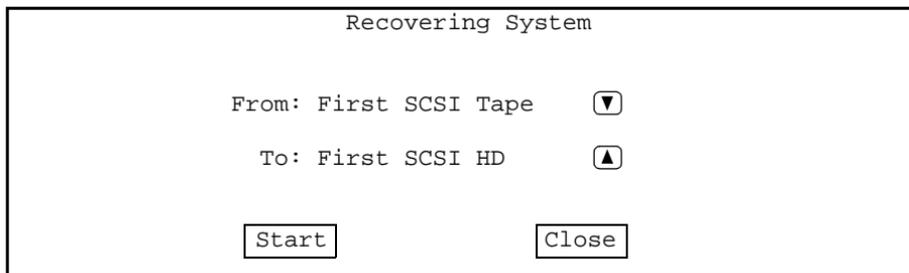
5 Use the **TAB** and **Shift+TAB** keys to move between the selection buttons.

Use the **SPACEBAR** or **ENTER** keys to activate your selection.

6 Select `Recover System`.

The system displays the Recovering System screen ([Figure 38](#)).

Figure 38. Recovering System Screen



7 Use the **TAB** and **Shift+TAB** to move between the selection buttons.
Use the **spacebar** or **Return** to activate your selection.

8 Select the down arrow key to select the tape containing the data you are recovering.

9 Select the up arrow key to select the hard disk drive that will accept the data you recover.

10 Select `Start`.

The system displays the following message:

```
Warning: This will overwrite all data on your First SCSI HD.
```

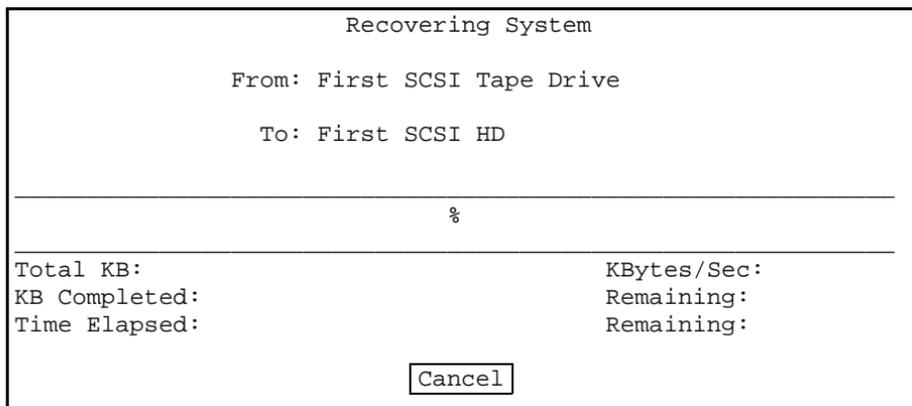
```
Continue
```

```
Cancel
```

11 Select Continue.

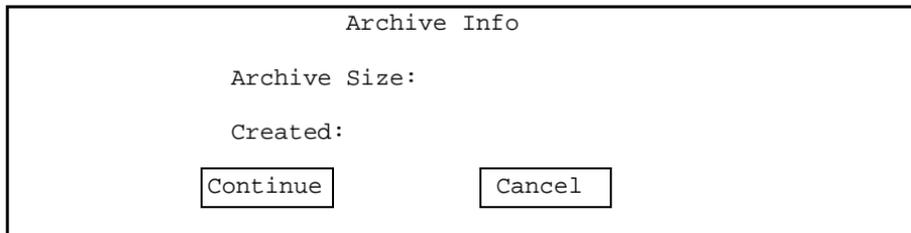
The system displays the Recovering System screen ([Figure 39](#)).

Figure 39. Recovering System Screen



After the system reads the tape header, it displays the Archive Info screen ([Figure 40](#)).

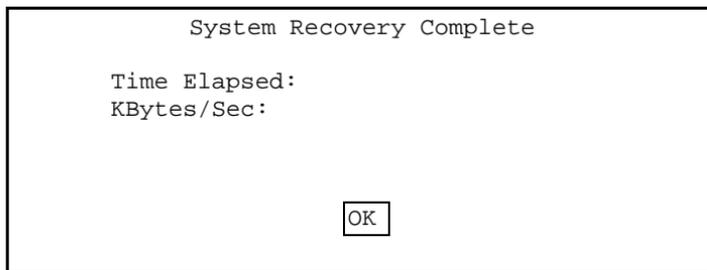
Figure 40. Archive Info Screen



12 Select `Continue`.

The system displays the Recovering System screen ([Figure 39 on page 143](#)), providing continuous system backup status in the lower portion.

When the recovery is complete, the system rewinds the tape and displays the System Recovery Complete screen ([Figure 41 on page 145](#)).

Figure 41. System Recovery Complete Screen

- 13** Select `OK`.

The system displays the QuickStart Data Rescue screen ([Figure 28 on page 107](#)).

- 14** Remove the QuickStart boot floppy from the diskette drive and the tape from the cartridge tape drive.
- 15** Select `Exit` and `Reboot`.

The system reboots to the LINCS server.

Restore the System Using BRU

Once you've restored UNIX using the QuickStart software, you can now fully restore the system with a BRU backup. A Full Restore is the second step in the recovery process.

Performing a Full Restore

To perform a Full Restore, do the following:

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:

```
> Backup/Restore
> Restore
```

The system checks to see if the voice system is running. If the voice system is running, continue with [step 2](#), otherwise go to [step 3](#).

The system displays the following message:

```
The Voice System is running, do you want to stop it for
Restore?
```

- 2 Enter **y**

Note: If you choose N, the voice system is not stopped and the restoration does not continue.

- 3 Insert the tape labeled "Full Backup Created [latest date available]."

The system displays a message similar to the following message:

```
Do you want to recover the following volume:  
Full Backup created on April 3, 1999:  2:30 A. M.  
Enter y to recover (y):
```

4 Enter **y**

Note: If more than one tape is required to restore, the system will prompt you to insert the additional tapes when they are needed.

5 Continue with [Performing a Differential Restore \(page 147\)](#).

Performing a Differential Restore

A Differential Restore is the third step in the recovery process.

To perform a Differential Restore, do the following:

1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:

```
> Backup/Restore  
  > Restore
```

The system checks to see if the voice system is running. If the voice system is running, continue with [step 2](#), otherwise go to [step 3](#).

The system responds with the following message:

```
The Voice System is running, do you want to stop it for
Restore?
```

2 Enter **y**

Note: If you choose **N**, the voice system is not stopped and the restoration does not continue.

3 Insert the tape labeled “Differential Backup Created [latest date available].”

The system displays a message similar to the following message:

```
Do you want to recover the following volume:
Differential Backup created on April 3,1999: 2:30 A. M.
Enter y to recover (y):
```

4 Enter **y**

Note: If more than one tape is required to restore, the system will prompt you to insert the additional tapes when they are needed.

5 Press the reset button.

Restore the System Using mkimage

To perform a system restoration using mkimage, do the following:

- 1 From Chapter 5, “Installing Base System Software,” in *LINCS Server Maintenance*, 585-313-126, use the following procedures:
 - a “Beginning the UnixWare Installation”
 - b “Setting Up the UnixWare Environment”

When the system displays the LINCS Install Type screen ([Figure 42 on page 150](#)), continue with *this* restore procedure.

Figure 42. LINCS Install Type Screen

```
Unix System Installation                LINCS Install Type

You must select whether you are performing a new
installation which configure both disk 0 and disk 1 (if
installed), or are restoring a system from a previously
created mkimage.

Your choices are:

1. New Installation
2. Restore from mkimage
```

2 Insert your system backup cartridge tape labeled “LINCS Image Tape 1” into the tape drive.

3 Enter **2**

The system displays the Insert Tape screen ([Figure 43 on page 151](#)).

Figure 43. Insert Tape Screen

```
UnixWare Installation          Insert LINCS Cartridge Tape

Please insert the cartridge tape into the tape drive and press
'ENTER'.

Your choices are:

1. The tape has been inserted in the tape drive.
2. Go back to previous menu.

Press '1' or '2' followed by 'ENTER': 1
```

4 Press ENTER.

This will accept the default of 1 to indicate the tape has been inserted and is ready for access.

The system displays the following message:

```
Retensioning the tape. This will take about 3 minutes.
Please do not remove the tape. Please wait.
```

The system displays the copying files screen ([Figure 44 on page 152](#)) after retensioning the tape.

Figure 44. Copying Files Screen

```
UnixWare Installation                               Copying Files

Copying LINCS Image to the hard disk.

Do Not remove the LINCS Image Tape until prompted to do so.
```

The restore process could take up to three hours to complete. When the system restoration is complete, the system displays a message stating that you are able to remove the tape from the drive.

5 Remove the tape labeled “LINCS Image Tape 1” from the tape drive.

6 Press **ENTER**.

The system reboots.

7 If your system has more than one hard disk drive, clean the secondary hard disk drives. See Chapter 3, “Replacing the Hard Disk Drive Assembly,” in *LINCS Server Maintenance*, 585-313-126.

Do not remove the partition on the root hard disk drive.

- 8 Reboot the system. See the [Rebooting the UNIX System \(page 168\)](#) procedure.

The system is now ready for you to restore speech files. To restore the speech files, see “Saving and Restoring,” in Chapter 1, “Overview of Speech,” in *Intuity™ CONVERSANT® Version 7.0 Speech Development, Processing, and Recognition*, 585-313-201.

**WARNING:**

Current data, system traffic data, and application data may be lost depending on the date of the last system backup.

Restore the Database Directory from mkimage Backup

- 1 If the database system is running, stop the database. See [Stopping the Database System \(page 170\)](#) for the procedure.
- 2 Perform the “Selective System Restore” procedure described in *Novell UnixWare Backup and Restore Services* book which is part of the *UnixWare Documentation Set*, 585-350-908. Specify the directory **/oracle/dbs**.
- 3 If there are other database files created outside the **/oracle/dbs** directory, perform the “Selective System Restore” procedure for each of the files. See the *Novell UnixWare Backup and Restore Services* book which is part of the *UnixWare Documentation Set*, 585-350-908, for this procedure.

- 4 Start the database. See [Starting the Database System \(page 169\)](#) for the procedure.
- 5 Start the voice system. See [Starting the Voice System \(page 158\)](#) for the procedure.

Restoring Speech Files and ORACLE® Database Tables Using a LAN

This section provides the procedures for restoring speech files and database tables.

Restoring Speech Files

To restore speech files, do the following:

- 1 Using the root login, enter **chmod 777 *directory****
where *directory* is the name of the speech directory as found in [step 1 of Locating Speech Files](#).
- 2 On the server, enter **ftp *machine address or name***
The system asks for the user login.
- 3 Enter an appropriate login id.
- 4 Enter the user password.

5 Enter **cd *directory name*** using the directory name entered in [step 2](#) of [Locating Speech Files](#) above.

6 Enter **cd *talkfile***

where *talkfile* is the speech file being used by the system. This is the file that was identified in [step 4](#) of [Identifying Talkfiles](#) above.

7 Enter **prompt**

This command toggles between interactive mode on and interactive mode off. The system should be set to interactive mode off.

8 Enter **lcd *backup directory***

where *backup directory* is the directory on the server to which the speech files were backed up.

9 Enter **mput ***

This command will put all files in the *talkfile* directory.

10 If there are additional talkfiles which need restored in a different server directory than those which were restored in [step 5](#) through [step 8](#), complete [step a](#) through [step c](#) for each talkfile.

a Enter **cd *./new talkfile***

b Enter **lcd *new backup directory***

c Enter **mput ***

- 11 Exit the ftp program.
- 12 Using the root login, enter **chmod 644 *directory****
where *directory* is the name of the speech directory as found in [step 1](#) of [Locating Speech Files](#).

Restoring Database Tables

To restore database tables, do the following:

- 1 On the server, enter **ftp *machine address or name***

The system asks for the user login.

- 2 Enter an appropriate login id.

The system asks for the user password.

- 3 Enter the user password.

- 4 Enter **cd /*save directory***

where *save directory* is the name of the directory in which the database tables were saved in [step 1](#) of [Identifying Database Tables](#) above.

- 5 Enter **lcd *backup directory***

where *backup directory* is the directory on the server to which the database tables were backed up.

6 Enter **prompt**

This command toggles between interactive mode on and interactive mode off. The system should be set to interactive mode off.

7 Enter **put *application name*** for every application with tables that need restored.

where *application name* is the name of the application you are using.

This command will put all files in *backup directory* on the server.

8 Exit the ftp program.**9** Drop each table to be restored. **CAUTION:**

If the existing tables are not dropped, the system appends the existing tables with the restored tables.

10 On the system, enter **tblres *application***

Note: An explanation of the **tblres** command can be found by entering **tblres**, without any additional arguments, on the system.

11 Repeat [step 10](#) for each database table to be restored.

Administering the Voice System

Administering the voice system includes:

- Starting the voice system
- Stopping the voice system
- Shutting down the voice system

Starting the Voice System

You can stop the voice system from either the windows or the command line.

Using the System Windows

To start the voice system, do the following:

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:

```
> Configuration Management
> System Control
> Start Voice System
```

The system displays the following messages:

```
running bitmapmgr...
bitmapmgr completed.

ORACLE RDBMS is already started.

The Voice System is starting

The Voice System is initializing cards

The Voice System is still initializing cards
Please wait...

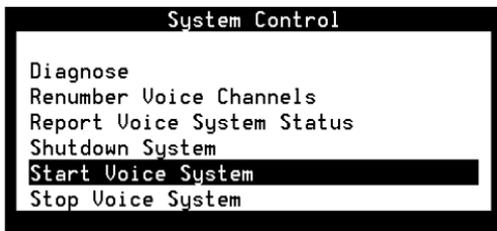
Startup of the Voice system is now complete.

Hit acknowledge key to continue.
```

2 Press F1 (Acknowledge).

The system displays the System Control menu ([Figure 45 on page 160](#)).

Figure 45. System Control Menu



Using the Command Line

To start the voice system, do the following:

1 Enter **start_vs**

The system displays the following messages:

```
running bitmapmgr...
bitmapmgr completed.

ORACLE RDBMS is already started.

The Voice System is starting

The Voice System is initializing cards

The Voice System is still initializing cards
Please wait...

Startup of the Voice system is now complete.
```

Stopping the Voice System

You must stop the voice system to complete the following tasks:

- Replacing a component in the CompactPCI
- Performing routine backup and restore procedures

When the voice system is stopped, the entire system is placed in the idle state when all lines are free, the internal system tables are saved, and all processes are turned off.

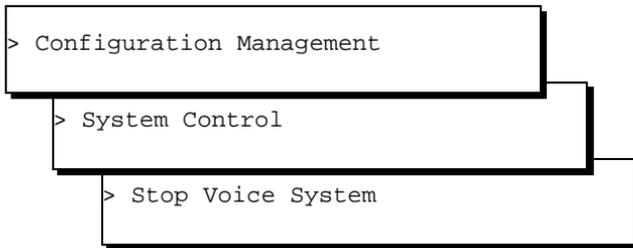
The voice system can be stopped from either the windows or the command line.

Using the System Windows

To stop the voice system, do the following:

Note: Have the system administrator route calls away from the system before beginning this procedure.

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:



The system displays the Wait Time window ([Figure 46](#)).

Figure 46. Wait Time Window



- 2 Enter a number between 60 and 600.

This is the number of seconds you want the system to wait for all calls to clear before stopping the voice system.

3 Press **F3** (Save).

The system displays the following messages:

```
The Voice System is now stopping.
```

```
Initiating request to clear all calls in the next X seconds.
```

```
Orderly idling of the system succeeded.
```

```
After the voice system has completely stopped, use the "Start  
Voice System" choice from the system control menu to restart  
the voice system.
```

```
The Voice System has stopped.
```

```
Press Enter to continue.
```

4 Press **ENTER**.

The system displays the System Control menu ([Figure 45 on page 160](#)).

Using the Command Line

To stop the voice system, do the following:

Note: Have the system administrator route calls away from the system before beginning this procedure.

1 Enter **stop_vs time**

where *time* is the time (60 to 600 seconds) that you want the system to wait before it begins the shut down procedure. The default wait time is 180 seconds.

The system displays the following message:

```
The Voice System is now stopping.
```

```
Initiating request to clear all calls in the next X seconds.
```

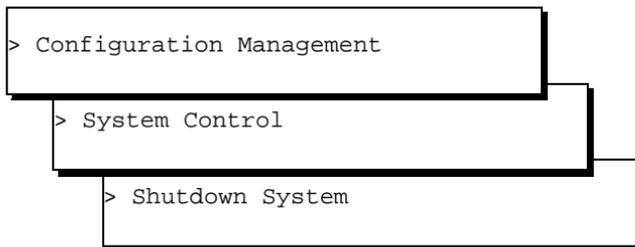
```
Orderly idling of the system succeeded.
```

After the voice system has completely stopped, use the “Start Voice System” choice from the system control menu to restart the voice system.

Shutting Down the Voice System

To shut down the voice system, do the following:

- 1 Starting at the Voice System Administration Menu ([Figure 33 on page 114](#)), select:



The system displays the Wait Time window ([Figure 46 on page 162](#)).

- 2 Enter a number between 0 and 60.

This is the number of seconds you want the system to wait for all calls to clear before shutting down the voice system.

- 3 Press **F3** (Save).

The system displays the following messages:

```
The Voice System is now stopping.
```

```
Initiating request to clear all calls in the next X seconds.
```

```
Orderly idling of the system succeeded.
```

After the voice system has completely stopped, use the [Starting the Voice System \(page 158\)](#) to restart the voice system.

Administering the Operating System

Administering the operating system includes:

- Shutting down the operating system
- Rebooting the operating system

Shutting Down the Operating System

You can shut down the operating system:

- Using the system windows
- Using the command line

Note: The system automatically resets the machine clock for daylight savings time. If your system is down at the time at that daylight savings time is updated (April and October), your machine clock will not indicate the correct time.

Using the System Windows

1 Stop the voice system. See [Stopping the Voice System \(page 161\)](#).

2 Enter **cviss_mainmenu**

The system displays the main menu.

3 Select:

```
> UNIX System Administration
```

```
> machine
```

```
> shutdown
```

The system displays the Shut Down the Machine window ([Figure 47](#)).

Figure 47. Shut Down the Machine Window

```
3 Shut Down the Machine
Users currently logged on:
root      console      Jul  8 06:39
root      pts000         Jul  8 08:48
```

4 Press F3 (Continue).

The system displays the next Shut Down the Machine window ([Figure 48](#)).

Figure 48. Shut Down the Machine Window (continued)

```
4 Shut Down the Machine
Number of seconds before shutdown starts:   60

WARNING: Once started, this procedure CANNOT BE STOPPED!
Strike SAVE to proceed with shutdown and exit Oa&M.
```

5 Enter the number of seconds the machine should wait to clear all calls before shutting down. Valid values are between 0 and 9999.

6 Press **F3** (Save).

If you selected “0,” the shutdown starts immediately. In this case, all remote users (if any) are notified that a shutdown is starting immediately.

Using the Command Line

To shut down the operating system using the command line, do the following:

1 Stop the voice system. See [Stopping the Voice System \(page 161\)](#).

2 Enter **shutdown -i0 -y -g0**

Rebooting the UNIX System

To reboot the UNIX system, do the following:

1 Stop the voice system. See [Stopping the Voice System \(page 161\)](#) for the procedure.

2 Enter **shutdown i6 -y -g0**

Administering the Database System

Administering the database system consists of:

- Starting the database system
- Stopping the database system

Starting the Database System

To start the database system, do the following:

1 Enter `/oracle/bin/ior w`

The system displays the following messages followed by the UNIX prompt.

```
ORACLE instance started.  
Database mounted.  
Database opened.  
Total System Global Area          877716 bytes  
Fixed Size                        24908 bytes  
Variable Size                     410440 bytes  
Database Buffers                  409600 bytes  
Redo Buffers                       32768 bytes  
SQL*DBA complete.
```

If the database start-up fails, the system may hang, forcing you to press **DEL**, or the system may provide error information and return the system prompt. If the system returns error information, enter:

`/oracle/bin/oerr ora error_num`

where *error_num* is the ORACLE error number in the reason field of the error message.

The output will contain a brief explanation of the error, the cause, and the action to take to correct it.

Note: You can also refer to the *ORACLE Error Messages and Codes Manual* for the explanation. If the error is unique to the UNIX environment, you can also see the *ORACLE for UNIX Technical Reference Guide* for detailed information.

Follow the actions suggested to correct the problem.

Stopping the Database System

To stop the database system, do the following:

- 1 If the voice system is still running, perform [Stopping the Voice System \(page 161\)](#).
- 2 Enter **`/oracle/bin/ior s`**

The system displays the following messages followed by the UNIX prompt:

```
Database closed.
```

```
Database dismounted.
```

```
ORACLE instance shut down.
```

```
SQL*DBA complete.
```

If the database shutdown was not successful, complete [step a](#) and [step b](#).

a Press **DEL**.

The system displays the following message:

```
ORA-01013: user requested cancel of current operation  
SQL*DBA complete.
```

b Enter **/oracle/bin/iorc**

The system displays the following message:

```
ORACLE instance shut down.  
SQL*DBA complete.
```

Dropping a Database Table

If the table resides in a remote system machine, perform the following procedure on that remote machine.

Note: If the table resides in a non-system remote machine, contact the database administrator of the remote machine for assistance.

- 1 Enter **/oracle/bin/orastat** to verify that the database is running

The system displays either the number 1 or the number 0.

If “1” is displayed, the database is not running. Start the database. See [Starting the Database System \(page 169\)](#) for the procedure.

If “0” is displayed, the database is running. Continue with [step 2](#).

- 2 Enter **/oracle/bin/sqlplus sti/sti**

This will invoke the ORACLE SQL*PLUS utility.

The system displays the following message:

```
SQL*Plus: Release 3.1.1.9.1>
```

3 Enter **drop table *tblname***

where *tblname* is the name of the table to be dropped enclosed in double quotes.

Note: The table name is case sensitive. It must also be enclosed in double quotes appearing exactly as it appears in the system message.

If the table is dropped successfully, the system displays the following message:

```
Table dropped.
```

If the REASON field is `ORA: 00942 table or view does not exist`, continue with [step 4](#).

If the table cannot be dropped, complete [step a](#) through [step d](#).

a Enter **quit**

This will exit the SQL*PLUS utility.

b Stop the database. See [Stopping the Database System \(page 170\)](#) for the procedure.

- c Start the database. See [Starting the Database System \(page 169\)](#) for the procedure.
- d Repeat [step 3](#) of this procedure.

4 Enter **quit**

This will exit the SQL*PLUS utility.

Recreating the System Traffic Tables

To recreate the system traffic tables, do the following:

Note: All current system traffic data is lost after performing this procedure.

- 1 Stop the voice system. See [Stopping the Voice System \(page 161\)](#) for the procedure.
- 2 Enter `/oracle/bin/sqlplus \@ /oracle/dist/cdh.sql`

This will drop and recreate all system traffic tables.

Start the voice system. See [Starting the Voice System \(page 158\)](#) for the procedure.

Verifying the Date and Time

Checking the Date and Time Window

To check the date and time, do the following:

- 1 Starting at the LINCS administration menu ([Figure 25 on page 103](#)), select:

```
> UNIX System Administration
> system_setup
> datetime
> display
```

The system displays the Display System Date and Time Information window ([Figure 49 on page 176](#)).

Figure 49. Display System Date and Time Information Window

```
4 Display System Date and Time Information
Date: August 17, 1999
Time: 11:55
AM/PM: AM
Timezone: Eastern
Daylight savings time? yes
```

- 2 Check each of the fields.
- 3 If all of the fields are correct, press **F3** (Cont).

If a field contains incorrect information, continue with [Changing the Date and Time \(page 177\)](#).

Changing the Date and Time

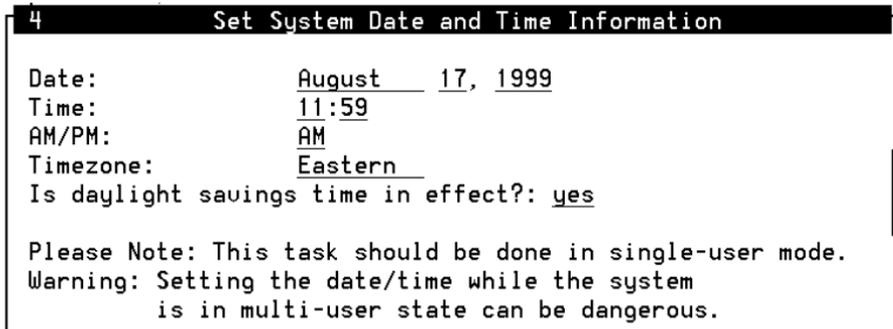
You can change any of the displayed fields. To change any of the displayed fields, do the following:

- 1 Starting at the LINCS administration menu ([Figure 25 on page 103](#)), select:

```
> UNIX System Administration
> system_setup
> datetime
> set
```

The system displays the Set System Date and Time Information window ([Figure 50 on page 178](#)).

