Lucent Technologies
Bell Labs Innovations

UCS 1000

R4.6

System Reference

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Issue 1

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Preventing Toll Fraud

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

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If you suspect you are being victimized by toll fraud and you need technical support or assistance, call the appropriate BCS National Customer Care

Center telephone number. Users of the MERLIN®, PARTNER®, and System 25 products should call 1 800 628-2888. Users of the System 75, System 85, DEFINITY® Generic 1, 2 and 3, and DEFINITY® ECS products should call 1 800 643-2353.

Providing Telecommunication Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of your company's telecommunications equipment) by some party.

Your company's "telecommunications equipment" includes both this Lucent product and any other voice/data/video equipment that could be accessed via this Lucent product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)

- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

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

Your Responsibility for Your Company's Telecommunication Security

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

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

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

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

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

Federal Communications Commission Statement

Part 15: Class A Statement.

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

Part 68: Network Registration Number.

This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by an FCC registration number. For the CWB2/CYD2, this number is AS5USA-27438-XD-E; registration for the CWB10/CYD10 is pending at the time of this publication.

Part 68: Answer-Supervision SIgnaling.

Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 Rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Industry Canada (IC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of Industry Canada.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le Industrie Canada.

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Documents can also be ordered from the Customer Information Centre in Malmesbury, England.

Voice 44 1666 83-2900 FAX 44 1666 83-2213

For additional documents, refer to the section in “About This Document” entitled “Related Resources.”

You can be placed on a standing order list for this and other documents you may need. For more information on standing orders, or to be put on a list to receive future issues of this document, contact the Lucent Technologies Publications Center.

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To learn more about Lucent Technologies products and to order products, contact Lucent Direct, the direct-market organization of Lucent Technologies Business Communications Systems. Access their Web site at www.lucent.direct.com. Or call the following numbers: customers 1 800 451-2100, account executives 1 888 778-1880 (voice) or 1 888 778-1881 (fax).

Warranty

Lucent Technologies provides a limited warranty on this product. Refer to the "Limited Use Software License Agreement" card provided with your package.

European Union Declaration of Conformity

The “CE” mark affixed to the equipment means that it conforms to the directives below. Lucent Technologies Business Communications Systems declares that the UCS 1000 equipment specified in this document conforms to the referenced European Union (EU) Directives and Harmonized Standards listed below:

- EMC Directive 89/336/EEC
- Low-Voltage Directive 73/23/EEC

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by Product Documentation Development, Lucent Technologies, Columbus, OH.

Contents

About This Book

Overview

This book, *UCS 1000 R4.6 System Reference*, 585-313-221, 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 UCS 1000 R4.6 hardware installation and maintenance training course (see Using the CD-ROM Documentation on page xlii).

Updates to the Product

The following Web site displays any updates or exceptions to the product that have occurred after the publication of this document:
http://glsdocs.lucent.com

Conventions Used in This Book

Understanding the typography and other conventions used is 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 xxxiv and Figure 3 on page xxxv) and request (Figure 4 on page xxxv and Figure 5 on page xxxvi) system information.

Figure 1. Example of UCS 1000 R4.6 Menu

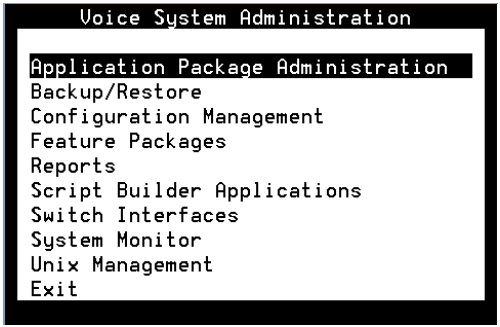


Figure 2. Example of Screen Showing Information

```
UnixWare Installation              Primary Hard Disk Partitioning

In order to install LINCS, 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 lease 4200 MBs and labeled "ACTIVE."

Press 'ENTER' to continue
```