Figure 50. Set System Date and Time Information Window



```
4 Set System Date and Time Information
Date:           August 17, 1999
Time:           11:59
AM/PM:          AM
Timezone:       Eastern
Is daylight savings time in effect?: yes

Please Note: This task should be done in single-user mode.
Warning: Setting the date/time while the system
         is in multi-user state can be dangerous.
```

Changing the Date

The date field contains the month, day, and year. If any portion of the date is incorrect, use the following procedure to correct it.

- 1 Place the cursor on the month portion of the `Date:` field.
- 2 If the month shown is not correct, enter the name of the correct month and press **Tab** to move to the day portion of the field.
If the month shown is correct, press **Tab** to move to the day portion of the field.
- 3 If the day shown is not correct, enter the correct day as a number from 1 to 31 and press **Tab** to move the year portion of the field.
If the day shown is correct, press **Tab** to move to the day portion of the field.

- If the year shown is not correct, enter the correct year as a number from 1996 to 2038 and press **Tab** to move to the `Time:` field. Continue with [Changing the Time Field \(page 179\)](#).

If the year shown is correct, press **Tab** for no change and to move to the `Time:` field. Continue with [Changing the Time Field \(page 179\)](#).

Changing the Time Field

If the time shown is not correct, enter the correct time in the form of *hours:minutes* and press **Tab** to move to the `AM/PM:` field. Continue with [Changing the AM/PM Field \(page 179\)](#).

Note: Use a 12-hour a.m./p.m. standard. Do not use the 24-hour military standard.

If the time shown is correct, press **Tab** for no change and to move to the `AM/PM:` field. Continue with [Changing the AM/PM Field \(page 179\)](#).

Changing the AM/PM Field

If `AM/PM:` is not correct as shown, type **AM** for a.m. or **PM** for p.m. and press **Tab** to move to the `Timezone:` field. Continue with [Changing the Timezone Field](#).

If `AM/PM:` is correct as shown, **Tab** to move to the `Timezone:` field. Continue with [Changing the Timezone Field](#).

Changing the Timezone Field

If the timezone shown is not correct, complete [step 1](#) through [step 3](#) and continue with [Changing the Is Daylight Savings Time in Effect Field \(page 181\)](#).

- 1 Press **F2** (Choices) to display the list of time zones ([Figure 51](#)).

Figure 51. UNIX Time Zone Choices Menu

```
5 Available Timezones
>Greenwich (GMT)
Atlantic (AST & ADT)
Eastern (EST & EDT)
Central (CST & CDT)
Mountain (MST & MDT)
Pacific (PST & PDT)
Yukon (YST & YDT)
Alaska (AST & ADT)
Bering (BST & BDT)
Hawaii (HST)
```

- 2 Use **▲** or **▼** to move the cursor and highlight the correct time zone.
- 3 Press **ENTER** to place the name of the correct time zone into the `Timezone:` field.
- 4 Press **Tab** to move to the `Is Daylight savings time in effect?:` field. Continue with [Changing the Is Daylight Savings Time in Effect Field](#).

If the time zone shown is correct, press **Tab** for no change and to move to the `Is Daylight savings time in effect?:` field. Continue with [Changing the Is Daylight Savings Time in Effect Field](#).

Changing the Is Daylight Savings Time in Effect Field

- 1 Type **yes** or **no** depending upon whether or not daylight savings time is used at any time during the year.
- 2 Press **F3** (Save) to save the changes and continue [Acknowledging the Changes to the Date and Time Window](#).

Acknowledging the Changes to the Date and Time Window

After the changes have been made to the Set System Date and Time window, the user must ensure that the system recognizes the new information. To acknowledge the new information, do the following:

- 1 Once you press F3 (Save) to save and record all the changes you made in the window, the system responds with the Setting System Date and Time Information window ([Figure 52 on page 182](#)).

Figure 52. Setting System Date and Time Information

```
5          Setting System Date and Time Information

The datetime task has successfully changed the system date
and time information.  You may need to log out and log in again
to see any time zone changes.  The change will be reflected in all
new processes invoked after this time.

The Date and Time have been set to
August 17, 1999 11:59 AM Eastern.

The cron daemon has been restarted to pick up the new time and/or
timezone.
```

- 2 Reboot the system. See [Rebooting the UNIX System \(page 168\)](#) for the procedure.

At this time, the date and time changes will take affect.

- 3 Use the procedure in [Checking the Date and Time Window \(page 175\)](#) to ensure that the changes have been correctly recorded.

4 Alarms and Log Messages

ADM Alarms and Log Messages

ADM001

Alarm Level

Major.

Description

The Administration process encountered a system error while trying to access a file. The value of `errno` indicates the reason for the error.

Repair Procedure

Perform the following procedures to correct the alarm. Contact your service representative for assistance.

- 1 Check the file or directory named in the error message; it may be corrupted or missing.
- 2 Ensure that the `/` and `/usr` file systems are not out of free space.
- 3 Possible damaged file system (use `fsck` when the system is at a single user level).
- 4 Possible disk or disk controller problems.

ADM002

Alarm Level	Major.
Description	The Administration process encountered a problem while trying to send or receive an interprocess communication message. The value of errno indicates the reason for the error.
Repair Procedure	Contact your service representative for assistance.

ALERT Alarms and Log Messages

ALERT001

Alarm Level	None.
Description	This messages indicates a threshold level change for the included message. The action taken by the Alerter when a threshold change occurs is defined with the System Messages Administration window under <i>Configuration Management</i> in the Voice System Administration menu.
Repair Procedure	No corrective action is necessary.

ALERT002

Alarm Level None.

Description The Alerter has received a command to reset its statistics.

Repair Procedure No corrective action is necessary.

ALERT003

Alarm Level None.

Description The Alerter has received a command to print or reset an invalid threshold.
An invalid threshold was entered by a user at the Alerter command interface.

Repair Procedure No corrective action is necessary.

ALERT004

Alarm Level None.

Description The Alerter failed to convert the indicated threshold rules file to alerter thresholds for voice system messages. Thresholding for voice system messages will not function.

If no thresholds were specified, this message can be ignored.

Repair Procedure Restore the thresholds rules file indicated using a system backup.

If no valid backup exists, reinstall the system software.

ALERT005

Alarm Level None.

Description The Alerter created the indicated number of message thresholds from the thresholds rules file.

Repair Procedure No corrective action is necessary.

ALERT006

Alarm Level None.

Description The Alerter updated message thresholds from the threshold rules file.

Repair Procedure No corrective action is necessary.

ALERT007

Alarm Level None.

Description The Alerter updated messages thresholds from the threshold rules file.

Repair Procedure No corrective action is necessary.

BRDG Alarms and Log Messages

BRDG001

Alarm Level: Major.

Description: The Call Bridge feature failed to communicate with the voice system during call processing. The application is unable to bridge calls.

Repair Procedure: Reboot the operating system.

BRDG002

Alarm Level: Major.

Description: The Call Bridge feature failed to communicate with the voice system during call processing. The application is unable to bridge calls.

Repair Procedure: Reboot the operating system.

BRDG003

Alarm Level: Major.

Description: The Call Bridge feature failed to access a shared resource of the voice system during the initialization. The application is unable to bridge calls.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the operating system.

BRDG004

Alarm Level: Major.

Description: The Call Bridge feature failed to access a shared resource of the voice system. The application is unable to bridge calls.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the operating system.

BRDG005

Alarm Level: Minor.

Description: The Call Bridge feature failed to find an available channel in the equipment group specified in the message. The application may not be able to complete the call bridge.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
*C THR004      The first threshold level for BRDG_NOCHAN
exceeded. 10 messages have been generated in the last 5
minutes.
```

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

- Repair Procedure:**
- 1 Verify that all channels are assigned to the equipment group specified by the script bridge instruction.
 - 2 Verify that all channels assigned to the equipment group specified are in service.
 - 3 Check if all the channels assigned in the equipment group specified are not busy.

CGEN Alarms and Log Messages

CGEN001

Alarm Level: Minor.

Description: An internal voice system process received an unexpected message from the process identified in this message. The message has been ignored.

Repair Procedure:

- 1 Identify the source of the unexpected message.
 - a If the source of the unexpected message is a customer application data interface process (DIP), contact the application developer.
 - b Otherwise, perform the following steps:
 - Stop the voice system.
 - Start the voice system.
- 2 If the problem persists, confirm that all installed system software packages are compatible with the installed version of the LINCOS software package. See Chapter 7, "Installing the Optional Feature Software," in *LINCOS Server Maintenance*, 585-313-126.
- 3 Remove any software package that is incompatible and install the proper version. See Chapter 7, "Installing the Optional Feature Software," in *LINCOS Server Maintenance*, 585-313-126.

CGEN002

Alarm Level: Major.

Description: The voice system system table named in the message is corrupted or cannot be accessed by the source of the message. System functionality is severely impaired.

Repair Procedure:

- 1 Check the system to make sure that the number of cards installed is a legal configuration, that is, there are not too many channels.
- 2 If *table_name* is DEVTBL perform [step a](#) through [step c](#):

 **CAUTION:**

The following procedure will cause all system configuration information to be lost. This includes switch administration, service assignments, etc. When the voice system is restarted, the system configuration will use the default settings.

- a Stop the voice system.
- b Move the devtbl to another area. For example, enter:

```
mv /gendb/shmem/devtbl /gendb/shmem/devtbl.old
```
- c Start the voice system.

- 3 If *table_name* is other than DEVTBL, perform [step a](#) through [step c](#):
 - a Stop the voice system.
 - b Start the voice system.
 - c If the problem persists, reboot the operating system.

CGEN003

Alarm Level: Critical.

Description: An internal voice system process cannot communicate with other internal voice system processes. System functionality is severely impaired.

Repair Procedure: Reboot the operating system.

CGEN004

Alarm Level: Critical.

Description: An internal voice system process cannot communicate with other internal voice system processes. System functionality is severely impaired.

Repair Procedure: Reboot the operating system.

CGEN005

Alarm Level: Critical.

Description: The voice system cannot communicate with the specified process. System functionality is severely impaired.

Note: If the reason given for this message is `EAGAIN`, an interprocess communication message queue capacity across all processes on the voice system is being exceeded. When this happens, all processes may have trouble communicating with one another. The process listed in the message may or may not be the process which caused the problem. This may affect only the receiving process listed in the message if the receiving process is not handling incoming messages often enough. Note the receiving process is the process which failed to get the message. If the receiving process listed is a customer application DIP, consult with the programmer to determine why the process is getting behind in reading its message queue. If the receiving process is a voice system process (for example, VROP, MTC, TSM, etc.) then it is more likely that all processes are having trouble communicating, and call handling will be severely impaired until the repair procedure below is followed.

- Repair Procedure:**
- 1 To gather data about this problem for later analysis, complete [step a](#) through [step d](#):
 - a Enter **cd /usr/install**
 - b Enter **sar > sar.out**
 - c Enter **ps -ef > ps.out**
 - d Enter **ipcs -qop > ipcs.out**
 - 2 Reboot the operating system.

If the reason for this message is `EAGAIN`, and you have recently added hardware to the system, diagnose the circuit card to ensure that the card recently added has a unique index.

For example, make sure that there are not two T1/E1 circuit cards that have the same switch setting for T1-2.
 - 3 If the problem persists, follow the trouble escalation procedure and inform personnel that you have collected the data listed in [step 1](#).

CGEN006

Alarm Level: Critical.

Description: The voice system failed to initialize properly. System functionality is severely impaired.

- Repair Procedure:** **Note:** If *reason* for this message is `Cannot remove initialization file <filename> <UNIX errno>`, the UNIX operating system was unable to perform a remove request on behalf of an internal voice system process. See INTRO(2) in the UNIX SVR4.2 Programmer's Reference Manual for more information on the operating system error.
- Note:** If the *reason* for this message is `Failed to get telephony type of channel`, the systems rmdb's NCHANNELS turnable of 121 is exceeded. Increment the NCHANNELS and rebuild the kernel
- 1 Stop the voice system.
 - 2 Start the voice system.
 - 3 If the system message is printed again, remove the file by entering:
`rm -f filename`
 - 4 If the file cannot be removed, consult the UNIX SVR4.2 Programmer's Reference Manual for more information on the operating system error.
 - 5 If the problem persists, reboot the operating system.

CGEN007

Alarm Level: Critical.

Description: The voice system failed to allocate memory internally for data. System functionality is severely impaired.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the operating system.
 - ~ If this message reports that space for a file **/vs/trans/script.D** could not be allocated, then the following may have occurred:
 - ~ There may be a large number of script.D files in **/vs/trans**. Remove any **script.D** files that are no longer needed. Check that the **script.D** files that are needed have not been corrupted.
 - ~ If the error message was reported by CDH, enter **/vs/bin/newscript**
This causes CDH to reread all the **/vs/trans/script.D** files.
 - ~ If the error was reported by one of the reporting programs **cddrot** or **cdrpt**, rerun the report.

If the error persists, your system may either require more memory to function normally or there may be a process memory leak that requires examination by field support.

CGEN009

Alarm Level: Major.

Description: The voice system failed to open or attach the SSP card driver. System SSP cards are unusable.

Repair Procedure:

- 1 Reboot the operating system.
- 2 If the problem persists, reinstall the ASP driver. See "Installing the ASP Driver," in Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126.

CGEN010

Alarm Level: Major.

Description: The voice system failed to open the T1/E1 card driver. System T1/E1 cards are unusable.

- Repair Procedure:**
- 1 If this problem occurs because the T1/E1 driver was purposely removed and you do not wish to reinstall it, renumber the voice channels. See Chapter 3, "Voice System Administration," of *LINCS Server Administration*, 585-3131-507.
 - 2 If the problem persists or if T1/E1 cards are present in the system, reboot the operating system.
 - 3 If the problem persists, reinstall the T1/E1 circuit card driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

CGEN013

Alarm Level: Major.

Description: The voice system failed to perform the indicated function on the SSP card specified. System functionality is severely impaired.

- Repair Procedure:**
- 1 If any packages (for example, ISDN PRI, Whole Word, Flex Word, CCA) have been removed from the system recently, verify that any related cards, functions, etc. have been unassigned from the application so that the affected card does not come up in the BROKEN state.
 - 2 Verify that a FlexWord and/or WholeWord grammar has been installed and assigned.

- 3 If the card remains in the BROKEN state, perform the Reducing Load procedure.
- 4 If the card remains in the BROKEN state, check the circuit card.
- 5 If the card remains in the BROKEN state, reinstall the SSP circuit card driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

CGEN014

Alarm Level: Major.

Description: The voice system failed to perform the indicated function on the SSP card specified. SSP card functionality is impaired.

Repair Procedure:

- 1 Perform diagnostics for the failed SSP card.
 - a Enter **diagnose card *card number***
where *card number* is the card number of the SSP card from the display card sp command output.
 - b If the card passes diagnostics, place it back in service by entering:
restore card *card number*
where *card number* is the card number of the SSP card you want to restore to service.

- 2 If the problem persists, check the circuit card.
- 3 If the problem persists, reinstall the ASP driver. See "Installing the ASP Driver," in Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126.

CGEN015

Alarm Level: Critical.

Description: The voice system failed to perform the indicated function on the T1/E1 voice channel or card specified. System functionality is severely impaired.

Repair Procedure:

- 1 Perform diagnostics for the failed T1/E1 card.
 - a Enter **diagnose card *card number*** where *card number* is the card number of the T1/E1 card from the display card t1 command output.
 - b If the card passes diagnostics, place it back in service by entering:
restore card *card number*
where *card number* is the card number of the T1/E1 card you want to restore to service.

- 2 If the problem persists, check the circuit card.
- 3 If the problem still persists, reinstall the T1/E1 card. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

CGEN016

Alarm Level: Major.

Description: The voice system failed to perform the indicated function on the T1/E1 voice channel or card specified. T1/E1 card functionality is impaired.

- Repair Procedure:**
- 1 Perform diagnostics for the failed T1/E1 card.
 - a Enter **diagnose card *card number*** where *card number* is the card number of the T1/E1 card.
 - b If the card passes diagnostics, place it back in service by entering:
restore card *card number*
where *card number* is the card number of the T1/E1 card you want to restore to service. If the problem persists, check the circuit card.
 - 2 If the problem still persists, reinstall the T1/E1 card. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

CGEN017

Alarm Level: Major.

Description: The system was unable to save configuration changes made by the user (for example, script assignments to a channel, or card remove/restores) on disk. Shared memory updates will be lost when system is rebooted. Call processing is not affected until then.

Repair Procedure:

- 1 Reboot the operating system.
- 2 If the problem persists, restore the system from backup.

CGEN019

Alarm Level: Critical.

Description: Cannot determine whether the system software is installed.

Repair Procedure: Contact your service representative for assistance.

CGEN020

Alarm Level: Critical.

Description: An incoming call has not been processed because no service was assigned to the specified channel or the dialed number identification service (DNIS) and automatic number identification (ANI).

Repair Procedure: 1 Determine how new calls on the channel number indicated by the message should be routed to services.

New calls can be routed based on channel number or based on DNIS and/or ANI.

2 If new calls on the channel number should be routed based on channel number, enter:

assign service *service* to chan *chan*

where *service* is the name of the service to be assigned and *chan* is the channel number indicated by the message.

3 If new calls on the channel number should be routed based on DNIS and/or ANI, enter:

assign service *service* to *dnis* phone list [*ani phone list*]

where *service* is the name of the service to be assigned and *dnis* is either the DNIS of the new call to be routed, or the word "any", and *phone list* is either the ANI number of the new call to be routed, or the word *any*.

- 4 See the **assign** command in Appendix A "Summary of Commands," in *LINCS Server Administration*, 585-313-507.

CGEN021

Alarm Level: Critical.

Description: An internal software error occurred when describing channel characteristics to the Resource Manager. The identified channel is unusable.

- Repair Procedure:**
- 1 If the error is `EINVAL`, check the system to make sure that the number of cards installed is a legal configuration, that is, there are not too many channels. See *LINCS Server System Description* 585-313-209, for channel maximums.
 - 2 Renumber the voice channels. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
 - 3 If the problem persists, or if the error is not `EINVAL`,
 - a Stop the voice system.
 - b Start the voice system.
 - c If the problem persists, reboot the operating system.

CGEN022

Alarm Level: Minor.

Description: The voice system failed to reset the restriction list for a channel. System functionality may be impaired if applications are assigning resource restrictions to channels (`irRestrictResource(3irAPI)`).

- Repair Procedure:**
- 1 Make sure AD or the customized default owner is run as root.
 - 2 If AD or the customized default owner is run as root, perform the following Steps a and b:
 - a Stop the voice system.
 - b Start the voice system.
 - 3 If the problem persists, reboot the operating system.
 - 4 If the problem persists, reinstall the LINCS Software Package. See Chapter 6, "Installing the LINCS Server Software" in *LINCS Server Maintenance*, 585-313-126.
 - 5 If the problem persists, contact your service representative.

CGEN023

Alarm Level: Major.

Description: A channel was returned to the default owner because of an abrupt exit of the prior channel owner. This message may indicate an IRAPI application failed to release (`irDeinit(3irAPI)`) prior to exit (2) or an IRAPI application core dump. Any outstanding activities on the channel are cancelled and the channel is made available to take new calls.

If a transient IRAPI process does not wait for an `IRE_DEINIT_DONE` event before exiting, they will generate a CGEN023 alarm. The IRAPI process must call **(void) irSetEvent(cid, IRE_DEINIT_DONE, IRF_NOTIFY);** to the `IRE_DEINIT_DONE` event to be generated.

Repair Procedure: No corrective action is necessary.

CGEN024

Alarm Level: Critical.

Description: The voice system service *service* provided by process *process* has failed to startup, therefore an incoming call has not been processed.

- Repair Procedure:**
- 1 If the messages indicate that the process is a permanent process, go to [step 2](#), otherwise, complete [step a](#) and [step b](#).
 - a Stop the voice system.
 - b Start the voice system.
 - 2 To determine whether or not the permanent process is running, enter:
ps -ef.
If the process is running, go to [step 3](#).
If the *process* is not running, make sure that it is correctly entered in the **/etc/inittab** file.
The application developer should try to determine why the process failed before continuing to use the system.
 - 3 Check that the process *process* exists and is executable by entering:
ls -l process
where *process* is the process indicated in the message.
 - a If the process is not executable, enter **chmod +rx process**
 - b If the process is executable, check to make sure the service assigned to the channel is a valid service by entering:
display service
If the service is on the list, it is a valid service.
If the service is not on the list, reassign the service.

CGEN025

Alarm Level: Critical.

Description: A voice system service registration file has a bad format or is the wrong version. The service corresponding to this registration file may be started incorrectly and, therefore, not function properly.

Repair Procedure:

- 1 If the service indicated in the message (*service*) is a TSM service, using Script Builder, verify and install the service *service*.
- 2 If the service indicated in the message (*service*) is not a TSM service, the registration file should be rebuilt by entering **defService service** where *service* is the service specified in the message.

See the **defService** command in Appendix A, "Summary of Commands" in *LINCS Server Administration*, 585-313-507.

CGEN026

Alarm Level: None.

Description: Timeout on attempt to idle channel.

Repair Procedure: No corrective action is immediately necessary. Automatic recovery occurs within 60 seconds. If this event occurs frequently or if resources are underutilized, which will be reported by other messages, then do the following:

- 1 Stop the voice system.
- 2 Start the voice system.

CGEN027

Alarm Level: None.

Description: Could not open file.

Repair Procedure: No corrective action is necessary.

CGEN028

Alarm Level: Minor.

Description: Call to third party API failed.

Repair Procedure: No corrective action is necessary.

CGEN029

Alarm Level: Minor.

Description: In-service channels occupancy off high water mark.

Repair Procedure: No corrective action is necessary.

CGEN030

Alarm Level: None.

Description: The voice system detected that the occupancy of the in-service channels is below the high water mark.

Repair Procedure: No corrective action is necessary.

CGEN031

Alarm Level: Major.

Description: An internal software error occurred when describing an equipment group to the Resource Manager. Applications that use the equipment group identified in the message may not function correctly.

- Repair Procedure:**
- 1 Stop the voice system.
 - 2 Start the voice system.
 - 3 If the problem persists, reboot the operating system.

CGEN032

Alarm Level: Critical.

Description: A voice system system file is corrupted and cannot be accessed by the internal voice system process that describes channel and SSP characteristics to the Resource Manager. SSP resources cannot be accessed. Functions provided by SSP cards, such as Speech Recognition and Text-to-Speech, are not available. Voice coding and playback are not available for systems that require an SSP for these services.

- Repair Procedure:**
- 1 Use the **pkgrm** command to remove any packages installed on the system that are in the following list:
 - ~ Intuity Call Classification Analysis
 - ~ Intuity ISDN Primary Rate Interface Package
 - ~ Intuity Speech Recognition Package - US English
 - ~ Intuity Text-to-Speech Package
 - ~ Intuity FlexWord™ Recognition Package
 - 2 Use pkgrm command to remove the ASP Driver Package.
 - 3 Reinstall the LINCS Software Package. See Chapter 6, "Installing the LINCS Server Software," in *LINCS Server Maintenance*, 585-313-126.
 - 4 If the problem persists, reinstall the ASP driver. See "Installing the ASP Driver," in Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126.
 - 5 Reinstall all of the other packages removed in [step 1](#). See Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126, for information on installing software.

CGEN033

Alarm Level: None.

Description: Some unexpected information was found in a file containing resource characteristic information. This information will be ignored.

Repair Procedure: No corrective action is necessary.

CGEN034

Alarm Level: Major.

Description: A voice system system file is corrupted or cannot be accessed by the internal voice system process that describes channel and SSP characteristics to the Resource Manager. SSP resources cannot be accessed. Functions provided by SSP cards, such as Speech Recognition and Text-to-Speech, are not available. Voice coding and playback are not available for systems that require an SSP card for these services.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the operating system.

CGEN035

Alarm Level: Major.

Description: The internal UNIX kernel variable *1bolt* is approaching the maximum possible variable of 248 days since the last reboot. If the system is not rebooted, several problems could occur when *1bolt* reaches the maximum possible value. System timeouts could occur prematurely or fail to occur.

A reboot of the system should be scheduled to occur within the number of days specified or an automatic reboot will occur. By manually performing the reboot, it may be possible to reduce the impact service caused by the reboot.

Repair Procedure: Reboot the system at a time of low system activity.

CGEN036

Alarm Level: None.

Description: The voice system detected the indicated Feature Licensing values for the function not specified.

Repair Procedure: No corrective action is necessary.

CGEN037

Alarm Level: Major.

Description: The voice system failed to enable Feature Licensing for some features. Functionality of some features may be impaired.

Repair Procedure: Contact your service representative for assistance.

CGEN038

Alarm Level: Critical.

Description: The voice system failed to enable Feature Licensing. Functionality of features is impaired.

Repair Procedure: Contact your service representative for assistance.

CGEN039

Alarm Level: Critical.

Description: The voice system failed to enable Feature Licensing. System functionality is impaired.

Repair Procedure: Contact your service representative for assistance.

CHRIN Alarms and Log Messages

CHRIN001

Alarm Level: Critical.

Description: An internal software error occurred when describing channel and SSP characteristics to the Resource Manager. System functionality is severely impaired.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the operating system.

CHRIN002

Alarm Level: Major.

Description: A voice system system file is corrupted or cannot be accessed by the internal voice system process that describes channel and SSP characteristics to the Resource Manager.

- Repair Procedure:**
- 1 Stop the voice system.
 - 2 Start the voice system.
 - 3 If the problem persists, reboot the operating system.

CIOX Alarms and Log Messages**CIOX001**

Alarm Level: Major.

Description: The indicated file can not be accessed for the reason specified in the message. Applications requiring playing from or recording to the file will be incomplete.

- Repair Procedure:**
- 1 Consult the application developer to verify the application. See [CIOX001 — Application Developer Notes](#).
 - 2 If the application is correct, restore the speech file(s) from the backup. If the backup is not available, consult the application developer to recreate the speech file.
 - 3 If the problem persists, reboot the operating system.

**CIOX001 —
Application
Developer Notes:**

- 1 Verify that the application refers to the correct speech file.
- 2 Verify that the speech file is in existence with the correct access permission.

CIOX002

Alarm Level: Major.

Description: The indicated file can not be reserved for the reason specified in the message. Applications requiring recording to the file will be incomplete.

- Repair Procedure:**
- 1 Verify that the file system in which the speech file is to be reserved has enough free space by entering **dfspace**
 - 2 Verify that the directory or directories in which the speech file is to be reserved has the correct access permission by entering **ls -l** in the directory.

DB Alarms and Log Messages

DB001

Alarm Level: Major.

Description: An attempt to write a traffic record into the specific database table has failed either during call processing or processing a call data maintenance job.

This message is usually caused by one of several reasons.

If the source is Call Data Handler (CDH), the traffic record is not recorded in the database. If the source is CCA_Summary, the Call Classification (CCA) data report for the date the error was logged will not be correct. If the source is CDH_Summary, the nonCCA traffic data reports for the date the error was logged will not be correct.

There is no impact on call processing.

- Repair Procedure:**
- 1 If the reason field of the error message is:

```
ORA00942:table or view does not exist
```

Recreate the system traffic tables.
 - 2 If the reason field of the error message is:

```
ORA1000: Maximum open cursor exceeded
```

or

```
Can't connect cursor to ORACLE
```

Consult the application developer to reduce the number of database references to the database. This may be done by reducing the number of applications involving database access simultaneously running on the system. See "Database Access Limitations" in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 3 For other error reasons, do the following:
 - a Stop the voice system.
 - b Stop the database system.
 - c Start the database system.
 - d If the database system failed to start because of database file corruption, the database files must be recovered from a mkimage backup. Restore the database from backup.
 - e Start the voice system.
 - 4 If the problem persists, recreate the system traffic tables.

DB002

Alarm Level: Critical.

Description: An attempt to write a database record to an application table has failed during call processing. The record will be lost. Application functionality may be severely impaired.

Repair Procedure:

- 1 If the reason field of the error message is:

```
ORA1031 Insufficient privileges
```

give the user **sti** the necessary permissions by completing [step a](#) and [step b](#):
 - a Login to SQL*PLUS as the original table owner.
 - b Enter **grant all** on *table_name* to sti

Note: The original owner must already have the proper permissions for the table.

- 2 If the reason field of the error message is:

```
ORA00942:table or view does not exist
```

consult the application developer to verify the application. See the [For Application Developer](#) section.

- 3 If the reason field of the error message includes:

```
Can't find select descriptor for table <table name>
```

this indicates that the application erroneously tried to modify the table before reading it. See [DB002 — Application Developer Notes: \(page 224\)](#).

- 4 If the reason field of the error message is:

```
ORA1000: Maximum open cursor exceeded
```

or

```
Can't connect cursor to ORACLE
```

increase the cursor limit.

You may also consult the application developer to reduce the number of database references to the database. This may be done by reducing the number of applications involving database access simultaneously running on the system. See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.

- 5 For other error reasons, do the following:

- a Stop the voice system.
- b Stop the database system.
- c Start the database system.

DB003

Alarm Level: Major.

Description: An attempt to read a record from the specified system traffic table has failed. This error message is reported by one of the call data maintenance jobs (that is, CCA_Summary, CCA_Deletion, CDH_Summary, or CDH_Deletion) that are responsible for summarizing and cleaning up the traffic data.

If the source is CCA_Summary or CCA_Deletion, the Call Classification (CCA) data report for the date the error was logged will not be correct. If the source is CDH_Summary or CDH_Deletion, all nonCCA traffic data reports for the date the error was logged will not be correct.

There is no impact on call processing.

- Repair Procedure:**
- 1 If the reason field of the error message is
`ORA00942:table or view does not exist`
recreate the system traffic tables.
 - 2 For other error reasons, do the following:
 - a Stop the voice system.
 - b Stop the database system.
 - c Start the database system.

- d If the database system failed to start because of database file corruption, the database files must be recovered from a mkimage backup. Restore the database from backup.
- e Start the voice system.
- f If the problem persists, recreating the system traffic tables.

DB004

Alarm Level: Critical.

Description: An attempt to read a record from the specified application table has failed during call processing. Application functionality may be severely impaired.

Repair Procedure:

- 1 If the reason field of the error message is
`ORA00942:table or view does not exist`
or
`Can't find table descriptor for table table_name`
See [DB004 — Application Developer Notes: \(page 227\)](#).
- 2 For other error reasons, do the following:
 - a Stop the voice system.
 - b Stop the database system.

- c Start the database system.
 - d If the database system failed to start because of database file corruption, the database files must be recovered from a mkimage backup.
 - e Start the voice system.
 - 3 If the database system started successfully but the problem persists, do the following:
 - a Stop the voice system.
 - b Drop the database table *table_name*.
 - c Restore the application table from backup.

Note: If the table resides on a remote machine, restore the table to the remote machine.

- d Start the voice system.

**DB004 —
Application
Developer Notes:**

- 1 Check the application and make sure that it refers to the correct table name.
 - 2 If the application refers to a wrong table, change the application.
 - 3 If the application is correct, restore the application table from the backup. If no backup is available, recreate the application table.

DB005

Alarm Level: Major.

Description: An attempt to delete records from the specified system traffic table has failed. This error message is reported by one of the call data maintenance jobs, CCA_Deletion or CDH_Deletion, that are responsible for deleting the old traffic data.

If the source is CCA_Deletion, the Call Classification (CCA) data report for the date the error was logged will not be correct. If the source is CDH_Deletion, all nonCCA traffic data reports for the date the error was logged will not be correct.

There is no impact on call processing.

- Repair Procedure:**
- 1 If the reason field of the error message is:

```
ORA00942:table or view does not exist
```

recreate the system traffic tables.
 - 2 For the other error reasons, do the following:
 - a Stop the voice system.
 - b Stop the database system.
 - c Start the database system.

- d If the database system failed to start because of database file corruption, the database files must be recovered from a mkimage backup.
- e Start the voice system.
- f If the problem persists, recreate the system traffic tables.

DB006

Alarm Level: Critical.

Description: An attempt to delete one or more records from the application table has failed during call processing. The records to be deleted will remain in the table. Application functionality may be severely impaired.

Repair Procedure: 1 If the reason field of the error message is:
`ORA00942:table or view does not exist`

consult the application developer to verify the application. See [DB006 — Application Developer Notes: \(page 230\)](#).

- 2 For other problems, do the following:
 - a Stop the voice system.
 - b Stop the database system.

- c Start the database system.
 - d If the database system failed to start because of database file corruption, the database files must be recovered from a mkimage backup.
 - e Start the voice system.
- 3 If the database system started successfully but the problem persists, do the following:
- a Stop the voice system.
 - b Drop the database table *table_name*.
 - c Restore the application table from backup.

Note: If the table resides on a remote machine, restore the table to the remote machine.

- d Start the voice system.

**DB006 —
Application
Developer Notes:**

- 1 Check the application and make sure that it refers to the correct table name.
- 2 If the application refers to a wrong table, change the application.
- 3 If the application is correct, restore the application table from the backup. If no backup is available, recreate the application table.

DB007

Alarm Level: Major.

Description: Either the database is out of space or the system traffic table reached the maximum allowable number of extents. The system traffic table specified (or the rollback segment) cannot grow further to accommodate more data. New traffic data added will be lost.

There is no impact on call processing.

- Repair Procedure:**
- 1 Check the maximum number of extents. See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 2 If the maximum number of extents is reached, perform the "Redefining the Database Table Storage" procedure in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 3 Perform the "Checking the Database Free Space" procedure in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.

- 4 If the database is running out of free space, do the following:
 - a See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on verifying and reducing the rollback segment size.
 - b If the rollback segment size is normal, add more space to the database. See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on increasing the database size.

DB008

Alarm Level: Critical.

Description: Either the database is out of space or the application table reached the maximum allowable number of extents during call processing. The table specified (or the rollback segment) cannot grow further to accommodate more data. The service running on the channel will not be able to add more database records. Application functionality may be severely impaired.

- Repair Procedure:**
- 1 Perform the "Checking the Maximum Number of Extents" procedure in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 2 If the maximum number of extents is exceeded, perform the "Redefining the Database Table Storage" procedure in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 3 Perform the "Checking the Database Free Space" procedure in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.
 - 4 If database is running out of free space, do the following:
 - a See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on verifying and reducing the rollback segment size.
 - b If the rollback segment size is normal, add more space to the database. See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on increasing the database size.

DB009

Alarm Level: Major.

Description: The call data handling process or one of the call data maintenance jobs specified failed to initialize itself. If the source is Call Data Handler (CDH), no traffic data will be logged in the database (including call data events records).

If the source is CCA_Summary or CCA_Deletion, the Call Classification (CCA) data report for the date the error was logged will not be correct. If the source is CDH_Summary or CDH_Deletion, all nonCCA traffic data reports for the date the error was logged will not be correct.

There is no impact on call processing.

- Repair Procedure:**
- 1 Stop the voice system.
 - 2 Stop the database system.
 - 3 Start the database system.
 - 4 If the database system cannot be started, reboot the system.
 - 5 If the database failed to start after reboot, restore the database directory from the system backup.
 - 6 Start the voice system.

- 7 If the database started successfully but the problem persists, do the following:
 - a Stop the voice system.
 - b Recreate the system traffic tables.

DB010

Alarm Level: Critical.

Description: The ORACLE database interface process (**ORALDB**) failed to initialize itself after the voice system was started. The process will continue to respawn as long as the voice system is running. Services assigned to channels will not be able to access the database being referenced by the Source of this message. The database may be remote or local.

Application functionality may be severely impaired.

Repair Procedure: 1 Determine whether the database being accessed is a local or a remote database by checking the Source field of the message.

If the database is remote, check the ORACLE network. If the problem persists, proceed to [step 2](#).

2 Stop the voice system.

- 3 Stop the database system.
- 4 Start the database system.
- 5 If the database system cannot be started (file corruption), restore the database directory from the system backup.
- 6 Start the voice system.
- 7 If the problem persists, reboot the system.

DB011

Alarm Level: Major.

Description: This is a general database error that is reported by either the call data handling process or one of the call data maintenance jobs.

If the source is Call Data Handler (CDH), the traffic records (including call data events) will not be created. If the source is CCA_Summary or CCA_Deletion, the Call Classification (CCA) data report for the date the error was logged will not be correct. If the source is CDH_Deletion or CDH_Summary, all nonCCA traffic data reports for the date the error was logged will not be correct.

There is no impact on call processing.

Repair Procedure: 1 Enter `/oracle/bin/oerr ora error_num`

where *error_num* is the ORACLE error number in the reason field of the error message.

The output will contain a brief explanation of the error, the cause of the error, and the action to take to correct the error.

Note: You should also see the ORACLE Error Messages and Codes Manual for the explanation. Many times the online explanation will not be as complete as the manual explanation. If the error is unique to the UNIX environment, you can also see the ORACLE for UNIX Technical Reference Guide for detailed information.

2 Take the actions provided to correct the problem.

3 Reboot the system.

4 If the database system cannot be started (file corruption), restore the database directory from the system backup.

If no backup is available, remove and reinstall the Base ORACLE package. See Chapter 8, "Installing ORACLE Packages," in *LINCS Server Maintenance*, 585-313-126.

Note: All current database data will be lost after the package is reinstalled.

DB012

Alarm Level: Critical.

Description: This is a general database error that is reported by the database interface process (ORALDB) during call processing.

Depending on the error, application functionality may be impaired.

Repair Procedure: 1 If the reason field of error message is:

```
ORA1000: Maximum open cursor exceeded
```

consult the application developer to reduce the number of database references to the database. This may be done by reducing the number of applications involving database access simultaneously running on the system. See "Database Access Limitations" in Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507.

- 2 Perform the repair procedure for system message [DB011 \(page 236\)](#).
- 3 If the problem persists and the database is remote, check the ORACLE network.

DB013

Alarm Level: Major.

Description: The connection that this database process was logged onto has been dropped during call processing. The database could be a local or remote database. This may be a result of network congestion, the network going down, the remote machine going down, or other reasons. The negative number in the reason field is the ORACLE error code. See the ORACLE RDBMS Error Messages and Codes Manual for further information about this error. The process will try to respawn and reconnect to the database. However, if the problem is the network or remote machine, the process may not be able to reconnect without manual intervention.

The service running on the channel will not be able to make any database request until the problem is resolved.

Sometimes when the remote database connections are dropped, the dedicated server process on the remote machine may be orphaned. If too many such orphaned processes exist, the ORACLE server on the remote machine will become overloaded with defunct processes. At this point, the CONVERSANT machine may not be able to connect to the remote database successfully. If this is the case, you probably need to restart the remote database to remove the defunct server processes. Consult the Database Administrator of the remote database for assistance.

Repair Procedure: If the system stopped to generate this message, the database process has logged onto the database successfully since the error message was recorded. No action needs to be taken. If the error message continues to be generated, do the following:

- 1 Determine whether the database being accessed is a local or a remote database by checking the SOURCE field of the message.

If the database is remote, check the ORACLE network. If the problem persists, proceed to [step 2](#).

- 2 Stop the voice system.
- 3 Stop the database system.
- 4 Start the database system.
- 5 If the database system cannot be started (file corruption), restore the database directory from the system backup.
- 6 Start the voice system.
- 7 If the problem persists, reboot the system.

DB014

Alarm Level: Critical.

Description: The database interface process (ORALDB) has timed out on a database request during call processing. The initial timeout has the default value 45 seconds (defined in **/vs/data/ldbip.rc**). Any of the following reasons can cause this timeout to occur:

- The timeout value set is too small
- The application was searching a huge nonindexed table
- The network was congested
- The network went down
- The remote machine went down

ORALDB will continue to wait for the response from the database (local or remote) until the final timeout occurs (DB015). After the final timeout occurs (default 300 seconds), ORALDB will try to reconnect to the database (remote or local). Messages queued are deleted to prevent the message queue from overflowing.

Application functionality may be severely impaired.

- Repair Procedure:**
- 1 Consult the application developer to verify the application. See [DB014 and DB015 — Application Developer Notes](#).
 - 2 Check the ORACLE network.
 - 3 Reboot the system.

**DB014 and DB015
— Application
Developer Notes:**

If the database is remote and the above actions did not resolve the problem, or if the database is local, do the following:

- 1 Determine if the application is searching a nonindexed table. (If the table was created through Script Builder, the table is not indexed.) If the application searches a table containing more than 1000 records, you should index the table. See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on creating the indexed table.
- 2 If the searched table is small or the table is indexed, check the **TIMEOUT** values in `/vs/data/ldbip.rc` file. Make sure the **FIRST_TMOUT** and **SECOND_TMOUT** values are not less than 10 seconds.

See Chapter 5, "Database Administration," in *LINCS Server Administration*, 585-313-507, for information on modifying the ORALDB timeout values if necessary.

DB015

Alarm Level: Critical.

Description: This error usually follows a few occurrences of DB014 error messages. It indicates that the database interface process (ORALDB) times out on a database request after waiting for a specified interval (defined in /vs/data/ldb dip.rc). ORALDB will exit and respawn in order to reconnect to the database (remote or local). It will continue to do so until either the database connection is successfully established or the voice system is stopped.

If the reconnection attempt is not successful, no database requests will be processed. Application functionality is severely impaired.

Repair Procedure:

- 1 Consult the application developer to verify the application. See [DB014 and DB015 — Application Developer Notes: \(page 242\)](#).
- 2 Check the ORACLE network.
- 3 Reboot the system.

DB016

Alarm Level: Major.

Description: The Call Data Handler (CDH) failed to communicate to the voice system. The traffic data may not be recorded correctly.

There is no impact on call processing.

Repair Procedure: Reboot the system.

DIP Alarms and Log Messages

DIP001

There is one alarm message for the data interface process (DIP), as described below.

Alarm Level: None.

Description: Error in software.

Repair Procedure: When this error is logged, the message log contains additional text indicating the nature of the problem. Examples include the following:

DCDIP: VS startup failed

DCDIP: Cannot attach shared memory

This alarm occurs when there is an internal software error. Contact your service representative for assistance.

DSKMG Alarms and Log Messages

DSKMG001

Alarm Level: Major.

Description: The indicated file cannot be accessed for the reason specified in the message. Applications requiring reserving speech files may fail.

Repair Procedure: 1 If the reason field indicates that the file or directory cannot be created, check to see if the speech file system is out of space:

a Enter **vd**f at the system prompt and note the resulting message.

If the free space is less than three percent, contact your field service personnel.

- 2 If the reason field indicated a failure on a library call, make sure the irAPI libraries **libirAPI.so** and **libirEXT.so** are in existence in the **/usr/lib** directory.
- 3 If the reason field indicates a system call failure, reboot the system.

DSKMG002

Alarm Level: Major.

Description: The indicated file cannot be reserved for the reason specified in the message. Applications requiring recording to the file will be incomplete.

Repair Procedure:

- 1 If the reason field indicates that the file or directory cannot be created, check to see if the speech file system is out of space.
 - a Enter **vd**f at the system prompt and note the resulting message.
If the free space is less than three percent, contact your field service personnel.
 - b If the **vd**f command shows there is space on the device, the problem may be that there are no inodes left on the system. Remove files to free up the inodes.

- 2 If the reason field indicated a failure on a library call, make sure the irAPI libraries **libirAPI.so** and **libirEXT.so** are in existence in the **/usr/lib** directory.
- 3 If the reason field indicates a system call failure, reboot the system.

DWIP Alarms and Log Messages

DWIP001

There is one message for the DWIP process, as listed below:

Alarm Level:

Critical.

Description:

The DWIP process is unable to read PRI messages from the T1/E1 cards. PRI calls can not be processed on any T1/E1 cards that have the D-channel.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 Reboot the system.
- 4 If the problem persists, reinstall the T1/E1 circuit card driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

FAX Alarms and Log Messages

FAX001

Alarm Level: None.

Description: A FAX print operation failed. The information about the FAX print is specified in the message text.

Repair Procedures: Check for the following conditions:

- The remote FAX is busy.
- The remote FAX is out of paper.
- The number dialed may not have been a FAX machine: NOPROTOCOL (never connected to the remote machine).
- The phone line connection may have been abruptly disconnected in the middle of the FAX sessions (FAX_STOPPING).
- Due to mail loop prevention, a FAX may not be transmitted to another line on the same system (FAXLOOPBACK). In this case, forward the message to the other user rather than sending it.

- The phone line conditions (noise in the line) may prevent a FAX from being sent: PROTOCOLTIMEOUT (failure to exchange 300-baud messages) or FTT (failure to train at any/all rates).
- The remote FAX machine may not conform to international FAX standards: PROTOCOLERR (T.30 error) or PROTOCOLTIMEOUT (failure to exchange 300-baud messages).
- A fault in the software has occurred that should be reported: NORESOURCES (out of memory), FILEACCESS (problem reading/writing disk), TIFFFORMAT (unsupported FAX file format), INVALID (bad subroutine argument), SLOTBUSY (time slot not available), UNCLEAN_EXIT (process died), LATEQUEUE (FAX session completed before file queued, or SYSERROR (operating system problem).

FAX002

Alarm Level: None.

Description: A FAX record operation failed. The information about the FAX record is specified in the message text.

Repair Procedure: Check for the following conditions:

- The calling number may not have been a FAX machine: NOPROTOCOL (never connected to the remote machine).
- The phone line connection may have been abruptly disconnected in the middle of the FAX session (FAX_STOPPING).
- Due to mail loop prevention, a FAX may not be received from another line on the same system (PROTOCOLERR). The other user should have forwarded the message, rather than sent it.
- The phone line conditions (noise in the line) can prevent a FAX from being received: PROTOCOLTIMEOUT (failure to exchange 300-baud messages), BADPAGE (FAX ends with unacceptable page errors), and NOPROTOCOL (never connected to the remote machine).
- The remote FAX machine may not conform to international FAX standards: PROTOCOLERR (T.30 error) or PROTOCOLTIMEOUT (failure to exchange 300-baud messages).
- A fault in the software has occurred that should be reported: NORESOURCES (out of memory), FILEACCESS (problem reading/writing disk), TIFFFORMAT (unsupported FAX file format), INVALID (bad subroutine argument), SLOTBUSY (time slot not available), UNCLEAN_EXIT (process died), LATEQUEUE (FAX session completed before file queued, or SYSERROR (operating system problem).

FSY Alarms and Log Messages

FSY014

Alarm Level: None.

Description: FSFRAG

Repair Procedure:

GEN Alarms and Log Messages

GEN001

Alarm Level: None.

Description: An internal voice system process has encountered a general error described in the message text. System functionality is impaired.

Repair Procedure: No corrective action is necessary.

GEN002

Alarm Level: None.

Description: An internal voice system process has logged general status information with this message.

Repair Procedure: No corrective action is necessary.

GEN020

Alarm Level: None.

Description: An internal voice system process has received a command with the incorrect number of arguments. The source of the message is ALERTER, which indicates that a user command was issued with incorrect arguments. The command has been ignored.

Repair Procedure: No corrective action is necessary.

GEN022

Alarm Level: None.

Description: An internal voice system process has received a command which it does not recognize.

If the source of the command is ALERTER, the message indicates that a user command was badly formed or unrecognized by the Alerter. The command has been ignored.

Repair Procedure: No corrective action is necessary.

GEN024

Alarm Level: None.

Description: An internal voice system process has attempted to open the specified file and failed.

Repair Procedure: No corrective action is necessary.

GEN050

Alarm Level: None.

Description: An internal voice system process has received a command to change one of its internal parameters. The name of the parameter and its old and new values are printed in the message.

Repair Procedure: No corrective action is necessary.

HDWR Alarms and Log Messages

HDWR001

Alarm Level: Major.

Description: LOW_TEMP_ALARM

Temperature sensor *temp* has exceeded its low threshold parameter of *low_temp*. The current temperature is *current_temp*.

Repair Procedure: No corrective action is necessary.

HDWR002

Alarm Level: Critical.

Description: HIGH_TEMP_ALARM

Temperature sensor *temp* has exceeded its high threshold parameter of *high_temp*. The current temperature is *current_temp*.

Repair Procedure:

- 1 Check the upper and lower fan trays to be sure they are working.
- 2 If one of the fan tray units has failed, replace it. See “Replacing a Fan Tray,” in Chapter 4, “Replacing Other Components,” in the *LINCS Server Maintenance*, 585-313-126, for more information.

HDWR003

Alarm Level: Major.

Description: LOW_VOLT_ALARM

The *voltage* is out of its low threshold parameter range. The low threshold is *low_voltage* and the actual value is *current_voltage*.

- Repair Procedure:** If the voltage error is for incoming power, check the electrical source to the platform.
- If the voltage error is for outgoing power, one of the power supplies could be failing or have a short. If the outgoing power error persists, replace the faulty power supply.

HDWR004

Alarm Level: Minor.

Description: FAN_ALARM

The upper/lower fan tray has failed.

Repair Procedure: Identify the fan tray unit that has failed and replace it. See “Replacing a Fan Tray,” in Chapter 4, “Replacing Other Components,” in the *LINCS Server Maintenance*, 585-313-126, for more information.

HDWR005

Alarm Level: Critical.

Description: WDOG_ALARM

The watchdog timer has expired.

Repair Procedure: When the watchdog timer expires, the TAM unit automatically resets the platform with a reboot. If the reboot does not correct the problem, there could be a fault in UNIX. If the watchdog time continues to expire, causing the system to reboot, contact your field service personnel.

HDWR006

Alarm Level: Minor.

Description: PWRSUP_ALARM_BAD
Power supply, *supply_number*, is bad.

Repair Procedure: Identify the power supply that has failed and replace it. See “Replacing the Power Supply,” in Chapter 4, “Replacing Other Components,” in the *LINCS Server Maintenance*, 585-313-126, for more information.

HDWR007

Alarm Level: Minor.

Description: PWRSUP_FAN_ALARM
Power supply number *supply_number* fan has failed.

Repair Procedure: Identify the power supply fan that has failed and replace the power supply. See “Replacing the Power Supply,” in Chapter 4, “Replacing Other Components,” in the *LINCS Server Maintenance*, 585-313-126, for more information.

HDWR008

Alarm Level: Major.

Description: HIGH_VOLT_ALARM

The *voltage* is out of its high threshold parameter range. The high threshold *high_voltage* and the actual value is *current_voltage*.

Repair Procedure: If the voltage error is for incoming power, check the electrical source to the platform.

If the voltage error is for outgoing power, one of the power supplies could be failing or have a short. If the outgoing power error persists, replace the faulty power supply.

HDWR009

Alarm Level: Minor.

Description: PWRSUP_ALARM_GONE
Power supply *supply_number* is gone.

Repair Procedure: If you receive this alarm as a result of replacing a power supply, ignore it. If a power supply has been removed and not replaced, install a new one. Do not operated the LINC S server without both power supplies in place.
See “Replacing the Power Supply,” in Chapter 4, “Replacing Other Components,” in the *LINC S Server Maintenance*, 585-313-126, for more information.

ICK Alarms and Log Messages

ICK001

Alarm Level: Minor.

Description: The integrity checking process has received an invalid request. The request has been ignored.

- Repair Procedure:**
- 1 Verify that commands being sent to the integrity checking process are using **iCkCmd**. See Appendix A, "Summary of Commands," in *LINCS Server Administration*, 585-313-507, for more information.
 - 2 Verify that the files **/vs/bin/vrs/iCk** and **/vs/bin/util/iCkCmd** have the same date.

ICK002

Alarm Level: Minor.

Description: The integrity checking process has encountered an internal error.

- Repair Procedure:**
- 1 If the description is similar to:

```
Activity index <NN> is out of range: <MMM> Current limits: 0  
to <NN>
```

the integrity checking process will automatically correct the problem.
 - 2 If the description is similar to:

```
Time computation failed <XXX>
```

edit the **/vs/etc/ick.rules** file and correct the time description **XXX**.

ICK003

Alarm Level: None.

Description: The integrity checking process has received a command request.

Repair Procedure: No corrective action is necessary.

ICK004

Alarm Level: None.

Description: The integrity checking process has just completed reading its rules file.

Repair Procedure: No corrective action is necessary.

ICK005

Alarm Level: None.

Description: The integrity checking process has changed the state of the UNIX kernel auto-reboot flag to state identified.

Repair Procedure: No corrective action is necessary.

ICK006

Alarm Level: None.

Description: The identified action has been taken by the integrity checking process.

Repair Procedure: No corrective action is necessary.

ICK007

Alarm Level: Major.

Description: The directory in which the integrity checking process rules file appears is accessible by nonauthorized users. The rules file is insecure and is vulnerable to corruption which may impact system functionality.

Repair Procedure: 1 Verify that the directory in which the rules file appears is owned by root and is not writable by any other user. Enter **ls ld /vs/etc**

The output should be similar to:

```
drwxrxxrx 3 root bin 64 Dec 30 12:11 /vs/etc
```

2 If the mode is not `drwxrxxrx`, enter **chmod 755 /vs/etc**

3 If the owner is not `root`, enter **chown root /vs/etc**

4 If the group is not `bin`, enter **chgrp bin /vs/etc**

ICK008

Alarm Level: Major.

Description: The rules file used by the integrity checking process is accessible by nonauthorized users. The rules file is insecure and is vulnerable to corruption which may impact system functionality.

Repair Procedure: 1 Verify that the rules file is owned by root and is not writable by any other user. Enter **ls ls /vs/etc/iCk.rules**

The output should be similar to:

```
-r--r--r-- 1 root other 6815 Dec 30 12:11 /vs/etc/iCk.rules
```

- 2 If the mode is not `-r--r--r--`, enter **chmod 444 /vs/etc/iCk.rules**
- 3 If the owner is not `root`, enter **chown root /vs/etc/iCk.rules**

ICK009

Alarm Level: None.

Description: The integrity checking process has found the specified file to be larger than allowed by a rule which has been executed, or to not be regular. The specified reduction procedure has been performed.

Repair Procedure: No corrective action is necessary.

ICK010

Alarm Level: Minor.

Description: The integrity checking process has found a file specified by a rule that does not comply with the requirements of the rule. Depending upon the rule, the integrity checking process may attempt to correct the problem or just report it.

Repair Procedure: If the message does not indicate that the problem has been automatically corrected, determine why the specified file is failing the rule test and correct it using one of the following:

- 1 If the message indicates an error with the mode, use the **chmod** command to change the mode.
- 2 If the message indicates an error with the group, use the **chgrp** command to change the group.
- 3 If the message indicates an error with the owner, use the **chown** command to change the owner.
- 4 If the message indicates that the file does not exist, create the file. If the file is a UNIX file, see a UNIX reference manual for additional information. If the file is specific to your application, consult your application developer.

ICK011

Alarm Level: None.

Description: The integrity checking process is changing to the specified run level. A change in run level affects which rules are in force.

Repair Procedure: No corrective action is required.

INIT Alarms and Log Messages

INIT001

Alarm Level: Critical.

Description: The system configuration from the previous operation of the voice system is completely lost. All administered values are set to their default states. Administrative action is required to assign services to channels and put channels in the INSERV state. Card functionality must be specified in order for the system to operate under any configuration other than the default settings.

No calls can be processed until the system has been readministered.

Repair Procedure: This alarm requires remote maintenance center intervention.

INIT002

Alarm Level: Major.

Description: The identified card, previously recognized to be present in the system, cannot be located. Call processing may be impaired.

Repair Procedure:

- 1 Remove the card from the system and do not replace it. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.
- 2 Renumber the voice channels. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

INIT003

Alarm Level: None.

Description: The identified card has been added to the system. The card is initialized with default values and requires administration before it is operational.

Repair Procedure: No corrective action is necessary.

INIT004

Alarm Level: None.

Description: Channels have been renumbered at the request of a system administrator.

Repair Procedure: No corrective action is necessary.

INIT005

Alarm Level: Major.

Description: Cannot save system configuration data to hard disk.



CAUTION:

If the voice system is stopped and started, some or all of the voice system administered values may be lost.

Repair Procedure: This alarm requires remote maintenance center intervention.

INIT006

Alarm Level: Critical.

Description: Cannot determine type of SSP card.

An error occurred when trying to determine the number for the voice system card. The card is not operational. The resources on the card are not available. Call processing may be impaired.

Repair Procedure:

- 1 Check the circuit card.
- 2 If the CPU has recently been replaced, verify that the card is set up correctly. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

INIT007

Alarm Level: Major.

Description: The unassigned protocol has been assigned to the card. The identified card has been re-assigned to the unassigned protocol. The reason for the reassignment is indicated in the reason field of the message. The card should be re-administered.

Repair Procedure: • If the reason is:

```
Packfile <packfile name> does not exist
```

either the protocol that provides this packfile is no longer installed on the system, or the rate of the card has been changed and no such protocol exists for this card. Do the following:

- 1 Log in as root.
 - a Determine the protocol assigned to the indicated card and the card rate by entering **display card *card number***
where *card number* is the number indicated in the message.
 - b Determine if the package that provides that protocol is installed on the system by entering **pgkinfo**

The packages and the protocols provided and card rates supported are shown in [Table 14 on page 270](#).
 - c If the package is not installed, it must be installed to use the protocol. See Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126, for information on installing software. Check that the desired protocol is supported for that card rate.

- If the reason is:

Boards in D-channel group <group number> are not contiguous the cards in the PRI D-channel group must be made contiguous. See Chapter 4, "Switch Interfaces," in *LINCS Server Administration*, 585-313-507.

Table 14. T1/E1 Protocol Rates

Package	Protocol	Rate
t1em	E&M	T1
pri	PRI	T1/E1

INIT008

Alarm Level: None.

Description: IChannels have been renumbered as a result of a change in hardware.

Repair Procedure: **Note:** This alarm occurs when a card in the system has been replaced by another card of the same class, but of a different name or running at a different rate. Therefore an automatic renumber of the cards has occurred and the new card has default settings.

The new circuit card may need to be re-administered if the default settings, protocols, or functions are not appropriate. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

INIT009

Alarm Level: Minor.

Description: A change in configuration was detected. An automatic renumbering has not occurred because the manual renumber option is set. A renumbering of channels should be done as soon as possible.

Note that this alarm will only appear if your remote maintenance center activates it.

Repair Procedure: Renumber the voice channels. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

INIT010

Alarm Level: None.

Description: Unable to update the T1/E1 configuration file. T1/E1 cards with the unassigned protocol should be re-administered.

Repair Procedure: Re-administer all cards that currently have the unassigned protocol assigned to them. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

INIT011

Alarm Level: None.

Description: Unable to communicate with board.

Repair procedure:

LOG Alarms and Log Messages

LOG001

Alarm Level: None.

Description: The voice system logger has started a new message log file.

Repair Procedure: No corrective action is necessary.

LOG002

Alarm Level: None.

Description: The voice system logger has closed one message log file and is starting a new message log file.

Repair Procedure: No corrective action is necessary.

LOG006

Alarm Level: Message priority based on the priority of the message ID passed to the Logger.

Description: The voice system logger has been asked to log a message type which is invalid and which it cannot expand into a readable form for the message log.

- Repair Procedure:**
- 1 Identify the source of the unexpected message. The name of the source should be part of the compressed message format of the invalid message.
 - 2 If the source of the unexpected message is a customer application data interface process (DIP), consult your application developer.

Otherwise, confirm that all installed voice system software packages are compatible with the installed version of the system software. Remove any software package that is incompatible and install the proper version.

LOG007

This message can have different values for the `string1` and `string2` fields. The description and effect statement and the corresponding repair procedure differs for each of the values. Use the list of messages below to determine the proper description and effect statement and repair procedure for the LOG007 message you have encountered.

```
LOG007 logDaemon: msgrc=1, errno NOT EINTR:
```

Alarm Level: Critical.

Description: The voice system message Logger cannot communicate with other internal voice system processes. Logger functionality is severely impaired.

Repair Procedure: Reboot the system.

```
LOG007 logDaemon: PID <pid> <msg>.:
```

Alarm Level: None.

Description: The voice system message Logger has been started or reinitialized. This message will appear in each log file maintained by the Logger.

Repair Procedure: No corrective action is necessary.

```
LOG007 logDaemon: REINITIALIZED.:
```

Alarm Level: None.

Description: The voice system message Logger has received a command to reinitialize.

Repair Procedure: No corrective action is necessary.

```
LOG007 logDaemon: Exiting upon request.:
```

Alarm Level: None.

Description: The voice system message Logger has received a command to exit.

Repair Procedure: No corrective action is necessary.

```
LOG007 logDaemon: Unable to open: <command>.::
```

Alarm Level: Critical.

Description: The voice system message Logger is unable to execute the UNIX command indicated by the message. Logger functionality is impaired.

- Repair Procedure:**
- 1 Make sure the UNIX command file being executed by the Logger exists and is executable.
 - 2 If necessary, restore the missing or corrupted UNIX command file indicated in the message from a system backup.
 - 3 If no valid backup copy exists reinstall the LINCS software. See Chapter 6, "Installing the LINCS Server Software," in *LINCS Server Maintenance*, 585-313-126.

LSPS Alarms and Log Messages

LSPSIP001

Alarm Level: Major.

Description: The LSPS API call **S51_Init()** or **E53_Init()** failed. This may be due to starting the voice system without a LSPS II card or one broken card.

- Repair Procedure:**
- 1 Make sure you have at least one LSPS II card in the system.
 - 2 If you have at least one LSPS II card and you get this alarm, stop the voice system.
 - 3 Start the voice system.
 - 4 If the problem persists, complete [step a](#) through [step e](#):
 - a Enter **remove card card#**
 - b Enter **detach card card#**
 - c Enter **attach card card#**
 - d Enter **restore card card#**
 - e Stop and start the voice system.
 - 5 If the problem still persists, enter **diagnose card card#**
If the diagnostics on the card fails and if you have only one LSPS II card, replace the card and reboot the system.

LSPSIP002

Alarm Level: Major.

Description: A failure occurred while performing the indicated action on a phrase. The action was aborted. This is caused by excessive voice activity load on the system.

- Repair Procedure:**
- 1 Stop the voice system.
 - 2 Start the voice system.
 - 3 If the problem persists and there is heavy load on the system, reduce the load. See [Reducing Load \(page 23\)](#) in [Chapter 1, Troubleshooting](#).

LSPSIP003

Alarm Level: Major.

Description: A failure occurred while performing the indicated action on a phrase. The action was aborted. This alarm is logged by LSPSIP if it receives more than PLAYSET_MAX phrases in one message.

Repair Procedure: No corrective action is required.

LSPSIP004

Alarm Level: Major.

Description: A failure occurred while performing the indicated action on a phrase. The action was aborted. This is caused by excessive voice activity load on the system.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists and there is heavy load on the system reduce the load. See [Reducing Load \(page 23\)](#) in [Chapter 1, Troubleshooting](#).

LSPSIP005

Alarm Level: Major.

Description: An attempt to perform indicated action has failed and the action was aborted.

Repair Procedure:

- 1 Stop the voice system.
- 2 Start the voice system.

LSPSIP006

Alarm Level: Major.

Description: An attempt to perform indicated action has failed and the action was aborted. This happened because the LSPS API call **S51_CfgChan()** or **E53_CfgChan()** failed. Each time a failure occurs, one message is generated.

The impact may be significant if the message occurs more frequently.

- Repair Procedure:**
- 1 Display the state of the cards by entering **display card**
 - 2 Verify that all LSPS II cards assigned for required function (for example: play+code, text2speech) are in INSERTV state.
 - 3 If a card is in the BROKEN state, diagnose the card by entering **diagnose card card#**
 - 4 If the card is in the MANOOS state, restore the card into service by entering **restore card card#**
 - 5 If the card fails to go INSERTV, complete [step a](#) through [step c](#):
 - a Enter **detach card card#**
 - b Enter **attach card card#**
 - c Enter **restore card card#**
 - 6 If the problem persists, stop and restart the voice system.

LSPSIP007

Alarm Level: Major.

Description: The LSPS API call **S51_EventChan()** or **E53_EventChan()** failed. Each time a failure occurs, one message is generated.

The impact may be significant if the message occurs more frequently.

Repair Procedure: Follow the repair procedure for [LSPSIP001 \(page 277\)](#).

LSPSIP008

Alarm Level: Major.

Description: The LSPS API call **S51_CmdChan()** failed. Each time a failure occurs, one message is generated.

The impact may be significant if the message occurs more frequently.

Repair Procedure: Follow the repair procedures for [LSPSIP006 \(page 281\)](#).

LSPSIP009

Alarm Level: Major.

Description: The LSPS API call **S51_CloseChan()**, **E53_CloseChan()** failed. Each time a failure occurs, one message is generated.

The impact may be significant if the message occurs more frequently.

Repair Procedure: Follow the repair procedures for [LSPSIP006 \(page 281\)](#).

LSPSIP010

Alarm Level: Minor.

Description: The system lost a resource on the LSPS card and logged an alarm. If the system logs 15 of these errors, in an hour, a THRESH_MAJOR is logged.

Repair Procedure: If the threshold for this alarm is reached, diagnose the card.

LSPSIP011

Alarm Level: Minor.

Description: One of the LSPS channel reset and the system logged an alarm. If the system logs 15 of these errors, in an hour, a THRESH_MAJOR is logged.

Repair Procedure: If the threshold for this alarm is reached, diagnose the card.

LSPSIP012

Alarm Level: Minor.

Description: The system logged a warm card temperature event.

Repair Procedure:

- 1 Check that the system is being sufficiently cooled; all fans are working, the room is cool enough, etc.

If a fan is not working, the system should have been warned by the TAM, or by a TEMP alarm from the TAM stating that the system is overheated.

- 2 Check all fan filters.

- 3 If the message occurs more frequently, replace the card.

LSPSIP013

Alarm Level: Major.

Description: The temperature of the indicated LSPS board is hot. The board has been removed from service to prevent damage. Applications using the resources on the indicated board will be affected.

- Repair Procedure:**
- 1 Check that the system is being sufficiently cooled; all fans are working, the room is cool enough, etc.

If a fan is not working, the system should have been warned by the TAM, or by a TEMP alarm from the TAM stating that the system is overheated.
 - 2 Check all fan filters.
 - 3 If the message occurs more frequently, replace the card.

MTC Alarms and Log Messages

MTC001

Alarm Level: Major.

Description: The card identified in the message is unable to provide TDM clock to the system. This may indicate a possible hardware problem with the card. The card state has been changed to BROKEN. Applications dependent on this card will not function.

Repair Procedure:

- 1 Diagnose the card by entering:
diagnose card *card number*
where *card number* is the number of the card.
- 2 After the diagnose command has completed, display the state of the card by entering:
display card *card number*
where *card number* is the number of the card.

- 3 If the card state has changed to MANOOS, restore the card into service by entering:

restore card *card number*

where *card number* is the number of the card.

- 4 If the card state remains BROKEN, check the circuit card.

MTC002

Alarm Level: None.

Description: The identified card has had a state transition. The card state has been changed to `BROKEN`. Applications dependent on this card will not function.

Repair Procedure:

- 1 Check for any loose cables.
- 2 If any packages have been removed from the system recently, verify that any related cards, functions, etc, have been unassigned from the application so that the affected card does not come up in the BROKEN state. See Chapter 3, "Voice System Administration," of *LINCS Server Administration*, 585-313-507.

- 3 If the state transition was not initiated by a diagnose command, diagnose the card by entering:

diagnose card *card number*

where *card number* is the number of the card.

- 4 After the diagnose command has completed, display the state of the card by entering:

display card *card number*

where *card number* is the number of the affected card.

- 5 If the card is in the MANOOS state, complete [step a](#) through [step d](#):

- a Diagnose the bus by entering **diagnose bus 1**

- b Display the state of the card by entering:

display card *card number*

where *card number* is the number of the card.

- c If the card is in the BROKEN state, check the circuit card.

- d If the card is in the MANOOS state, restore the card into service by entering:

restore card *card number*

where *card number* is the number of the card.

- 6 If the card is in the BROKEN state, check the circuit card.

MTC003

Alarm Level: Major.

Description: The identified card has had a state transition. The card state has been changed to `BROKEN`. Applications dependent on this card will not function.

- Repair Procedure:**
- 1 Check for any loose cables.
 - 2 If any packages have been removed from the system recently, verify that any related cards, functions, etc, have been unassigned from the application so that the affected card does not come up in the `BROKEN` state. See Chapter 3, "Voice System Administration," of *LINCS Server Administration*, 585-313-507.
 - 3 If the state transition was not initiated by a diagnose command, diagnose the card. Enter
diagnose card *card number*
where *card number* is the number of the card.
 - 4 After the diagnose command has completed, display the state of the card by entering:
display card *card number*
where *card number* is the number of the card.

- 5 If the card is in the MANOOS state, complete [step a](#) through [step d](#):
 - a Diagnose the bus by entering **diagnose bus 1**
 - b Display the state of the card by entering:
display card *card number*
where *card number* is the number of the card.
 - c If the card is in the BROKEN state, check the circuit card.
 - d If the card is in the MANOOS state, restore the card into service by entering:
restore card *card number*
where *card number* is the number of the card.
- 6 If the card is in the BROKEN state, check the circuit card.

MTC004

Alarm Level: None.

Description: Diagnostic tests have been started on the identified card.

Repair Procedure: No corrective action is necessary.

MTC005

Alarm Level: None.

Description: The identified card has successfully passed all diagnostic tests performed.

Repair Procedure: No corrective action is necessary.

MTC006

Alarm Level: Major.

Description: The identified card has failed one or more diagnostic tests. The card state has been changed to `BROKEN`. Applications dependent on this card will not function.

Repair Procedure: Check the circuit card.

MTC007

Alarm Level: Critical.

Description: An internal software error occurred when requesting a resource from, or releasing a resource to the Resource Manager. The request could not be processed. The identified card or channel is not available.

- Repair Procedure:**
- 1 Stop the voice system.
 - 2 Start the voice system.
 - 3 If the problem persists, reboot the system.

Note: If the reason is `User requested abort`, an abort of a remove or restore request for a card or channel was initiated while the request was still being processed. The state of the card or channel may not be accurate. Check the circuit card.

MTC008

Alarm Level: None.

Description: The clock has been restored on the card identified in the message.

Repair Procedure: No corrective action is necessary.

MTC009

Alarm Level: Major.

Description: An error occurred loading the card in the message. Applications dependent on this card may not function. Call processing may be impaired.

Repair Procedure: 1 Check to see if an INIT006 message has been logged for this card. If there is, follow the repair procedure for [INIT006 \(page 268\)](#) first.

This message occurs until the problem causing the INIT006 message is cleared. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507, for information on the log report.

2 Verify that all functions assigned to the card are still installed on the system.

For example, if tts is assigned to the card, verify that the package that provides Text-to-Speech is installed on the system by entering **pgkinfo**

If any function is assigned to the card but not installed on the system, either install the software package, or change the assignment of the card to remove the function. See Chapter 7, "Installing the Optional Feature Software," in *LINCS Server Maintenance*, 585-313-126, for information on installing software. See Chapter 3, "Voice System Administration" in *LINCS Server Administration*, 585-313-507, for information on card assignments.

- Note:** If FlexWord is assigned to the card, a wordlist must be administered. See Chapter 5, "Recognizing FlexWord Speech Input," in *Intuity CONVERSANT System Version 7.0 Speech Development, Processing, and Recognition*, 585-313-201.
- 3 Change the assignment of the card to the defaults of play+code. See Chapter 3, "Voice System Administration" in *LINCS Server Administration*, 585-313-507, for information on assigning functions to SSP card.
 - 4 Diagnose the SSP card by completing [step a](#) through [step c](#):
 - a Enter **diagnose card card number**
where *card number* is the number of the SSP card.
 - b If the card passes diagnostics, re-administer the original functions on the card. See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
 - c Try to place it into service by entering
restore card card number
where *card number* is the card number of the SSP card you want to restore to service.

MTC010

Alarm Level:**Description:**

The identified bus has failed one or more diagnostics tests. One or more cards have been changed to `BROKEN`. Applications dependent on these cards will not function.

Repair Procedure:

- 1 Check the bus connections.
- 2 Ensure that the cable is secure on each of the cards.
- 3 If the problem persists, try a new cable.
- 4 If the problem still occurs, a card on the bus is likely causing the problem. Remove cards from the bus, one at a time, until the problem is eliminated. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

MTC011

Alarm Level:

None.

Description:

The identified bus has successfully passed all diagnostics tests performed.

Repair Procedure:

No corrective action is necessary.

MTC012

Alarm Level: None.

Description: Diagnostics tests have been started on the identified bus.

Repair Procedure: No corrective action is necessary.

MTC013

Alarm Level: Major.

Description: The identified card is not receiving clock. The card may not be on the bus. In order to use this card, it must be connected to the bus. The state of this card has been changed to `BROKEN`. Applications dependent on this card will not function.

Repair Procedure:

- 1 Check the bus connections.
- 2 Ensure that the cable is secure on each of the cards.
- 3 If the problem persists, try a new cable.

MTC014

Alarm Level:

Description: Failed to make a board primary master of the telephony bus.

Repair Procedure:

MTC015

Alarm Level:

Description: Failed to make a board secondary master of the telephony bus.

Repair Procedure:

MTC016

Alarm Level:

Description: Error determining the *master* masters clock source.

Repair Procedure:

MTC017

Alarm Level:

Description: The mtc process has respawned.

Repair Procedure:

PRI Alarms and Log Messages

PRI001

Alarm Level: Major.

Description: The ISDN D-channel has gone out-of-service and no calls can be placed or received by the associated primary rate interface (PRI) channels. Active calls are unaffected, but customers will not be able to place calls to or from the voice system

This message does not typically indicate a problem with the PRI software; instead it points to either a circuit card problem or a problem with the external equipment that terminates the D-channel (another switch). Repeated or frequent failures followed by subsequent recoveries of a specific voice system D-channel indicate faulty equipment, along the D-channel connection, that should be replaced.

- Repair Procedure:** 1 Display the status of the D-channel and the status of the specific card indicated by the *equip #* by entering:

display channel all | grep PRID

The D-channel number appears in the first column, the associated T1/E1 card in the first field of the second column, and the D-channel state in the third column.

If multiple D-channels are configured, it is important to make sure that the line you check is the one that has a card number (in the first field of the second column) that matches the *equip #* value in the alarm message, or that has the same D-channel group ID as the SSP card that reports the alarm.

The D-channel state can be INSERTV (in-service), FOOS (far-end out-of-service), NETOOS (network out-of-service), or HWOOS (hardware out-of-service).

- 2 Continue as follows according to the state of the D channel:
- ~ If the D channel state is INSERTV, the failure was temporary and the D channel has recovered (PRI002 message has been logged).
 - ~ If the D channel state is FOOS, a T1/E1 failure has occurred. Go to [step a](#).
 - ~ If the D channel is NETOOS, the voice system cannot correctly establish the D-channel with the terminating switch. Go to [step a](#).

- ~ If the D-channel is HWOOS, the associated SSP card (identified by *equip #* is not in service. Go to [step a](#).
- a Look for any TWIP messages in the system message log that indicate a T1/E1 failure for associated T1/E1 card (T1/E1 card number was obtained in [step 1](#)).
- b Follow the recommendations for any of these messages in order to restore the T1/E1 to service.
- c Check the status of the SSP card by entering **display card equip #**
The card can be either MANOOS (Manual out-of-service) or BROKEN.
- d If the SSP card is MANOOS, it has been removed from service. Do the following:
 - Examine the system message log to determine why the SSP card was removed.
 - Resolve any problems that led to the SSP card being removed.
 - When the problems are resolved or if you are unable to determine why the card was removed, then restore the card by entering:
restore card equip #
- e If the SSP card is BROKEN, there has been a communication problem between the SSP card and the voice system. Do the following:
 - Block all calls (at the terminating switch) from coming into the voice system.

- Diagnose the SSP card.
- If the SSP card passes diagnostics, stop and then start the voice system.
- Start again at [step 1](#) to ensure that the D-channel restores correctly, and restore traffic from the terminating switch to the voice system once the D-channel has returned to service.

If diagnostics fail, the check the circuit card.

f The D-channel status should be checked at the terminating switch and any associated switch problems should be resolved.

g If you are not able to determine or resolve any switch problems, do the following:

- Block all calls (at the terminating switch) from coming into the voice system.
- Stop the voice system.
- Start the voice system.
- Start again at [step 1](#) to ensure that the D-channel restores correctly, and restore traffic from the terminating switch to the voice system once the D-channel has returned to service.

PRI002

- Alarm Level:** None.
- Description:** The ISDN D-channel has come in-service.
- Repair Procedure:** No corrective action is necessary.

PRI003

- Alarm Level:** Major.
- Description:** The primary rate interface (PRI) software has rejected an incoming call because the B-channel was either out-of-service, already active or unavailable due to an application problem. This could be a single channel, T1/E1 interface, or system wide problem. If this alarm occurs frequently or repeatedly, then it is a T1/E1 interface or system wide problem.
- This message indicates that one or more calls has failed. The impact is likely to be significant if the message occurs more frequently then the currently set threshold limit. In that case, you will see a threshold message similar to the following:
- ```
*C THR004 -- -- --- The first threshold for the PRI_CALLBLK
exceeded. 5 messages have been generated in the last 5
minutes.
```
- This threshold message could indicate a serious problem which will cause numerous calls to fail in a very short interval.

- Repair Procedure:**
- 1 Determine the status of the identified channel by entering:  
**display channel *chan #***  
or, if it appears to be a system-wide problem, by entering:  
**display channel all**
  - 2 The channel(s) can be either MANOOS (Manual out-of-service) or not MANOOS. If the channel(s) are MANOOS, do the following:
    - a Immediately block all calls (at the terminating switch) from coming into the voice system.
    - b Once all calls have been cleared, stop and then start the voice system.
    - c Restore traffic from the terminating switch to the voice system.

### PRI004

**Alarm Level:** None.

**Description:** The ISDN D channel has been removed from service because of administrative action. No calls can be placed or received by associated Primary Rate Interface (PRI) channels.

**Repair Procedure:** No corrective action is necessary.

## PRI005

**Alarm Level:** Major.

**Description:** A bad dialed number string was passed to the system. An attempt will be made to use the service assigned to the dialed number "ANY" to handle the call. If this attempt fails, the TSM001 message will be logged.

**Repair Procedure:** This message indicates an ISDN protocol error. It is not likely to be a problem originating within the system. Contact your network service provider to help resolve this problem.

## PRI007

**Alarm Level:** Major.

**Description:** A network protocol error, or other internal error, of the type indicated by the message has occurred on the PRI channel specified by this message. The call being handled by that channel has been disconnected as a result. If no specific channel could be identified, the channel is displayed as -1.

**Note:** This message can result from a timeout from the network or a provisioning type error.

**Repair Procedure:** This message indicates an ISDN protocol error or an internal PRI error. Contact your network service provider if help is needed to resolve this problem. [Table 15 on page 306](#) lists possible error types that should help you identify the specific cause.

The PRIERR\_STATE and PRIERR\_BADCRV errors can occur if there are delays in starting the assigned application and the original caller has hung up before the application answers the incoming call. These alarms can generally be ignored unless they occur frequently or other load-related problems are observed.

Table 15. PRI007 Error Types

| Error Type | Error Value | Meaning                              |
|------------|-------------|--------------------------------------|
| CV_NULL    | 0           | No cause value present               |
| CV_UN      | 1           | Unassigned number                    |
| CV_NRTSTN  | 2           | No route to specific transit network |
| CV_CHUN    | 6           | Channel unacceptable                 |
| CV_NCC     | 16          | Normal call clearing                 |
| CV_UB      | 17          | User busy                            |
| CV_NUR     | 18          | No user responding                   |
| CV_CR      | 21          | Call rejected                        |
| CV_NC      | 22          | Number changed                       |
| CV_INF     | 28          | Invalid number format                |
| CV_FR      | 29          | Facility rejected                    |
| CV_RTSE    | 30          | Response to status enquiry           |
| CV_NU      | 31          | Normal; unspecified                  |
| CV_NCOCA   | 34          | No circuit or channel available      |

1 of 5

Table 15. PRI007 Error Types

| Error Type | Error Value | Meaning                                   |
|------------|-------------|-------------------------------------------|
| CV_NETFAIL | 38          | Network out of order                      |
| CV_TFAIL   | 41          | Temporary failure                         |
| CV_SEC     | 42          | Switching equipment congestion            |
| CV_UID     | 43          | User information discarded                |
| CV_RCCNA   | 44          | Requested circuit/channel not available   |
| CV_PREEMPT | 45          | Call preempted                            |
| CV_RFNS    | 50          | Requested facility not subscribed         |
| CV_OCB     | 52          | Outgoing calls barred                     |
| CV_ICB     | 54          | Incoming calls barred                     |
| CV_BCNP    | 58          | Bearer capability not presently available |
| CV_SONA    | 63          | Service/option not available              |
| CV_BCNI    | 65          | Bearer capability not implemented         |
| CV_CTNI    | 66          | Channel type not implemented              |

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Table 15. PRI007 Error Types

| Error Type     | Error Value | Meaning                                     |
|----------------|-------------|---------------------------------------------|
| CV_RFNI        | 69          | Requested facility not implemented          |
| CV_ICR         | 81          | Invalid call reference                      |
| CV_ICDNE       | 82          | Identified channel does not exist           |
| CV_ID          | 88          | Incompatible destination                    |
| CV_MIEIM       | 96          | Mandatory IE missing                        |
| CV_MTNEONI     | 97          | Message type nonexistent or not implemented |
| CV_MNCWTCS     | 98          | Message incompatible with call state        |
| CV_IIEC        | 100         | Invalid IE contents                         |
| CV_ROTTE       | 102         | Recovery on timer expiry                    |
| CV_IOCUC       | 127         | Interworking; or cause unknown              |
| PRIERR_NETWORK | 256         | Network didn't respond as expected          |
| PRIERR_STATE   | 257         | Request was received in wrong state         |
| PRIERR_OOSVC   | 258         | B-channel is out of service                 |
| <i>3 of 5</i>  |             |                                             |

Table 15. PRI007 Error Types

| Error Type       | Error Value | Meaning                            |
|------------------|-------------|------------------------------------|
| PRIERR_INMTC     | 259         | B-channel is in maintenance state  |
| PRIERR_GLARE     | 260         | Out going call failed due to glare |
| PRIERR_BADCMD    | 261         | Bad command, not understood        |
| PRIERR_BADDCHAN  | 262         | Bad D-channel                      |
| PRIERR_BADBCHAN  | 263         | Bad B-channel                      |
| PRIERR_DCHANDEAD | 264         | D-channel is dead                  |
| PRIERR_DCHANOFF  | 265         | D- channel is turned off           |
| PRIERR_DCHANCONF | 266         | D-channel configuration error      |
| PRIERR_BUSY      | 267         | B-channel was already busy         |
| PRIERR_OVERFLOW  | 268         | Q931 window resource problems      |
| PRIERR_IEMISS    | 269         | Missing information element        |
| PRIERR_MSGFAIL   | 270         | Unable to send PRI message         |
| PRIERR_ACTAPPL   | 271         | Application already active         |
| PRIERR_NUMBCH    | 272         | Invalid number of B-channels       |

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Table 15. PRI007 Error Types

| Error Type       | Error Value | Meaning                            |
|------------------|-------------|------------------------------------|
| PRIERR-WINDOW    | 273         | Q931 window resource problems      |
| PRIERR_NOTAPPL   | 274         | Application does not own channel   |
| PRIERR_DOCHANACT | 275         | D-channel is active (UP)           |
| PRIERR_CRECMAX   | 276         | Unable to allocate call record     |
| PRIERR_BADCRV    | 277         | CRV does not match CRV for channel |
| PRIERR_COMPAND   | 278         | Companding error on SETUP          |
| PRIERR_CHTYPE    | 279         | Invalid channel type on SETUP      |

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## RECOG Alarms and Log Messages

### RECOG001

**Alarm Level:** Major.

**Description:** The speech recognition feature failed to communicate with the voice system during call processing. Applications using the speech recognition feature will fail.

**Repair Procedure:** Reboot the system.

### RECOG002

**Alarm Level:** Major.

**Description:** The speech recognition feature received an invalid response from the SSP cards or experienced a timeout in communicating with the SSP cards during call processing. Applications using the speech recognition feature will be incomplete.

- Repair Procedure:**
- 1 Diagnose the SSP card by completing [step a](#) and [step b](#):
    - a Enter **diagnose card *card number***  
where *card number* is the card number of the SSP card.
    - b If the card passes diagnostics, place it back in service by entering:  
**restore card *card number***  
where *card number* is the card number of the SSP card you want to restore to service.
  - 2 Check the circuit card.
  - 3 If the problem persists, complete [step a](#) and [step b](#):
    - a Stop the voice system.
    - b Start the voice system.

## RECOG003

**Alarm Level:** Major.

**Description:** The speech recognition feature failed to communicate with the voice system during call processing. Applications using the speech recognition feature will fail.

**Repair Procedure:** Reboot the system.

## RECOG004

**Alarm Level:** Minor.

**Description:** An invalid wholeword grammar or subword wordlist number was used by the **getdig** script instruction. Recognition failed.

**Repair Procedure:**

- 1 Verify the application to ensure that the getdig() instruction is using a valid wholeword grammar or subword wordlist number.
- 2 If the problem persists, reinstall the speech recognition languages or the subword vocabulary.

## SSP Alarms and Log Messages

### SP001

**Alarm Level:** None.

**Description:** Pack files running on SSP cards can "print" information by having it logged. Such "print" requests appear in the log files as SP001 (LGSP\_PRINTF) event messages.

**Repair Procedure:** No corrective action is necessary.

### SP002

**Alarm Level:** None.

**Description:** A pack file running on an SSP card has made an illegal "remote procedure call" (RPC) request. Incidents should be escalated to your support organization.

**Repair Procedure:** No corrective action is necessary.

### SP003

**Alarm Level:** None.

**Description:** A pack file running on an SSP card has encountered an error and wishes to log certain information which may help the support personnel in diagnosing the problem.

In addition, an alarm will be logged if manual intervention is required.

**Repair Procedure:** No corrective action is necessary.

### SP004

**Alarm Level:** None.

**Description:** A pack file running on an SSP card has encountered an error from which it cannot recover. It is logging some information that may help the support organization in diagnosing the problem.

In addition, an alarm will be logged if manual intervention is required.

**Repair Procedure:** No corrective action is necessary.

### SP005

**Alarm Level:** None.

**Description:** A pack file running on an SSP card is logging certain information about the termination of an activity running on the SSP card. These messages will not appear unless the pack file is specifically requested to generate them. They are used by the support organization.

**Repair Procedure:** No corrective action is necessary.

## SP006

**Alarm Level:** None.

**Description:** A pack file running on an SSP card is logging certain information about the termination of a process running on the SSP card. These messages will not appear unless the pack file is specifically requested to generate them. They are used by the support organization.

**Repair Procedure:** No corrective action is necessary.

## SP007

**Alarm Level:** None.

**Description:** A pack file running on an SSP card is logging certain information about the condition of a process stack on the SSP card. These messages will not appear unless the pack file is specifically requested to generate them. They are used by the support organization.

**Repair Procedure:** No corrective action is necessary.

## SPIP Alarms and Log Messages

### SPIP001

**Alarm Level:** None.

**Description:** A speech break has been detected during a coding or voice playback session involving an SSP card. The coded voice is incomplete, or inappropriate silence was inserted into the playback session. This condition may be attributed to excessive load either on the system or the SSP card, or the SSP card may be broken. The Cause Code field of the message may be used to further isolate the cause.

The impact of this error is not severe and no action is warranted if the message is reported less frequently than the threshold limit.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
** THR003 -- -- -- The first threshold level for SPIP_SBRK
exceeded. 50 messages have been generated in the last 3
minutes.
```

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

**Repair Procedure:** **Note:** Perform the following procedure if the thresholded message is reported for SPIP001.

- 1 If the Cause Code in the message is 0, 1, 8, or 9, the problem may be caused either by a broken SSP or an overloaded card.

Do the following:

- a Check the circuit card.
- b If the problem persists, reduce the load.

**Note:** Perform the following procedure if you have more than one SSP card and see SPIP001 repeatedly for the same SSP card.

- 2 Diagnose the card by entering:

**diagnose card *card number***

where *card number* is the card number of the SSP card.

- 3 If the problem persists, replace the SSP card. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

## SPIP002

**Alarm Level:** Minor.

**Description:** The output signal level on an SSP timeslot approached the level deemed too loud for a telephone network by the FCC. The output signal was thus interrupted until the signal level dropped below the threshold of noncompliance. The caller will hear inappropriate silence or chopped speech during the speech playback session.

- Repair Procedure:**
- 1 Consult the application developer and check the speech phrases of the application. The speech may have been recorded at too high a volume level. Rerecord the speech.
  - 2 Reduce the current analog or digital OVOL value depending on the channel type if it exceeds the default. See Chapter 4, "Switch Interface Administration," in *LINCS Server Administration*, 585-313-507, for information on checking the outgoing speech volume (OVOL). The default OVOL is 1000 for analog and 707 for digital.
  - 3 If the problem persists, replace the SSP card. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

## SPIP003

**Alarm Level:** None.

**Description:** Unexpected speech recognition behavior occurred on the SSP card. The SSP has automatically recovered. The impact of this error is not severe and no action is warranted if the message is reported less frequently than the threshold limit.

The impact of this error is not severe and no action is warranted if the message is reported less frequently than the threshold limit.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
** THR003 The first threshold level for SPIP_SBRK
 exceeded. 50 messages have been generated in the last 3
 minutes.
```

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

**Repair Procedure:** **Note:** Perform the following procedure if the thresholded message is reported for SPIP003.

- 1 Enter **diagnose card *card number***

where *card number* is the card number of the SSP card.

- 2 If the card passes diagnostics, place it back in service by entering:  
**restore card *card number***  
where *card number* is the card number of the SSP card you want to restore to service.
- 3 Check the circuit card.

## SPIP004

**Alarm Level:**

Critical.

**Description:**

An error occurred on the SSP card. The SSP card set was not able to recover from this error. Applications using the SR feature may fail.

**Repair Procedure:**

Check the circuit card.

## SPIP005

**Alarm Level:**

Critical.

**Description:**

An internal UNIX System error has occurred. Application functionality may be severely impaired.

**Repair Procedure:**

Reboot the system.

## SPIP009

**Alarm Level:** None.

**Description:** VROP is not delivering speech fast enough to the SSP card. A possible effect of this problem is a gap in speech. This condition may be attributed to excessive load either on the system or the SSP card.

The impact of this error is not severe and no action is warranted if the message is reported less frequently than the threshold limit.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
**THR003 -- -- --- The first threshold level for SPIP_VSLOW
exceeded. 50 messages have been generated in the last 3
minutes.
```

**Repair Procedure:** No corrective action is necessary.

## SYS Alarms and Log Messages

### SYS001

**Explanation:** These alarms are for UNIX operating system errors. The description below applies to them all.

**Description:** An internal voice system process has requested that the UNIX operating system perform a function on its behalf. That function has failed. The number of the error corresponds to the UNIX errno (See INTRO(2) of the *UNIX System V/386 Release 3.2 Programmer's Reference Manual*). The impact and severity of this error on the voice system depends on the context of the error and the process which has encountered the error.

## TAM Alarms and Log Messages

### TAM001

**Alarm Level:**

**Description:** Request failed. Reason: *reason*.

**Repair Procedure:**

### TAM002

Alarm Level:

Description: **Operation** of **device** failed. Reason: **reason**.

Repair Procedure:

### TAM003

Alarm Level:

Description: The message **message** was ignored. Reason: **reason**.

Repair Procedure:

### TAM004

Alarm Level:

Description: Unable to save the external alarm board's configuration.

Repair Procedure:

## TAM005

**Alarm Level:**

**Description:** The request to turn an alarm on failed. Reason: *reason*.

**Repair Procedure:**

## THR Alarms and Log Messages

### THR001

**Alarm Level:** None.

**Description:** This is a threshold message. Typically, threshold messages indicate that too many messages of a particular type are being generated. Threshold messages may indicate an escalation of priority.

To find out which message was thresholded, examine the threshold message text. The text will contain the message mnemonic. For example, a typical threshold message may look like:

```
THR001 -- -- -- The first threshold level for LG_MSGNAME
exceeded. 100 messages have been generated in the last 1
hour.
```

The message *mnemonic* in this example is LG\_MSGNAME. The message text gives the currently set threshold limits for the thresholded message.

- Repair Procedure:**
- 1 Enter **explain *mnemonic***
  - 2 Note the message ID that appears in the header of the explain output.

## THR002

**Alarm Level:** Minor.

**Description:** This is a threshold message. Typically, threshold messages indicate that too many messages of a particular type are being generated. Threshold messages may indicate an escalation of priority.

To find out which message was thresholded, examine the threshold message text. The text will contain the message mnemonic. For example, a typical threshold message may look like:

```
* THR002 -- -- -- The first threshold level for LG_MSGNAME
exceeded. 100 messages have been generated in the last 1
hour.
```

The message *mnemonic* in this example is LG\_MSGNAME. The message text gives the currently set threshold limits for the thresholded message.

- Repair Procedure:**
- 1 Enter **explain *mnemonic***
  - 2 Note the message ID that appears in the header of the explain output.

## THR003

**Alarm Level:** Major.

**Description:** This is a threshold message. Typically, threshold messages indicate that too many messages of a particular type are being generated. Threshold messages may indicate an escalation of priority.

To find out which message was thresholded, examine the threshold message text. The text will contain the message mnemonic. For example, a typical threshold message may look like:

```
** THR003 -- -- -- The first threshold level for LG_MSGNAME
exceeded. 100 messages have been generated in the last 1
hour.
```

The message *mnemonic* in this example is LG\_MSGNAME. The message text gives the currently set threshold limits for the thresholded message.

- Repair Procedure:**
- 1 Enter **explain *mnemonic***
  - 2 Note the message ID that appears in the header of the explain output.

## THR004

**Alarm Level:** Major.

**Description:** This is a threshold message. Typically, threshold messages indicate that too many messages of a particular type are being generated. Threshold messages may indicate an escalation of priority.

To find out which message was thresholded, examine the threshold message text. The text will contain the message mnemonic. For example, a typical threshold message may look like:

```
*C THR004 -- -- -- The first threshold level for LG_MSGNAME
exceeded. 100 messages have been generated in the last 1
hour.
```

The message *mnemonic* in this example is LG\_MSGNAME. The message text gives the currently set threshold limits for the thresholded message.

- Repair Procedure:**
- 1 Enter **explain *mnemonic***
  - 2 Note the message ID that appears in the header of the explain output.

# TSM Alarms and Log Messages

## TSM001

**Alarm Level:** Critical.

**Description:** An incoming call has not been processed because no service was assigned to the specified channel or dialed number identification service (DNIS).

**Repair Procedure:** Examine the logged message to determine if it contains the string:

DNIS: *dnis*

where *dnis* is a dialed number string, and do one of the following:

- 1 If there is no dialed number (DNIS) indicated by the message, enter:

**assign service *script* to chan *chan***

where *script* is the name of the service to be assigned and *chan* is the channel number indicated by the message.

- 2 If there is a dialed number (DNIS) indicated by the message, enter:

**assign service *script* to chan *dnis***

where *script* is the name of the service to be assigned and *dnis* is the DNIS indicated by the message, or enter:

**assign service *script* to *dnis* any**

to assign the service to "any" DNIS.

**Note:** The service assigned to "any" DNIS is used if a DNIS provided by a new call has no service specifically assigned to it.

## TSM002

**Alarm Level:** Critical.

**Description:** The voice system has tried to load a script program file that is missing or corrupted.

If this message contains a channel number of 1, any incoming calls using this script will not be processed. Attempts by a DIP to run the script with a "soft seizure" request will also fail.

If this message contains a channel number greater than 1, an attempt to process a call or "soft seizure" with this script has failed on the channel indicated.

- Repair Procedure:**
- 1 Verify that the script named in the system message is a valid script name.
  - 2 If the script name is not valid, then determine if another application is attempting to execute the invalid script using the script **exec** instruction, or an IRAPI application is attempting to use **irExecp ()** to execute an invalid script name.

## TSM003

**Alarm Level:** Minor.

**Description:** The service running on the indicated channel was unable to perform the specified function because the SSP card was overloaded. This is a temporary condition due to the dynamic nature of SSP resource allocation on the system. This condition will be relieved when the system's demand on SSP resources decreases or the system's SSP capacity increases. Call processing on the channel has been degraded.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

**\*\* THR003 -- -- -- The first threshold level for TSM\_SPBUSY exceeded. 10 messages have been generated in the last 1 minute.**

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

- Repair Procedure:**
- 1 Some SSP cards assigned to the indicated function may be out of service, thus putting too much load on the SSP cards that remain in service.

Determine if any SSP cards assigned the indicated function are out of service by entering **display card sp**

- a If any SSP cards with the indicated function are in the Manoos state, enter:

**restore card *card number***

where *card number* is the card number obtained from the previous display command output to restore the card to service.

- b If any SSP cards are in a state other than Manoos, check the circuit card.
- 2 If all SSP cards with the indicated function are in service and the problem persists, determine if the system load is exceeding the total rated capacity for all SSP cards assigned this function.

If this message is being reported under system load conditions that do not exceed the total rated capacity of the SSP card for the indicated function, check the circuit card.

Otherwise, reduce the load.

## TSM004

**Alarm Level:** Critical.

**Description:** The service running on the indicated channel was unable to perform the specified function. There is not a sufficient number of SSP cards in service that perform this function. Call processing has been degraded or inhibited completely on all channels needing this SSP function.

**Note:** A TTS error may be logged even if TTS is not installed. If TTS is not installed, the TTS portion of the message can be ignored.

**Repair Procedure:** There may be no SSP cards assigned to the indicated function, or all SSP cards that are assigned to that function may be out of service.

- 1 Determine if any SSP cards assigned the indicated function are out of service by entering **display card sp**
- 2 If any SSP cards with the indicated function are in the Manoos state, enter:

**restore card *card number***

where *card number* is the card number obtained from the previous display command output, to restore the card to service.

- 3 If any SSP cards are in a state other than Manoos, enter:  
**diagnose card *card number***  
where *card number* is the number of the card you want to diagnose.
  - a If the card passes diagnostics, enter:  
**restore card *card number***  
where *card number* is the number of the card you want to restore to service.
  - b If the card does not pass diagnostics, check the circuit card.
- 4 If there are no SSP cards assigned to the indicated function, you can assign the function to an SSP card by completing the following Steps a through d:
  - a If the SSP card is in the Inserv state, remove it from service by entering:  
**remove card *card number***  
where *card number* is the card number of the SSP obtained from the display card sp command output.
  - b Assign the appropriate function to the SSP card(s). See Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

**c** Enter **diagnose card *card number***

where *card number* is the number of the SSP card on which you want to run diagnostics.

**d** Enter **restore card *card number***

where *card number* is the number of the SSP card that you want to restore to service with the appropriate function.

## TSM006

**Alarm Level:** Minor.

**Description:** The application script indicated in this message has tried to speak back a field that has a space, asterisk (\*), pound sign (#), or some other unrecorded or nonstandard phrase. No speech corresponding to the indicated character is heard by the caller. For example, if the script tried to play the string *123\*abc*, the caller would hear "123abc" and this message would be logged for the \* character.

**Repair Procedure:** This revised program has a checklist that requires the input to be all digits. If the event log message is being issued because of speaking back a field that was returned from a host or database lookup, the field to be spoken back must first be stripped of any spaces.

In the case of speaking caller input, or fields from a host or database lookup, this event log message is not a Major message. Rather, it is an informational message telling you that part of the field being spoken back contains some unexpected characters that can not be spoken back; that is, a space, an asterisk, or a pound sign.

Developers using native script language should check fields used with the **tchars()** instruction for invalid characters.

## TSM008

**Alarm Level:** Minor.

**Description:** The service running on the indicated channel was unable to perform the specified function because a Feature License was overloaded. This is a temporary condition resulting from the dynamic nature of license allocation on the system. This condition will be relieved when the system's demand for this Feature License decreases.

It may be useful to purchase a Feature License for a larger number of simultaneous users of this feature to avoid degraded service.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
** THR003 The first threshold level for TSM_SPBUSY
exceeded. 10 messages have been generated in the last 1
minute.
```

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

**Repair Procedure:** Contact your service representative to purchase more feature licenses.

## TSM009

**Alarm Level:** Major.

**Description:** The service running on the indicated channel was unable to perform the specified function because no Feature License has been purchased for an optional feature.

It will be necessary to purchase a Feature License for the optional feature in order for this service to perform as designed.

**Repair Procedure:** Contact your service representative to purchase more feature licenses.

## TTS Alarms and Log Messages

### TTS001

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature has encountered a system failure during calling processing. Applications using the Text-To-Speech feature to read from a text file will fail.

**Repair Procedure:** Reboot the system.

### TTS002

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature failed to access the text file indicated during call processing. Applications requiring access to this file will be incomplete.

**Repair Procedure:**

- 1 Verify that the application refers to the correct text file name.
- 2 Verify that the text file is in existence in the correct directory. Note that if text file is not located in the **/vs/data/tts\_files** directory, the text file name must be a full path name.

- 3 If the application is correct, restore the text file(s) from the backup. If the backup is not available, consult the application developer to recreate the text file.
- 4 If the problem persists, reboot the system.

## TTS003

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature failed to access a shared resource of the voice system during initialization. Applications using the Text-To-Speech feature to read from a text file will fail.

**Repair Procedure:**



### **WARNING:**

**The following procedure causes all system configuration information to be lost. This includes switch administration, service assignments. When the voice system is restarted, the system configuration uses the default settings.**

- 1 Stop the voice system.
- 2 Move the devtbl to another area. For example, enter:  

```
mv /gendb/shmem/devtbl /gendb/shmem/devtbl.old
```
- 3 Start the voice system.

## TTS004

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature failed to access a shared resource of the voice system during initialization. Applications using the Text-To-Speech feature to read from a text file will fail.

**Repair Procedure:**

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the system.

## TTS005

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature failed to communicate with the voice system during call processing. Applications using the Text-To-Speech feature to read from a text file will fail.

**Repair Procedure:** Reboot the system.

### TTS006

**Alarm Level:** Major.

**Description:** The Text-To-Speech feature failed to communicate with the voice system during call processing. Applications using the Text-To-Speech feature to read from a text file will fail.

**Repair Procedure:** Reboot the system.

## TWIP Alarms and Log Messages

### TWIP001

**Alarm Level:** Major.

**Description:** An attempt to place a call on the identified T1/E1 channel failed as a result of the network's failure to return a wink. The voice system is expecting the wink once the T1/E1 channel has been taken offhook. This acknowledgment enables the voice system to know when to begin dialing.

**Repair Procedure:** 1 The identified T1/E1 trunk is using robbedbit, winkstart, E&M protocol. Contact the network switch administrator to verify that the switch is administered with compatible options.

- 2 If this T1/E1 interface is intended to use ISDN PRI protocol, administer the card for ISDN PRI Layer 1 Protocol as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
- 3 If the switch and the voice system interfaces have both been verified as correct and the message occurs infrequently, the problem can be caused by lack of DTMF tone receivers on the switch. If the number of failures is unsatisfactory, reduce the call rate from the voice system to the switch or check with the network switch administrator to increase the number of available DTMF tone receivers. See [TWIP001 — Application Developer Notes: \(page 343\)](#) for additional information.
- 4 If this message is occurring frequently (that is, not a result of the situation described in [step 3](#)) and another T1/E1 card exists in the voice system and is functioning properly, complete [step a](#) through [step e](#) to determine if the problem can be attributed to an external factor rather than the card.
  - a Remove the functioning T1/E1 card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1 card.
  - b Swap the cables to both T1/E1 cards.
  - c Restore the previously functioning T1/E1 card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1 card.

- d Observe the two T1/E1cards to see if the problem migrates with the cable.
      - e Return the cables to their original cards.
  - 5 If, as a result of [step 4](#), the problem is observed to migrate with the cable, or if a second T1/E1card is not available to perform [step 3](#), check the cable between the 15-pin connector on the back of the T1/E1card that connects to the switch.
    - a Check cable continuity on pins 1, 3, 9, and 11.
    - b Look for broken wires or a dislodged connector.
  - 6 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.

**TWIP001 —  
Application  
Developer Notes:**

If you determine this message is occurring due to occasional lack of DTMF tone receivers on the switch and the number of failures is infrequent enough to not warrant adding switch resources or reducing call rates, you should add error checking in the application script to detect this type of failure during call origination (**tic**) and reattempt the call.

## TWIP002

**Alarm Level:** Major.

**Description:** An attempt to place a call on the identified T1/E1 channel failed as a result of unexpected network behavior.

**Repair Procedure:** This problem is usually due to the use of a T1/E1 configuration option not normally used by the voice system.

This alarm is logged as a result of the indicated T1/E1 channel having encountered an excessively long wink. Typically, this is due to the presence of incoming calls on trunks that have been administered for outbound calls only (glare).

- 1 Verify that this trunk has been administered, via the `/vs/data/t1_config` file, with the desired configuration.
- 2 If the desired configuration is not for outbound calls only, edit the file `/vs/data/t1_config` for two-way calling.

**Note:** This is *not* a standard procedure. Information in the file provides a guide to making this change. The card numbering in this file corresponds to the number of the T1/E1 card. To determine the number for the card, enter:

**display card t1**

The number displayed is for the T1/E1 card on which the identified channel resides.

- 3 If the desired configuration is for outbound calls only, contact the network switch administrator to verify that the switch is administered to prevent calls from the switch to the voice system.
- 4 Contact the network switch administrator to verify that the length of the wink being returned by the switch to the voice system is always between 150 and 350 msec.

### TWIP003

**Alarm Level:** None.

**Description:** The network failed to go on-hook within 25 seconds after completion of the previous call on this channel. The T1/E1card was able to automatically recover from this error.

**Repair Procedure:** No corrective action is necessary.

### TWIP004

**Alarm Level:** Minor.

**Description:** The identified T1/E1channel, which has been configured for outbound calls only, has received an unexpected inbound call. This call has been ignored by the voice system.

**Repair Procedure:** This problem is usually due to the use of a T1/E1 configuration option not normally used by the voice system.

This alarm is logged as a result of the indicated T1/E1 channel, configured for outbound calls only, having detected an incoming call.

- 1 Verify that this trunk has been administered, via the `/vs/data/t1_config` file, with the desired configuration.
- 2 If the desired configuration should allow incoming calls, edit the file `/vs/data/t1_config` to enable incoming calls on the desired channels.

**Note:** This is *not* a standard procedure. Information in the file provides a guide to making this change. The card numbering in this file corresponds to the number of the T1/E1 card. To determine the number for the card, enter:

```
display card t1
```

The number displayed is for the T1/E1 card on which the identified channel resides.

- 3 If the desired configuration is for outbound calls only, contact the network switch administrator to verify that the switch is administered to prevent calls from the switch to the voice system.

## TWIP005

**Alarm Level:** Major.

**Description:** An outbound call has not completed because the network answered before all digits were dialed.

**Repair Procedure:** This problem is usually due to a configuration or application error.

A script is attempting to outdial on the designated channel using a dialed number which is longer than the network is expecting.

- 1 Determine which script is attempting to outdial on the indicated channel.
- 2 If the dial string is incorrect, correct it and re-attempt.
- 3 If the problem persists and dial string is correct, contact the network switch administrator to verify that the switch is administered to accept the same number of digits as the application is attempting to dial.

## TWIP006

**Alarm Level:** Major.

**Description:** The identified T1/E1 channel is configured for inbound calls only. Calls cannot originate on this channel.

**Repair Procedure:** This problem is usually due to the use of a T1/E1 configuration option not normally used by the voice system.

This alarm is logged as a result of the indicated T1/E1 channel, configured for inbound calls only, having received a request from the system to originate an outbound call.

- 1 Verify that this trunk has been administered, via the **`/vs/data/t1_config`** file, with the desired configuration.
- 2 If the desired configuration is should allow outbound calls, edit the file **`/vs/data/t1_config`** to enable outbound calls on the desired channels.

**Note:** This is *not* a standard procedure. Information in the file provides a guide to making this change. The card numbering in this file corresponds to the number of the T1/E1 card. To determine the number for the card, enter:

### **display card t1**

The number displayed is for the T1/E1 card on which the identified channel resides.

- 3 If the desired configuration is for inbound calls only, verify that the switch is administered to allow calls from the voice system to the switch.

## TWIP007

**Alarm Level:** Major.

**Description:** The identified T1/E1 channel has been administered with an unrecognized or illegal channel option. Calls on this channel may not be processed correctly.

**Repair Procedure:** This alarm is logged as a result of the indicated T1/E1 channel having been configured with an invalid option. The channel resorts to its default behavior for the affected option.

- 1 Remove the card from service. Enter:

**remove card *card number***

where *card number* is the number of the affected card.

- 2 Administer the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.

- 3 Restore the card to service. Enter:

**restore card *card number***

where *card number* is the number of the affected card.

- 4 If the problem persists, then a channel parameter not normally used by the voice system is incorrect. It must be changed by editing the file ***/vs/data/t1\_config***.

**Note:** This is *not* a standard procedure. Information in the file provides a guide to making this change. The card numbering in this file corresponds to the number of the T1/E1card. To determine the number for the card, enter:

**display card t1**

The number displayed is for the T1/E1card on which the identified channel resides.

## TWIP008

**Alarm Level:** Critical.

**Description:** The voice system is unable to communicate with the T1/E1cards in the system. Calls cannot be processed on any T1/E1card.

**Repair Procedure:**

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the system.
- 4 If the problem persists, reinstall the T1/E1driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

## TWIP009

**Alarm Level:** Major.

**Description:** The identified T1/E1card has been administered with an unrecognized or illegal card option. Calls on this card may not be processed correctly.

**Repair Procedure:** This alarm is logged as a result of the indicated T1/E1card having been configured with an invalid option. The card resorts to its default behavior for the affected option.

- 1 Remove the card from service. Enter:

**remove card *card number***

where *card number* is the number of the affected card.

- 2 Administer the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
- 3 Restore the card to service. Enter:

**restore card *card number***

where *card number* is the number of the affected card.

- 4 If the problem persists, then a card parameter not normally used by the voice system is incorrect. It must be changed by editing the file **`/vs/data/t1_config`**.

**Note:** This is not a standard documented procedure. Information in the file provides a guide to making this change. The card numbering in this file corresponds to the number of the T1/E1 card. To determine the number for the card, enter:

**display card t1**

The number displayed is for the T1/E1 card on which the identified channel resides.

## TWIP010

**Alarm Level:** Critical.

**Description:** All communication between this and all other cards over the bus has been disrupted, resulting in a loss of all bridging and SSP card functionalities.

If a TWIP011 message for this card has been logged following this message, the problem has corrected itself and no further action is necessary.

**Repair Procedure:** If a TWIP011 message has not been logged for this card indicating the clock has returned, perform the following Steps until the problem is corrected.

**Note:** TWIP011 is logged as an event and does not appear in the log if you are displaying only alarms.

1 Diagnose the card by entering:

**diagnose card *card number***

where *card number* is the number of the affected card.

2 If the problem persists, check the bus.

3 If the problem persists, check the circuit card.

## TWIP011

**Alarm Level:** None.

**Description:** The communication problem previously reported by a TWIP010 message to be disrupted has been restored. All bridging and SSP functionality previously lost has been restored.

**Repair Procedure:** No corrective action is necessary.

**TWIP012**

**Alarm Level:** Critical.

**Description:** The identified T1/E1channel is experiencing overload. The voice system is unable to process calls on this channel.

**Repair Procedure:**

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the system.
- 4 If the problem persists, make certain that the problem is not attributed to other parts of the system. (This may be observable as a result of other load related alarms having been logged.)

**TWIP013**

**Alarm Level:** Major.

**Description:** The identified T1/E1card is not receiving a valid signal from the network. The voice system is unable to process calls on this card.

- Repair Procedure:**
- 1 Check the cable between the 15-pin connector on the back of the T1/E1 card which connects to the switch and/or CSU.
    - a Check cable continuity on pins 1, 3, 9, and 11.
    - b Look for broken wires or a dislodged connector.
    - c If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
  - 2 If the cabling/connections appear to be correct and if another T1/E1 card exists in the voice system and is functioning properly complete [step a](#) through [step e](#) to determine if the problem can be attributed to an external factor rather than the card.
    - a Remove the functioning T1/E1 card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1 card.
    - b Swap the cables to both T1/E1 cards.
    - c Restore the previously functioning T1/E1 card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1 card.



- Repair Procedure:**
- 1 Check and administer the framing/line coding option of the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
  - 2 Contact the network switch administrator to verify that the switch is administered with compatible options.
  - 3 If another T1/E1card exists in the voice system and is functioning properly, complete [step a](#) through [step e](#) to determine if the problem can be attributed to an external factor rather than the card.
    - a Remove the functioning T1/E1card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1card.
    - b Swap the cables to both T1/E1cards.
    - c Restore the previously functioning T1/E1card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1card.
    - d Observe the two T1/E1cards to see if the problem migrates with the cable.
    - e Return cables to their original cards.

- 4 If, as a result of [step 3](#), the problem is observed to migrate with the cable, or if a second T1/E1card is not available to perform [step 3](#), check the cable between the 15-pin connector on the back of the T1/E1card which connects to the switch and/or CSU.
  - a Check cable continuity on pins 1, 3, 9, and 11.
  - b Look for broken wires or a dislodged connector.
- 5 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
- 6 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned.
- 7 Check that the cable is shielded and that the shield is properly grounded at the switch.

## TWIP015

**Alarm Level:** Major.

**Description:** The identified T1/E1card is detecting excessive cyclic redundancy check (CRC) errors in the DS1 signal. The voice system is unable to process calls on this card.

- Repair Procedure:**
- 1 Check and administer the framing/line coding option of the card for ESF framing and B8ZS zero suppression, as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
  - 2 Contact the network switch administrator to verify that the switch is administered with compatible options.
  - 3 If another T1/E1 card exists in the voice system and is functioning properly, check if the problem can be attributed to an external factor and not the card.
    - a Remove the functioning T1/E1 card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1 card.
    - b Swap the cables to both T1/E1 cards.
    - c Restore the previously functioning T1/E1 card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1 card.
    - d Observe the two T1/E1 cards to see if the problem migrates with the cable.
    - e Return cables to their original cards.

- 4 If, as a result of [step 3](#), the problem is observed to migrate with the cable, or if a second T1/E1card is not available to perform [step 3](#), check the cable between the 15-pin connector on the back of the T1/E1card which connects to the switch and/or CSU.
  - a Check cable continuity on pins 1, 3, 9, and 11.
  - b Look for broken wires or a dislodged connector.
- 5 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
- 6 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned.
- 7 Check that the cable is shielded and that the shield is properly grounded at the switch.

## TWIP016

**Alarm Level:** Major.

**Description:** The identified T1/E1card is not detecting any signal from the network. The voice system is unable to process calls on this card.

- Repair Procedure:**
- 1 If another T1/E1card exists in the voice system and is functioning properly, check if the problem can be attributed to an external factor and not the card.
    - a Remove the functioning T1/E1card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1card.
    - b Swap the cables to both T1/E1cards.
    - c Restore the previously functioning T1/E1card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1card.
    - d Observe the two T1/E1cards to see if the problem migrates with the cable.
    - e Return cables to their original cards.
  - 2 If, as a result of [step 1](#), the problem is observed to migrate with the cable, or if a second T1/E1card is not available to perform [step 1](#), check the cable between the 15-pin connector on the back of the T1/E1card which connects to the switch and/or CSU.
    - a Check cable continuity on pins 1, 3, 9, and 11.
    - b Look for broken wires or a dislodged connector.

- 3 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
- 4 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned.
- 5 Check that the cable is shielded and that the shield is properly grounded at the switch.

### TWIP017

**Alarm Level:** Major.

**Description:** The identified T1/E1 card is detecting an allones (AIS) condition from the network. This alarm usually indicates that the network is out of service. The voice system is unable to process calls on this card.

**Repair Procedure:**

- 1 Contact the network switch administrator to verify that service is turned on at the switch.
- 2 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned. Typically, a CSU sends an allones (AIS) signal to the voice system if it is not receiving a signal from the switch.

- 3 Check and administer the framing/line coding option of the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
- 4 Contact the network switch administrator to verify that the switch is administered with compatible options.
- 5 If a CSU is being used, verify that it supports the framing type.

### TWIP018

**Alarm Level:** Major.

**Description:** The identified T1/E1card is detecting a remote frame alarm (yellow alarm). The network is experiencing problems receiving the DS1 signal sent by the T1/E1card. The voice system is unable to process calls on this card.

**Repair Procedure:** 1 Contact the network switch administrator to determine what problem is being noted by the switch.

If the switch is not receiving a signal from the voice system, check the cable between the 15-pin connector on the back of the T1/E1card which connects to the switch and/or CSU.

- a Check cable continuity on pins 1, 3, 9, and 11.
- b Look for broken wires or a dislodged connector.

- 2 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
- 3 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned.
- 4 Verify that the voice system, switch, and CSU (if being used) are configured with the same options.
  - a Check and administer the framing/line coding option of the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
  - b Contact the network switch administrator to verify that the switch is administered with compatible options.
  - c If a CSU is being used, verify that it supports the framing type.

### TWIP019

**Alarm Level:** None.

**Description:** The T1/E1 facility previously reported as being out of service has been automatically restored to service.

**Repair Procedure:** No corrective action is necessary.

## TWIP020

**Alarm Level:** Critical.

**Description:** A possible problem has been detected in the identified circuit of the T1/E1 card. The voice system is unable to process calls on this card.

**Repair Procedure:** Occasionally, a poor or miswired T1/E1 cable, switch, or CSU can cause this failure. The following procedure determines if the cause is external or within the card.

- 1 Disconnect the T1/E1 cable from the back of the T1/E1 circuit card.
- 2 Diagnose the card by entering:

**diagnose card *card number***

where *card number* is the card number specified in the message text.

**Note:** Additional instructions are provided by the diagnose command.

- 3 With the T1/E1 cable disconnected, if the "T1/E1 link test" indicates `No signal from the switch`, a problem could exist with one or more of the following:
  - ~ The T1/E1 cable is poorly or improperly wired. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127, for proper T1/E1 cable wiring instructions.

- ~ The T1/E1 card may not be properly administered. See Chapter 3, "Voice System Administration," and Chapter 4, "Switch Administration," in *LINCS Server Administration*, 585-313-507.
  - ~ The switch may not be properly administered (provisioned) to work with the voice system T1/E1 card. See Chapter 3, "Voice System Administration," and Chapter 4, "Switch Administration," in *LINCS Server Administration*, 585-313-507.
  - ~ If there is a CSU installed between the voice system T1/E1 card and the switch, verify this is properly wired and administered and is functioning properly.
- 4 If the diagnose command is T1/E1 link test continues to indicate T1/E1 Framing Circuit Failure, or T1/E1 Transceiver Failure while the T1/E1 card is disconnected, the card is faulty. Replace the circuit card. See Chapter 2, "Installing or Replacing Circuit Cards," in *LINCS Server Maintenance*, 585-313-126.

## TWIP021

**Alarm Level:** Minor.

**Description:** The identified T1/E1 card detected the shown number of bipolar violations in the DS1 within the previous minute. The T1/E1 card was able to recover automatically from this error.

- Repair Procedure:**
- 1 Check and administer the framing/line coding option of the card as described in Chapter 3, "Voice System Administration," in *LINCS Server Administration*, 585-313-507.
  - 2 Contact the network switch administrator to verify that the switch is administered with compatible options.
  - 3 If another T1/E1 card exists in the voice system and is functioning properly, complete [step a](#) through [step e](#) to determine if the problem can be attributed to an external factor rather than the card.
    - a Remove the functioning T1/E1 card from service by entering:  
**remove card *card number***  
where *card number* is the number of the functioning T1/E1 card.
    - b Swap the cables to both T1/E1 cards.
    - c Restore the previously functioning T1/E1 card to service by entering:  
**restore card *card number***  
where *card number* is the number of the functioning T1/E1 card.
    - d Observe the two T1/E1 cards to see if the problem migrates with the cable.
    - e Return cables to their original cards.

- 4 If, as a result of [step 3](#), the problem is observed to migrate with the cable, or if a second T1/E1 card is not available to perform [step 3](#), check the cable between the 15-pin connector on the back of the T1/E1 card which connects to the switch and/or CSU.
  - a Check cable continuity on pins 1, 3, 9, and 11.
  - b Look for broken wires or a dislodged connector.
- 5 If this is a new installation, verify that the transmit and receive wire pairs are not reversed. See "Making Digital Connections," in Chapter 3, "Making Cable Connections," in *LINCS Server New System Installation*, 585-313-127.
- 6 If a CSU is being used, verify that it is operating correctly. If this is a new installation, verify that the CSU has been properly wired and optioned.
- 7 Check that the cable is shielded and that the shield is properly grounded at the switch.

## TWIP022

**Alarm Level:** Critical.

**Description:** The identified T1/E1 card has stopped operating. The voice system is unable to process calls on this card.

**Repair Procedure:**    **Note:**    This message may result when the **smc\_setup** command is used. When **smc\_setup** is used, T1/E1 cards may be reset and experience problems. This results in the TWIP022 message that reports that the card is inoperable. The card is usually diagnosed and returned to service in approximately 5 minutes. The **smc\_setup** command should not be used when the voice system is active.

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the system.

### TWIP024

**Alarm Level:**

**Description:**            Loss of Primary CT bus clock detected.

**Repair Procedure:**

**TWIP025****Alarm Level:****Description:** Loss of Secondary CT bus clock detected.**Repair Procedure:****TWIP026****Alarm Level:****Description:** Secondary CT bus clock restored.**Repair Procedure:****TWIP027****Alarm Level:****Description:** Conference capacity exceeded for this card.**Repair Procedure:**

## TWIP028

**Alarm Level:**

**Description:** CAM memory capacity exceeded for this card.

**Repair Procedure:**

# UNIX Alarms and Log Messages

## UNIX001

**Alarm Level:** None.

**Description:** The UNIX system kernel has detected an error which has been logged on the system console. The voice system message Logger has put a copy of this message in the message log to keep a more durable record of it. The impact of this error on voice system functionality depends on the content of the specific UNIX message and the severity of the problem. In general, the severity corresponds to the priority of the logged message.

NOTICE (UNIX001) messages generally indicate problems of a less severe nature than WARNING (UNIX002) messages.

**Repair Procedure:** No corrective action is necessary.

## UNIX002

**Alarm Level:** Minor.

**Description:** The UNIX system kernel has detected an error which has been logged on the system console. The voice system message Logger has put a copy of this message in the message log to keep a more durable record of it. The impact of this error on voice system functionality depends on the content of the specific UNIX message and the severity of the problem. In general, the severity corresponds to the priority of the logged message.

WARNING (UNIX002) messages may not cause a system halt (PANIC) but usually indicate that system functionality is severely impaired.

**Repair Procedure:** Repair of UNIX system problems require a significant level of expertise on UNIX operating system administration. Some problems (for example, timeout, inode or file table overflows) may be fixed by changing tunable system parameters. Chapter 5 of the *UNIX System V/386 System Administrator's Guide* gives instructions on changing tunable parameters.

## UNIX003

**Alarm Level:** Major.

**Description:** The UNIX system kernel has detected an error which has been logged on the system console. The voice system message Logger has put a copy of this message in the message log to keep a more durable record of it. The impact of this error on voice system functionality depends on the content of the specific UNIX message and the severity of the problem. In general, the severity corresponds to the priority of the logged message.

**Repair Procedure:** Repair of UNIX system problems require a significant level of expertise on UNIX operating system administration. Some problems (for example, timeout, inode or file table overflows) may be fixed by changing tunable system parameters. Chapter 5 of the *UNIX System V/386 System Administrator's Guide* gives instructions on changing tunable parameters.

## UNIX004

**Alarm Level:** Critical.

**Description:** The UNIX system kernel has detected an error which has been logged on the system console. The voice system message Logger has put a copy of this message in the message log to keep a more durable record of it. The impact of this error on voice system functionality depends on the content of the specific UNIX message and the severity of the problem. In general, the severity corresponds to the priority of the logged message.

Major (UNIX004) messages correspond to UNIX PANIC messages. The system halts when they are issued.

**Repair Procedure:** Repair of UNIX system problems require a significant level of expertise on UNIX operating system administration. Some problems (for example, timeout, inode or file table overflows) may be fixed by changing tunable system parameters. Chapter 5 of the *UNIX System V/386 System Administrator's Guide* gives instructions on changing tunable parameters.

### UNIX005

**Alarm Level:** None.

**Description:** TROUBLE: *message*

**Repair Procedure:**

### UNIX006

**Alarm Level:** None.

**Description:** CRITICAL: *message*

**Repair Procedure:**

## VROP Alarms and Log Messages

### VROP001

**Alarm Level:** Minor.

**Description:** The user's attempt to run an administrative command (for example, list phrases, add a phrase to the speech file system, copy a phrase from a speech file system to a UNIX file, or erase a phrase) has failed. Call processing is not affected.

**Repair Procedure:** At a convenient time, do the following:

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists, reboot the system.

## VROP002

**Alarm Level:** Major.

**Description:** An attempt to record or add a phrase to the system has failed because all of the speech file systems are configured as *read only*. All further attempts will continue to fail, but the system will continue to play existing phrases properly.

**Repair Procedure:** 1 Enter **vdf**

The system displays a message similar to the following message:

```
speechFS /home2/vts/talkfiles
10107 free blocks of 19073 available (52% free)
READWRITE (blocksize=16384)
```

where *talkfiles* is the name of one of the speech file systems.

2 For each of the speech file systems noted above, enter:

**ls -ld *speech file system name***

The system displays a message similar to the following message:

```
drwxr-xr-x-rootsys409Feb516:57/home2/vfs/talkfiles
```

3 If the mode is not `drwsrwxr-x`, enter:

**chmod 775 *speech file system name***

## VROP003

**Alarm Level:** Minor.

**Description:** An SSP card was unable to perform a voice coding or playback request made by the system. The code or play request failed. This normally happens when the system is overloaded; that is, the total amount of coding or playback being attempted for all channels on the system is more than the available SSP cards can handle. In this case, most requests will be completed and only those for which a message is generated will fail. Each time a failure occurs, one message is generated.

The impact may be significant if the message occurs more frequently than the currently set threshold limit. In that case, you will see a threshold message similar to the following:

```
** THR003 -- -- -- The first threshold level for VROP_NOSPBUF
exceeded. 20 messages have been generated in the last 1
minute.
```

The threshold limits and threshold message priority shown above reflect the default values for this thresholded message.

**Repair Procedure:**

- 1 Display the state of the cards by entering display card
- 2 Verify that all SSP cards assigned for VOICE function are in INSERTV state.

- 3 If all SSP cards assigned for VOICE function are INSERT state, reduce the load.
- 4 If a card is in the BROKEN state, diagnose the card by entering:  
**diagnose card *card number***  
where *card number* is the number of the affected card.
- 5 If the card is in the MANOOS state, restore the card into service by entering:  
**restore card *card number***  
where *card number* is the number of the affected card.
- 6 Display the state of the card by entering:  
**display card *card number***  
where *card number* is the number of the affected card.
- 7 If the card is in the BROKEN state, check the circuit card.
- 8 If the card is in the MANOOS state, restore the card into service by entering:  
**restore card *card number***  
where *card number* is the number of the affected card.

## VROP004

**Alarm Level:** Major.

**Description:** A voice function may have failed. The request has been cancelled. The transaction may be hung (that is, the caller will hear nothing and nothing else will happen for the call until the call is terminated by the caller). Each time a failure occurs, one message is generated.

**Repair Procedure:** Determine the severity level of the message. The default severity level is MAJOR, yet the message may be a MINOR alarm in some cases in the software. If the severity level of the message is:

- MINOR, no corrective action is necessary.
- MAJOR, do the following:
  - 1 Stop the voice system.
  - 2 Start the voice system.

## VROP005

**Alarm Level:** Critical.

**Description:** Erroneous speech playback or coding may have occurred. The speech that was heard or recorded may have been terminated prematurely or replaced with other speech. Subsequent speech coding or playback may also be affected until the system is restarted.

**Repair Procedure:**

- 1 Stop the voice system.
- 2 Start the voice system.

## VROP006

**Alarm Level:** Major.

**Description:** The speech configuration file, `/vs/data/spchconfig`, is unreadable or has an invalid, duplicate, or missing entry. The system will use default values for missing or invalid entries for the numbers of speech buffers and/or maximum allowable phrases until this is corrected. For duplicate entries, the first value is used. The default numbers may be unsatisfactory for this system and could cause load problems, inability to access some phrases, or other performance problems.

- Repair Procedure:**
- 1 Determine if the number of speech buffers configured in the system is sufficient to handle the current load. Enter:  
**display chan all**  
The system displays a channel state table.
  - 2 To determine the number of speech buffers currently configured in the system, enter **cat /vs/data/spchconfig**  
The system displays an nbufs and max\_phrases table.
  - 3 Increase the nbufs parameter listed in the nbufs and max\_phrases table by completing [step a](#) through [step c](#):
    - a Edit the file **/vs/data/spchconfig** and change the parameter nbufs to the number desired.
    - b Stop the voice system.
    - c Start the voice system.

## VROP007

**Alarm Level:** Major.

**Description:** An attempt to add a new phrase to the speech file system failed. This could have impacted administrative commands or the coding of speech spoken by a caller. Additional similar attempts will also fail.

- Repair Procedure:**
- 1 Determine the amount of space available in the speech file system by entering **vdf**
  - 2 Write down the free blocks available.
  - 3 Stop the voice system.
  - 4 Start the voice system.
  - 5 Determine the space available in the speech file system by entering **vdf**
  - 6 If this does not result in more space, the speech file system must be increased in size, a new speech file system must be added, or existing phrases must be removed from the system.  
  
The system administrator should determine this.
  - 7 See [VROP007 — For Application Developer Notes:](#)

### **VROP007 — For Application Developer Notes:**

A common cause of running out of space in the speech file system is that applications that dynamically code speech from callers may not remove this speech when it is no longer needed. If other applications on the system code the speech of callers, make sure the application is deleting speech when no longer needed for that application. Removing phrases safely requires some understanding of the applications that are installed on the system. Some guidelines are as follows:

- 1 Determine which applications are loaded on the machine and consider removing any applications not currently in use. These can be backed up to disk before removing them. The UNIX directory **/speech/talk** contains list files for each application.
- 2 The command list phrase all in talkfile all shows all the phrases and talkfiles on the system. Any phrase that has no "PHRASE\_NAME" listed may not be currently used for prompts for applications currently loaded on the system. However, phrases may have been coded from customer input, and should not be removed until it is verified that the phrases are not of this type (see below).
  - ~ Talkfiles numbered less than 200 may be used for customer recorded speech and generally should not be removed.

## VROP009

**Alarm Level:** Major.

**Description:** An application attempted to play a phrase that has not been recorded or does not currently exist on the system. The system skips that phrase and continues with the rest of the application. The message typically occurs when new applications are being developed or tested on the system. It could happen at a later time if a phrase was never recorded, or if a phrase has been removed inadvertently or corrupted and cleared by an audit. The message can also be caused by an error in the application that causes it to perform a play script instruction with garbage input. (Note that an invalid argument to a **tchar** instruction does not cause this message; a TSM message is generated instead.)

This error may cause the caller to miss important information, but be unaware of this fact. For example, if the unrecorded phrase was a number such as "thousand," then "5205" will be spoken as "fivetwentyfive" instead of "five thousand two hundred five". This can be extremely serious for some applications.

**Repair Procedure:** 1 List the phrase by entering:

```
list phrase phrase num in talkfile talkfile num
```

where *phrase num* and *talkfile num* are the phrase and talkfile number from the error message. This should report `No such phrase exists.`

- 2 Determine which applications or scripts use the phrase.

Applications may have a list file with different naming conventions, such as **list.application name** (for example, **list.cabnt**). These files must be searched to locate the application that uses the missing phrase.

- 3 If the phrase has been recorded, restore the phrase from a backup. See **restore** in Appendix A, "Summary of Commands," in *LINCS Server Administration*, 585-313-507.

## VROP010

**Alarm Level:** Major.

**Description:** A failure occurred while performing the indicated action on a phrase. The action was aborted. This is caused by excessive voice activity load on the system.

**Repair Procedure:**

- 1 Stop the voice system.
- 2 Start the voice system.
- 3 If the problem persists and there is heavy load on the system, reduce the load.

## VROP011

**Alarm Level:** Major.

**Description:** Insufficient speech buffers are allocated to service the number of channels in the system. Each time the message occurs, an action has failed.

- Repair Procedure:**
- 1 Determine if the number of speech buffers configured in the system is sufficient to handle the current load by entering:  
**cat /vs/data/spchconfig**
    - ~ The system displays an nbufs and max\_phrases table.
    - ~ The nbufs parameter should be three times the number of channels available in the system.
  - 2 If your application needs more speech buffers than indicated by the number shown for nbufs, increase the nbufs parameter listed above by completing [step a](#) through [step c](#):
    - a Edit the file **/vs/data/spchconfig** and change the parameter `inbufs1` to the number desired.
    - b Stop the voice system.
    - c Start the voice system.

## VROP012

**Alarm Level:** Major.

**Description:** An attempt to add a new phrase to the speech file system failed. This could have impacted administrative commands or the coding of speech spoken by a caller. Other attempts will also fail.

**Repair Procedure:** Either increase the **max\_phrases** limit in the speech configuration file **/vs/data/spchconfig** by performing repair procedure for system message [VROP006 \(page 381\)](#) or eliminate unused phrases on the voice system by performing repair procedure for system message [VROP007 \(page 382\)](#).

## VROP013

**Alarm Level:** None.

**Description:** The system is not able to service speech playback or coding requests fast enough to guarantee that no speech gaps occur. Gaps may occur between phrases or within a phrase.

**Repair Procedure:** Reduce the load.

## VROP014

**Alarm Level:** Critical.

**Description:** **VROP/CIOX** failed to access the speech file indicated during processing. Applications requiring access to this file will be incomplete.

**Repair Procedure:**

- 1 Consult the application developer to verify the application. See [VROP014 — Application Developer Notes: \(page 389\)](#).
- 2 If the application is correct, restore the speech file(s) from the backup. If the backup is not available, consult the application developer to recreate the speech file.
- 3 If the problem persists, reboot the system.

**VROP014 —  
Application  
Developer Notes:**

- 1 Verify that the application refers to the correct speech file name.
- 2 Verify that the speech file is in existence with the correct access permission.

## VROP015

**Alarm Level:** Major.

**Description:** A phrase is being added to the speech file system or copied from the speech file system to a UNIX file (typically during speech backups or restores), and the UNIX file cannot be accessed.

**Repair Procedure:** If the error message indicates `No space left on device`, remove unnecessary files from the UNIX file system, particularly in `/tmp` directory.

Any other error message indicates a problem with the UNIX operating system.

Reboot the system.

## VROP016

**Alarm Level:** Major.

**Description:** A phrase in the speech file system has been corrupted. The phrase cannot be played or removed until the problem has been corrected. Call processing for other phrases is not affected.

- Repair Procedure:**
- 1 List the phrase by entering:  
**list phrase *phrase num* in talkfile *talkfile num***  
where *phrase num* and *talkfile num* are the phrase and talkfile number from the error message.  
The system displays a talkfile table.
  - 2 If the Coding Type is Unknown, restore the phrase from backup.
  - 3 If the phrase is still in error, divide the Size In Bytes by four.  
If there is a remainder, the phrase has been corrupted. Rerecord the phrase.

## VROP017

**Alarm Level:** None.

**Description:** An unexpected event occurred during an action. This action corresponds to a script instruction or administrative request (play a phrase, code a phrase, remove a phrase, fetch, create, or update). The system detected some type of anomaly while performing the action specified. The voice response action may not have completed successfully. The root cause could be either excessive system load or a problem with an SSP reported with another message.

- Repair Procedure:**
- 1 If the message field is `Bad tag, probably time expired` or `Nonoutstanding tag, probably time expired`, check the log for a [VROP019 \(page 392\)](#) message and perform the repair procedure for that message.
  - 2 If any other information appears in the message field, this could be due to an error in the system software.

### VROP018

**Alarm Level:** Critical.

**Description:** The system has failed to play or code a phrase. This is likely to recur until the problem has been resolved.

**Repair Procedure:** Reboot the system.

### VROP019

**Alarm Level:** Major.

**Description:** A timeout failure occurred while performing the indicated action on a phrase. The action was aborted. This could be due to excessive load on the system. The cause could also be a problem with the SSP card.

**Repair Procedure:**    1 Determine the value for the event field.

If the event is one of the following, complete [step a](#) through [step c](#).

- BKLAVAIL
- BUFVALID
- NEW\_PHRASE\_NUM
- READ\_DONE
- RELSEBK
- REMOVE\_DONE
- RENAME\_DONE
- SPWINAVAIL
- UPDATE\_DONE
- WRITE\_DONE

- a** Reduce the load.
- b** Stop the voice system.
- c** Start the voice system.

If the event is one of the following, complete [step d](#) through [step f](#).

- SPSTAT\_COMP
- SP\_VCBUF
- TR\_VCODE
- TR\_VPLAY

**d** Diagnose the card by entering:

**diagnose card *card number***

where *card number* is the number of the affected card.

Display the state of the card by entering **display card**

The card should be in INSERT state.

**e** If the card is in the BROKEN state, check the circuit card.

**f** If the card is in the MANOOS state, restore the card into service by entering:

**restore card *card number***

where *card number* is the number of the affected card.

## VROP020

**Alarm Level:** Major.

**Description:** Erroneous speech processing occurred in the application script. Subsequent speech processing may also be affected until the application script is corrected.

**Repair Procedure:**

- 1 Determine which application is causing the error by entering:  
**display chan *channel number***  
where *channel number* is the channel number from the error message.  
The system displays a channel table.
- 2 Correct the error in the application.

## VROP020, #2

**Alarm Level:** Major.

**Description:** The indicated file can not be reserved for the reason specified in the message. Applications requiring recording to the file will be incomplete.

**Repair Procedure:**

- 1 Verify that the file is a speech file.
- 2 Record the speech again using one of the coding algorithms supported by the system.

## VROP021

**Alarm Level:** None.

**Description:** The maximum number of Customer Input/Output processes has been reached. The speech playback or coding might be delayed. This condition may be attributed to excessive load on the system. The impact of this event is not severe and no action warranted.

**Repair Procedure:** No corrective action is necessary.

## VROP022

**Alarm Level:** Major.

**Description:** The indicated file can not be reserved for the reason specified in the message. Applications requiring recording to the file will be incomplete.

**Repair Procedure:**

- 1 Verify that the file is a speech file.
- 2 Record the speech again using one of the coding algorithms supported by the system.

### VROP023

**Alarm Level:** None.

**Description:** A speech stutter was detected during a speech playback session.

**Repair Procedure:** No corrective action is necessary.

## Numerics

### **23B+D**

23 bearer (communication) and 1 data (signaling) channel on a T1 PRI circuit card.

### **30B+D**

30 bearer (communication) and 1 data (signaling) channel (plus framing channel 0) on an E1 PRI circuit card.

### **47B+D**

47 bearer (communication) and 1 data (signaling) channel on two T1 PRI circuit cards.

### **4ESS<sup>®</sup>**

A large Lucent central office switch used to route calls through the telephone network.

**5ESS®**

A Lucent electronic switching machine used to route calls through the telephone network or private branch exchange.

**A****AC**

alternating current

**ACD**

[automatic call distributor](#)

**AD**

application dispatch

**AD-API**

application dispatch application programming interface

**adaptive differential pulse code modulation**

A means of encoding analog voice signals into digital signals by adaptively predicting future encoded voice signals. This adaptive modulation method reduces the number of bits required to encode voice. See also [pulse code modulation](#).

**adjunct products**

Products (for example, the Adjunct/Switch Application Interface) that the system administers via cut-through access to the inherent management capabilities of the product itself; this is in opposition to the ability of the system to administer the switch directly.

**ADPCM**

[adaptive differential pulse code modulation](#)

**ADU**

[asynchronous data unit](#)

**advanced speech recognition**

A speech recognition ability that allows the system to understand WholeWord and FlexWord™ inputs from callers.

**affiliate**

A business organization that Lucent controls or with which Lucent is in partnership.

**AGL**

application generation language

**ALERT**

System alerter process

**alerter**

A system process that responds to patterns of events logged by the “logdaemon” process.

**American Standard Code for Information Interchange**

A standard code for data representation that represents alphanumeric characters as binary numbers. The code includes 128 upper- and lowercase letters, numerals, and special characters. Each alphanumeric and special character has an ASCII code (binary) equivalent that is 1 byte long.

**analog**

An analog signal, such as voice or music, that varies in a continuous manner. An analog signal may be contrasted with a digital signal, which represents only discrete states.

**ANI**

[automatic number identification](#)

**announcement**

A message the system plays to the caller to provide information. The caller is not asked to give a response. Compare to [prompt](#).

**API**

Application programming interface

**application**

The automated transaction (interactions) among the caller, the voice response system, and any databases or host computers required for your business.

**application administration**

The component of the system that provides access to the applications currently available on your system and helps you to manage and administer them.

**application verification**

A process in which the system verifies that all the components needed by an application are complete.

**ASCII**

[American Standard Code for Information Interchange](#)

**ASI**

analog switch integration

**ASR**

[advanced speech recognition](#)

**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 by time. Compare to [synchronous communication](#).

**asynchronous data unit**

An electronic communications device that allows computer systems to communicate over asynchronous lines more than 50 feet (15 m) in length.

**automatic call distributor**

That part of a telephone system that recognizes and answers incoming calls and completes these calls based on a set of instructions contained in a database. The ACD can send the call to an operator or group of operators as soon as the operator has completed a previous call or after the system has played a message to the caller.

**automatic number identification**

A method of identifying the calling party by automatically receiving a string of digits that identifies the calling station of a particular customer.

**B****back up**

The preservation of the information in a file in a different location, so that the data is not lost in the event of hardware or system failure.

**backing up an application**

Using a utility that makes an archive copy of a completed application or an interim copy of an application in progress. The back-up copy can be restored to the system if the on-line version is damaged, or if you make revisions and want to go back to the previous version.

**barge-in**

A capability provided by WholeWord and FlexWord speech recognition and Dial Pulse Recognition (DPR) that allows callers to speak or enter their responses during the prompt and have those responses recognized (similar to the Speak with Interrupt capability). See also [echo cancellation](#).

**batch file**

A file containing one or more lines, each of which is a command executable by the UNIX shell.

**BB**

bulletin board

**blind transfer protocol**

A protocol in which a call is completed as soon as the extension is dialed, without having to wait to see if the telephone is busy or if the caller answered.

**bps**

bits per second

**BRDG**

call bridging process

**bridging**

The process of connecting one telephone network connection to another over the system TDM bus. Bridging decreases the processing load on the system since an active bridge does not require speech processing, database access, host activity, etc., for the transaction.

**bundle**

In the context of the Enhanced File Transfer package, this term is used to denote a single file, a group of files (package), or a combination of both.

**byte**

A unit of storage in the computer. On many systems, a byte is 8 bits (binary digits), which is the equivalent of one character of text.

**C****call classification analysis**

A process that enables application designers to use information available within the system to classify the disposition of originated and transferred calls. CCA is an optional feature package.

**call data event**

A parameter that specifies a list of variables that are appended to a call data record at the end of each call.

**call data handler process**

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

**called party number**

The number dialed by the person making a telephone call. Telephone switching equipment can use this number to selectively route an incoming call to a particular department or agent.

**caller**

The party who calls for a service, gets connected to the system, and interacts with it. As the system can also make outbound calls for service, the caller can also be the person who responds to those outbound calls.

**call flow**

See [transaction](#).

**call progress tones**

Standard telephony sounds that indicate the status of the call. These sounds include busy, fast busy, ringback, reorder, etc.

**card cage**

An area within a 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 can be removed from the system and stored as a backup, or used on another system.

**CAS**

channel associated signalling

**caution**

An admonishment or advisory statement used in the system documentation to alert the user to the possibility of a service interruption or a loss of data.

**CCA**

[call classification analysis](#)

**CDH**

[call data handler process](#)

**CELP**

[code excited linear prediction](#)

**central office**

An office or location in which large telecommunication devices such as telephone switches and network access facilities are maintained. These locations follow strict installation and operation requirements.

**central processing unit**

See [processor](#).

**CGEN**

Voice system general message class

**channel**

See [port](#).

**channel associated signaling**

A type of signaling that can be used on E1 circuit cards. It occurs on channel 16.

**circuit card upgrade**

A new circuit card that replaces an existing card in the platform. Usually the replacement is an updated version of the original circuit card to replace technology made obsolete by industry trends or a new system release.

**cluster controller**

A bisynchronous interface that provides a means of handling remote communication processing.

**CO**

[central office](#)

**code excited linear prediction**

A means of encoding analog voice signals into digital signals that provides excellent quality with use of minimum disk space.

**command**

An instruction or request the user issues to the system software to make the system perform a particular function. An entire command consists of the command name and options.

**configuration**

The arrangement of the software and hardware of a computer system or network. The system configuration includes either a standard or custom processor, peripheral equipment (for example, printers and modems), and software applications. Configuration also refers to the way the switch network is set up; that is, the types of products that are in the network and how those products communicate.

**configuration management**

The component of the system that allows you to manage the current configuration of voice channels, host sessions, and database connections, assign scripts to run on specific voice channels or host sessions, assign functionality to SSP and E1/T1 circuit cards, and perform various maintenance functions.

**connect and disconnect (C and D) tones**

DTMF tones that inform the system when the attendant has been connected (C) and when the caller has been disconnected (D).

**connected digits**

A sequence of digits that the system can process as a group, rather than requiring the caller to enter the digits one at a time.

**controller circuit card**

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

**copying an application**

A utility in which information from a source application is directed into the destination application.

**coresidency**

The ability of two products or services to operate and interact with each other on a single hardware platform.

**CPE**

customer provided equipment or customer premise equipment

**CPN**

[called party number](#)

**CPT**

[call progress tones](#)

**CPU**

[central processing unit](#)

**CPU Complex**

The processor for the LINCS server consisting of a single-board computing circuit card and an I/O companion board (SBC/IOB). The CPU complex is also used in other compactPCI platforms.

**crash**

An interactive utility for examining the operating system core and for determining if system parameters are being exceeded.

**CSU**

channel service unit

**custom speech**

Unique words or phrases to be used in system voice prompts that Lucent Technologies custom records on a per-customer basis.

**custom vocabulary**

A specialized package of unique words or phrases created on a per-customer basis and used by WholeWord or FlexWord speech recognition.

**CVS**

converse vector step

**D****danger**

An admonishment or advisory statement used in system documentation to alert the user to the possibility of personal injury or death.

**data interface process**

A software process that communicates with Script Builder applications.

**database**

A structured set of files, records, or tables.

**database field**

A field used to extract values from a local database and form the structure upon which a database is built.

**database record**

The information in a database for a person, product, event, etc. The database record is made up of individual fields for each information item.

**database table**

A structure, made up of columns and rows, that holds information in a database. Database tables provide a means of storing information that changes too often to “hard-code,” or store permanently, in the transaction outline.

**dB**

decibel

**DB**

database

**DBC**

database checking process

**DBMS**

database management system

**DC**

direct current

**DCE**

data communications equipment

**DCP**

digital communications protocol

**debug**

The process of locating and correcting errors in computer programs; also referred to as [troubleshooting](#).

**default**

The way a computer performs a task in the absence of other instructions.

**default owner**

The owner of a channel when no process takes ownership of that channel. The default owner holds all idle, in-service channels. In terms of the IRAPI, this is typically the Application Dispatch process.

**diagnose**

The process of performing diagnostics on a bus or on Tip/Ring, E1/T1, or SSP circuit cards.

**dial ahead**

The ability to collect and process touch-tone inputs in sequence, even when they are received before the prompts.

**dial pulse recognition**

A method of recognizing caller pulse inputs from a rotary telephone.

**dialed number identification service**

A service that allows incoming calls to contain information about the telephone number for which it is destined.

**dial through**

A capability provided by touch-tone and dial pulse recognition that allows callers to enter their responses during the prompt and have those responses recognized (similar to the Speak with Interrupt capability). See also [barge-in](#) and [echo cancellation](#).

**DIO**

disk input and output process

**DIP**

[data interface process](#)

**directory**

A type of file used to group and organize other files or directories.

**DMA**

direct memory address

**DNIS**

[dialed number identification service](#)

**DPR**

[dial pulse recognition](#)

**DSP**

digital signal processor

**DTE**

data terminal equipment

**DTMF**

[dual tone multi-frequency](#)

**DTR**

data terminal ready

### dual tone multi-frequency

A touch-tone sound that is an audio signal including two different frequencies. *DTMF feedback* is the process of the “switch” providing this information to the system. *DTMF muting* is the process of ignoring these tones (which might be simulated by human speech) when they are not needed for the application.

### dump space

An area of the disk that is fixed in size and should equal the amount of RAM on the system. The operating system “dumps” an image of core memory when the system crashes. The dump can be fetched after rebooting to help in analyzing the cause of the crash.

## E

### E&M

[Ear and Mouth](#)

### E1 / T1

Digital telephony interfaces, commonly called *trunks*. E1 is an international standard at 2.048 Mbps. T1 is a North American standard at 1.544 Mbps.

**Ear and Mouth**

A common T1 trunking protocol for connection between two “switches.”

**EBCDIC**

Extended Binary Coded Decimal Interexchange Code

**echo cancellation**

The process of making the channel quiet enough so that the system can hear and recognize WholeWord, FlexWord, and dial pulse inputs during the prompt. See also [barge-in](#).

**editor system**

A system that allows speech phrases to be displayed and edited by a user.

**EIA**

Electronic Industries Association

**EISA**

Extended Industry Standard Architecture

**EMI**

electromagnetic interference

**Enhanced Basic Speech**

Pre-recorded speech available from Lucent Technologies in several languages. Sometimes called [standard speech](#).

**error message**

A message on the screen indicating that something is wrong with a possible suggestion of how to correct it.

**ESD**

electrostatic discharge

**ESS**

electronic switching system

**EST**

Enhanced Software Technologies, Inc.

**ET**

error tracker

## Ethernet

A name for a local area network that follows IEEE standard 802.3. Supported implementations are 10BaseT and/or 100BaseT.

## event

The notification given to an application when some condition occurs that is generally not encountered in normal operation.

## EXTA

external alarms feature message class

## external actions

Specific predefined system tasks that Script Builder can call or *invoke* to interact with other products or services. When an external action is invoked, the systems displays a form that provides choices in each field for the application developer to select. Examples are Call\_Bridge, Make\_Call, SP\_Allocate, SR\_Prompt, etc. In Voice@Work, external actions are treated as [external functions](#).

## external functions

Specific predefined (or customer-created) system tasks that Voice@Work or Script Builder can call or *invoke* to interact with other products or services. The function allows the application developer to enter the argument(s) for the function to act on. Examples are concat, getarg, length, substring, etc. See also [external actions](#).

**F****FCC**

Federal Communications Commission

**FDD**

floppy disk drive

**feature**

A function or capability of a product or an application within the system.

**feature package**

An optional package that may contain both hardware and software resources to provide additional functionality to a standard system.

**feature\_tst script package**

A standard system software program that allows a user to perform self-tests of critical hardware and software functionality.

**FEP**

front end processor

**field**

See [database field](#).

**FIFO**

first-in-first-out processing order

**file**

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

**file transfer**

An option that allows you to transfer files interactively or directly to and from UNIX using the file transfer system (FTS).

**filename**

Alphabetic characters used to identify a particular file.

**FlexWord speech recognition**

A type of speech recognition based on subword technology that recognizes phonemes or parts of words in a specific language. See also [subword technology](#).

**foos**

facility out-of-service state

**FTS**

file transfer process message class

**function key**

A key, labeled F1 through F8, on your keyboard to which the system software gives special properties for manipulating the user interface.

**G****GEN**

PRISM logger and alerter general message class

**grammar**

The inputs that a recognizer can match (identify) from a caller.

**GUI**

graphical user interface

**H****hard disk drive**

A high-capacity data storage/retrieval device that is located inside a computer platform. A hard disk drive stores data on 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, etc., are all hardware.

**hardware upgrade**

Replacement of one or more fundamental platform hardware components (for example, the CPU or hard disk drive), while the existing platform and other existing optional circuit cards remain.

**HDD**

[hard disk drive](#)

**hwoos**

hardware out-of-service state

### **Hz**

Hertz

### **IBM**

International Business Machines

### **iCk or ICK**

The system integrity checking process.

### **ID**

identification

### **IDE**

integrated disk electronics

### **idle channel**

A channel that either has no owner or is owned by its default owner and is onhook.

### **IE**

information element

### **IEEE**

Institute of Electrical and Electronic Engineers

### **IND\$FILE**

The standard SNA file transfer utility that runs as an application under CICS, TSO, and CMS. IND\$FILE is independent of link-level protocols such as BISYNC and SDLC.

### **independent software vendor**

A company that has an agreement with Lucent Technologies to develop software to work with the system to provide additional features required by customers.

### **indexed table**

A table that, unlike a nonindexed table, can be searched via a field name that has been indexed.

### **industry standard architecture**

A PC bus standard that allows processors and other circuit cards to communicate with each other.

### **INIT**

voice system initialization message class

### **initialize**

To start up the system for the first time.

### **inserv**

in-service state

### **Integrated Services Digital Network**

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

### **intelligent CCA**

Monitoring the line after dialing is complete to determine whether a busy, reorder (fast busy), or other failure has been encountered. It also recognizes when the extension is answered or if the extension is not answered after a specified number of rings. The monitoring capabilities are dependent on the network interface circuit card and protocol used.

### **interface**

The access point of a system. With respect to the system, the interface is designed to provide you with easy access to the software capabilities.

**interrupt**

The termination of voice and/or telephony functions when some condition occurs.

**Intuity Response Application Programming Interface**

A library of commands that provide a standard development interface for voice-telephony applications.

**IOB**

I/O companion card to the [SBC](#). This is part of the [CPU Complex](#).

**IPC**

interprocess communication

**IPC**

intelligent ports card (IPC-900)

**IRAPI**

[Intuity Response Application Programming Interface](#)

**IRQ**

interrupt request

**ISA**

[industry standard architecture](#)

**ISDN**

[Integrated Services Digital Network](#)

**ISV**

[independent software vendor](#)

**ITAC**

International Technical Assistance Center

**K****Kbps**

kilobytes per second

**Kbyte**

kilobyte

**keyboard mapping**

In emulation mode, this feature enables the keyboard to send 3270 keyboard codes to the host according to a configuration table set up during installation.

**keyword spotting**

A capability provided by WholeWord speech recognition that allows the system to recognize a single word in the middle of an entire phrase spoken by a caller in response to a prompt.

## L

**LAN**

[local area network](#)

**LDB**

[local database](#)

**LED**

light-emitting diode

**library states**

The state information about channel activities maintained by the IRAPI.

**LIFO**

last-in-first-out processing order

**LINCS**

Lucent Integrated Network Call Server

**line side E1**

A digital method of interfacing a system to a PBX or “switch” using E1-related hardware and software.

**line side T1**

A digital method of interfacing a system to a PBX or “switch” using T1-related hardware and software.

**listfile**

An ASCII catalog that lists the contents of one or more talkfiles. Each application script is typically associated with a separate listfile. The listfile maps speech phrase strings used by application scripts into speech phrase numbers.

**local area network**

A data communications network in a limited geographical area. The LAN provides communications between computers and peripherals.

**local database**

A database residing on the system.

**LOG**

System logger process message class

**logical unit**

A type of SNA Network Addressable Unit.

**logdaemon**

A UNIX system information and error logging process.

**logger**

See [logdaemon](#).

**logging on/off**

Entering or exiting the system software.

**LSE1**

[line side E1](#)

**LSPS II**

[Lucent speech processing solutions II circuit card \(6UB5\)](#)

**LST1**

[line side T1](#)

**LU**

[logical unit](#)

**Lucent speech processing solutions II circuit card (6UB5)**

A high-performance speech processing circuit card capable of simultaneous support for various speech technologies. In addition to the basic speech-processing features, The LSPS II circuit card provides enhanced Text-to-Speech capabilities and subword recognition for large vocabularies.

**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.

**main screen**

The system screen from which you are able to enter either the System Administration or Voice System Administration menu.

**maintenance process**

A software process that runs temporary diagnostics and maintains the state of circuit cards and channels.

**manoos**

manually out-of-service state

**masked event**

An event that an application can ignore (that is, the application can request not to be informed of the event).

**master**

A circuit card that provides clock information to the TDM bus.

**Mbps**

megabits per second

**MByte**

[megabyte](#)

**megabyte**

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

**menu**

Options presented to a user on a computer screen or with voice prompts.

**MF**

[multifrequency](#)

**MHz**

megahertz

**ms**

millisecond

**msec**

millisecond

**MS-DOS**

A personal computer disk operating system developed by the Microsoft Corporation.

**MTC**

[maintenance process](#)

**multifrequency**

Dual tone digit signalling (similar to DTMF), used for trunk addressing between network switches or by network operators.

**multichannel application**

A single process/application that controls several channels. Each channel of the application is managed explicitly. Typically this means state information for each channel is maintained and the state of the application on each channel is tracked.

**N****NCP**

Network Control Program

**NEBS**

Network Equipment Building Standards

**NEMA**

National Electrical Manufacturers Association

**netoos**

network out-of-service state

non-facility associated signalling

**NFS**

network file sharing

**NM-API**

Network Management - Application Programming Interface

**NMVT**

network management vector transport

**nonex**

nonexistent state

**nonindexed table**

A table that can be searched only in a sequential manner and not via a field name.

**nonmasked event**

An event that must be sent to the application. Generally, an event is nonmaskable if the application would likely encounter state transition errors by trying to it.

**null value**

An entry containing no value. A field containing a null value is normally displayed as blank and is different from a field containing a value of zero.

## O

**OEM**

original equipment manufacturer

**on-line help**

Messages or information that appear on the user's screen when a function key (usually F1) is pressed.

**option**

An argument used in a command line to modify program output by modifying the execution of a command. When you do not specify any options, the command executes according to its default options.

**ORACLE**

A company that produces relational database management software. It is also used as a generic term that identifies a database residing on a local or remote system that is created and maintained using an ORACLE RDBMS product.

**P****PBX**

[private branch exchange](#)

**PC**

personal computer

**PCB**

printed circuit board

**PCI**

[peripheral component interconnect](#)

**PCI Mezzanine Card**

A PCI module, such as a LAN or RAID controller, that connects to the [CPU Complex IOB](#) companion card.

**PCM**

[pulse code modulation](#)

**PEC**

price element code

**peripheral (device)**

Equipment such as printers or terminals that is in addition to the basic processor.

**peripheral component interconnect**

A newer, higher speed PC bus that is gradually displacing ISA for many components.

**permanent process**

A process that starts and initializes itself before it is needed by a caller.

**phoneme**

A single basic sound of a particular spoken language. For example, the English language contains 40 phonemes that represent all basic sounds used with the language. The English word "one" can be represented with three phonemes, "w" - "uh" - "n." Phonemes vary between languages because of guttural and nasal inflections and syllable constructs.

**phrase filtering (screening)**

The rejection of unrecognized speech. The WholeWord and FlexWord speech recognition packages can be programmed to reprompt the caller if the system does not recognize a spoken response.

**phrase tag**

A string of up to 50 characters that identifies the contents of a speech phrase used by an application script.

**platform migration**

See [platform upgrade](#).

**platform upgrade**

The process of replacing the existing platform with a new platform.

**pluggable**

A term usually used with speech technologies, in particular standard speech, to indicate that a basic algorithmic technique has been implemented to accept one or more sets of parameters that tailors the algorithm to perform in one or more languages.

**PMC**

[PCI Mezzanine Card](#)

**poll**

A message sent from a central controller to an individual station on a multipoint network inviting that station to send if it has any traffic.

**polling**

A network arrangement whereby a central computer asks each remote location whether it wants to send information. This arrangement enables each user or remote data terminal to transmit and receive information on shared facilities.

**port**

A connection or link between two devices that allows information to travel to a desired location. See [telephone network connection](#).

**PRI**

[Primary Rate Interface](#)

**Primary Rate Interface**

An ISDN term for connections over E1 or T1 facilities that are usually treated as trunks.

**private branch exchange**

A private switching system, either manual or automatic, usually serving an organization, such as a business or government agency, and usually located on the customer's premises.

**processor**

In system documentation, the computer on which UnixWare and system software runs. In general, the part of the computer system that processes the data. Also known as the [central processing unit](#).

**prompt**

A message played to a caller that gives the caller a choice of selections in a menu and asks for a response. Compare to [announcement](#).

**pseudo driver**

A driver that does not control any hardware.

**PSTN**

public switch telephone network

**pulse code modulation**

A digital modulation method of encoding voice signals into digital signals. See also [adaptive differential pulse code modulation](#).

**R****RAID**

redundant array of independent disks

**RAID Array**

An assembly of disk drives configured to provide some level of RAID functionality

**RAM**

random access memory

**RDMBS**

ORACLE relational database management system

**RECOG**

speech recognition feature message class

**recognition type**

The type of input the recognizer can understand. Available types include touch-tone, dial pulse, and Advanced Speech Recognition (ASR), which includes WholeWord and FlexWord speech recognition.

**recognizer**

The part of the system that compares caller input to a grammar in order to correctly match (identify) the caller input.

**record**

See [database record](#).

**recovery**

The process of using copies of the system software to reconstruct files that have been lost or damaged. See also [restore](#).

**remote database**

Information stored on a system other than your current system that can be accessed by your current system.

**REN**

ringer equivalence number

**reports administration**

The component of a system that provides access to system reports, including call classification, call data detail, call data summary, message log, and traffic reports.

**restore**

The process of recovering lost or damaged files by retrieving them from available back-up tapes or from another disk device. See also “recovery.”

**restore application**

A utility that replaces a damaged application or restores an older version of an application.

**reuse**

The concept of using a component from a source system in a target system after a software upgrade or platform migration.

**RFS**

remote file sharing

**RM**

resource manager

**roll back**

To cancel changes to a database since the point at which changes were last committed.

**rollback segment**

A portion of the database that records actions that should be undone under certain circumstances. Rollback segments are used to provide transaction rollback, read consistency, and recovery.

**RTS**

request to send

**S****SCA**

single connector architecture

**SBC**

A single-board computing circuit card used in LINCS servers. It is part of the CPU complex.

**screen pop**

A method of delivering a screen of information to a telephone operator at the same time a telephone call is delivered. This is accomplished by a complex chain of tasks that include identifying the calling party number, using that information to access a local or remote ORACLE database, and pulling a “form” full of information from the database using an ORACLE database utility package.

**script**

The set of instructions for the system to follow during a transaction.

**Script Builder**

An optional software package that provides a menu-oriented interface designed to assist in the development of custom voice response applications on the system (see also [Voice@Work](#)).

**SCSI**

[small computer system interface](#)

**SDN**

software defined network

**shared database table**

A database table that is used in more than one application.

**shared speech**

Speech that is a part of more than one application.

**shared speech pools**

A parameter that allows the user of a voice application to share speech components with other applications.

**SID**

station identification

**single-threaded application**

An application that runs on a single voice channel.

**slave**

A circuit card that depends on the TDM bus for clock information.

**SLIP**

serial line interface protocol

**small computer system interface**

A disk drive control technology in which a single SCSI adapter circuit card plugged into a PC slot is capable of controlling as many as seven different hard disks, optical disks, tape drives, etc.

**SNA**

systems network architecture

**SNMP**

simple network management protocol

**software**

The set or sets of programs that instruct the computer hardware to perform a task or series of tasks — for example, UnixWare software and the system software.

**software upgrade**

The installation of a new version of software in which the existing platform and circuit cards are retained.

**source system**

The system from which you are upgrading (that is, your system as it exists *before* you upgrade).

**speech and signal processor circuit card (CWB1)**

A high-performance signal processing circuit card capable of simultaneous support for various speech technologies.

**speech energy**

The amount of energy in an audio signal. Literally translated, it is the output level of the sound in every phonetic utterance.

**speech envelope**

The linear representation of voltage on a line. It reflects the sound wave amplitude at different intervals of time. This envelope can be plotted on a graph to represent the oscillation of an audio signal between the positive and negative extremes.

**speech file**

A file containing an encoded speech phrase.

**speech filesystem**

A collection of several talkfiles. The filesystem is organized into 16-Kbyte blocks for efficient management and retrieval of talkfiles.

**speech modeling**

The process of creating WholeWord speech recognition algorithms by collecting thousands of different speech samples of a single word and comparing them all to obtain a statistical average of the word. This average is then used by a WholeWord speech recognition program to recognize a single spoken word.

**speech space**

An area that contains all digitized speech used for playback in the applications loaded on the system.

**speech phrase**

A continuous speech segment encoded into a digital string.

**speech recognition**

The ability of the system to understand input from callers.

**SPIP**

signal processor interface process

**SPPLIB**

speech processing library

**SQL**

[structured query language](#)

**SR**

[speech recognition](#)

**SSP**

[speech and signal processor circuit card \(CWB1\)](#)

**standard speech**

The speech package available in several languages containing simple words and phrases produced by Lucent Technologies for use with the system. This package includes digits, numbers, days of the week, and months, each spoken with initial, medial, and falling inflection. The speech is in digitized files stored on the hard disk to be used in voice prompts and messages to the caller. This feature is also called Enhanced Basic Speech.

**standard vocabulary**

A standard package of simple word speech models provided by Lucent Technologies and used for WholeWord speech recognition. These phrases include the digits “zero” through “nine,” “yes,” “no,” and “oh,” or the equivalent words in a specific local language.

**string**

A contiguous sequence of characters treated as a unit. Strings are normally bounded by white spaces, tabs, or a character designated as a separator. A string value is a specified group of characters symbolized by a variable.

**structured query language**

A standard data programming language used with data storage and data query applications.

**subword technology**

A method of speech recognition used in FlexWord recognition that recognizes phonemes or parts of words. Compare to [WholeWord speech recognition](#).

**switch**

A software and hardware device that controls and directs voice and data traffic. A customer-based switch is known as a [private branch exchange](#).

**switch hook**

The device at the top of most telephones that is depressed when the handset is resting in the cradle (in other words, is *on hook*). The device is raised when the handset is picked up (in other words, 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 interface administration**

The component of the system that enables you to define the interaction between the system and switches by allowing you to establish and modify switch interface parameters and protocol options for both analog and digital interfaces.

**switch network**

Two or more interconnected telephone switching systems.

**synchronous communication**

A method of data transmission in which bits or characters are sent at regular time intervals, rather than being spaced by start and stop bits. Compare to [asynchronous communication](#).

**SYS**

UNIX system calls message class

**sysgen**

system generation

**system administrator**

The person assigned the responsibility of monitoring all system software processing, performing daily system operations and preventive maintenance, and troubleshooting errors as required.

**system architecture**

The manner in which the system software is structured.

**system message**

An event or alarm generated by either the system or end-user process.

**system monitor**

A component of the system that tests to verify that each incoming telephone line and its associated Tip/Ring or T1 circuit card is functional. Through the “System Monitor” component, you are able to see displays of the Voice Channel and Host Session Monitors.

**T****T1**

A digital transmission link with a capacity of 1.544 Mbps.

**table**

See [database table](#).

**talkfile**

An ASCII file that contains the speech phrase tags and phrase tag numbers for all the phrases of a specific application. The speech phrases are organized and stored in groups. Each talkfile can contain up to 65,535 phrases, and the speech filesystem can contain multiple talkfiles.

**talkoff**

The process of a caller interrupting a prompt, so the prompt message stops playing.

**TAM**

[telecom alarm module](#)

**target system**

The system to which you are upgrading (that is, your system as you expect it to exist *after* you upgrade).

**TAS**

[transaction assembler script](#)

**TCP/IP**

transmission control protocol/internet protocol

**TDM**

time division multiplexing

**telecom alarm module**

An intelligent alarm module that provides critical, major, and minor alarm indicators.

**telephone network connection**

The point at which a telephone network connection terminates on a system. Supported telephone connections are Tip/Ring, T1, and E1.

**Text-to-Speech**

An optional feature that allows an application to play US English speech directly from ASCII text by converting that text to synthesized speech. The text can be used for prompts or for text retrieved from a database or host, and can be spoken in an application with prerecorded speech.

**ThickNet**

A 10-mm (10BASE5) coaxial cable used to provide interLAN communications.

**ThinNet**

A 5-mm (10BASE2) coaxial cable used to provide interLAN communications.

**time-division multiplex**

A method of serving a number of simultaneous channels 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**

Analog telecommunications using four-wire media.

**token ring**

A ring type of local area network that allows any station in the network to communicate with any other station.

**trace**

A command that can be used to monitor the execution of a script.

**traffic**

The flow of information or messages through a communications network for voice, data, or audio services.

**transaction**

The interactions (exchanges) between the caller and the voice response system. A transaction can involve one or more telephone network connections and voice responses from the system. It can also involve one or more of the system optional features, such as speech recognition, 3270 host interface, FAX Actions, etc.

**transaction assembler script**

The computer program code that controls the application operating on the voice response system. The code can be produced from Voice@Work, Script Builder, or by writing directly in TAS code.

**transaction state machine process**

A multi-channel IRAPI application that runs applications controlled by TAS script code.

**transient process**

A process that is created dynamically only when needed.

**troubleshooting**

The process of locating and correcting errors in computer programs. This process is also referred to as debugging.

**TSO**

time share operation

**TSM**

[transaction state machine process](#)

**TTS**

[Text-to-Speech](#)

**TWIP**

T1 interface process

**U****UK**

United Kingdom

**US**

United States of America

**UNIX Operating System**

A multiuser, multitasking computer operating system originally developed by Lucent Technologies.

**UNIX shell**

The command language that provides a user interface to the UNIX operating system.

**upgrade scenario**

The particular combination of current hardware, software, application and target hardware, software, applications, etc.

**usability**

A measurement of how easy an application is for callers to use. The measurement is made by making observations and by asking questions. An application should have high usability to be successful.

**USOC**

universal service ordering code

**UVL**

unified voice library

## V

**VDC**

video display controller

**vi editor**

A screen editor used to create and change electronic files.

**virtual channel**

A channel that is not associated with an interface to the telephone network (Tip/Ring, T1, LSE1/LST1, or PRI). Virtual channels are intended to run “data-only” applications which do not interact with callers but may interact with DIPs. Voice or network functions (for example, coding or playing speech, call answer, origination, or transfer) will not work on a virtual channel. Virtual channel applications can be initiated only by a “virtual seizure” request to TSM from a DIP.

**vocabulary**

A collection of words that the system is able to recognize using either WholeWord or FlexWord speech recognition.

**vocabulary activation**

The set of active vocabularies that define the words and wordlists known to the FlexWord recognizer.

**vocabulary loading**

The process of copying the vocabulary from the system where it was developed and adding it to the target system.

**Voice@Work**

An optional software package that provides a graphical interface to assist in development of voice response applications on the system (see also [Script Builder](#)).

**voice channel**

A channel that is associated with an interface to the telephone network (T1, E1, or PRI). Any system application can run on a voice channel. Voice channel applications can be initiated by being assigned to particular voice channels or dialed numbers to handle incoming calls or by a “soft seizure” request to TSM from a DIP or the **soft\_szr** command.

**voice processing co-marketer**

A company licensed to purchase voice processing equipment to market and sell based on their own marketing strategies.

**voice response output process**

A software process that transfers digitized speech between system hardware (for example, Tip/Ring and SSP circuit cards) and data storage devices (for example, hard disk, etc.)

**voice response unit**

A computer connected to a telephone network that can play messages to callers, recognize caller inputs, access and update a databases, and transfer and monitor calls.

**voice system administration**

The means by which you are able to administer both voice-related aspects of the system.

**VPC**

[voice processing co-marketer](#)

**VROP**

voice response output process

**VRU**

[voice response unit](#)

**W****warning**

An admonishment or advisory statement used in system documentation to alert the user to the possibility of equipment damage.

**watchdog timer**

An timer that activates a [TAM](#) alarm when CPU activity is not received within the 30-second threshold.

**WholeWord speech recognition**

An optional feature package based on whole-word technology that can recognize the numbers one through zero, “yes”, and “no” (the key words). This feature is reliable, regardless of the individual speaker. This feature can identify the key words when spoken in phrases with other words. A string of key words, called *connected digits*, can be recognized. During the prompt announcement, the caller can speak or use touch tones (or dial pulses, if available). See also [whole-word technology](#).

**whole-word technology**

The ability to recognize an entire word, rather than just the phoneme or a part of a word. Compare to “subword technology.”

**wink signal**

An interruption of current to a busy lamp indicating that there is a line on hold.

**word**

A unique utterance understood by the recognizer.

**wordlist**

A set of words available for FlexWord recognition by an application during a Prompt & Collect action step.

**word spotting**

The ability to search through extraneous speech during a recognition.

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