Figure 3. Example of UCS 1000 R4.6 Window Showing Information

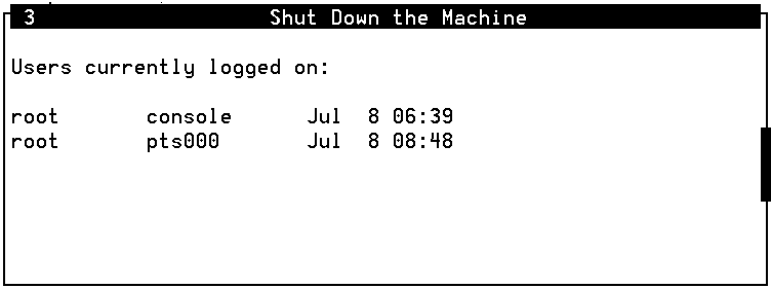


Figure 4. Screen Requesting Information

```
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 UCS 1000 R4.6 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.

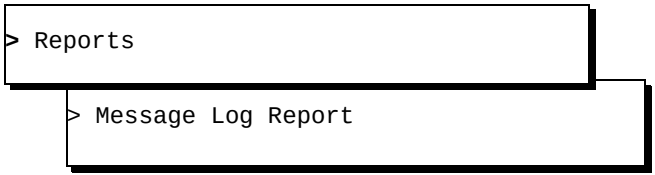
  ~ The system displays the following message:

  ```
  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: 1.3.17

      ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
      │ Backup   │ │ Verify   │ │ Recover  │ │ Configure│ │ Exit     │
      │ System   │ │ System   │ │ System   │ │ 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

Updates to the Product

The following Web site displays any updates or exceptions to the product that have occurred after the publication of this document:
http://glsdocs.lucent.com

Training

For more information on UCS 1000 R4.6 training, call the GLS 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 *UCS 1000 R4.6 System Description*, 585-313-222, provides an overview of all the books in the UCS 1000 R4.6 library that are mentioned in this book.

Obtaining Printed Versions of the Documentation

See Printing the Documentation on page xliii for information on how to print this document.

You can also order the printed documents by calling 1-888-582-3688 or visiting the Customer Information Center (CIC) website at:

http://www.lucent.com/cgi-bin/CIC_store.cgi

Using the CD-ROM Documentation

Lucent Technologies ships the documentation in electronic form. Using the Adobe® Acrobat® Reader application, you can read these documents on a Windows PC, on a Sun Solaris workstation, or on an HP-UX workstation. Acrobat Reader displays high-quality, print-like graphics on both UNIX and Windows platforms. It provides scrolling, zoom, and extensive search capabilities, along with online help. A copy of Acrobat Reader is included with the documents.

Setting the Default Magnification

You can set your default magnification by selecting **File | Preferences | General**. We recommend the **Fit Page** option.

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On HP and Sun workstations, you can control the size of the reader window by using the **-geometry** argument. For example, the command string **acroread -geometry 900x900 mainmenu.pdf** opens the main menu with a window size of 900 pixels square.

Hiding and Displaying Bookmarks

By default, the document appears with bookmarks displayed on the left side of the screen. The bookmarks serve as a hypertext table of contents for the

chapter you are viewing. You can control the appearance of bookmarks by selecting **View | Page Only** or **View | Bookmarks and Page.**

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

The double right and double left arrows (◄◄ and ►►) at the top of the Acrobat Reader window are the go-back and go-forward functions. The go-back button takes you to the last page you visited prior to the current page. Typically, you use ◄◄ to jump back to the main text from a cross reference or illustration.

Searching for Topics

Acrobat has a sophisticated search capability. From the main menu, select **Tools | Search.** Then choose the **Master Index.**

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

Note: For information on ordering printed copies of the documents, see Obtaining Printed Versions of the Documentation on page xli.

If you would like to read the documentation in paper form rather than on a computer monitor, you can print all or portions of the online screens.

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To print an entire document, do the following:

1. From the documentation main menu screen, select one of the print-optimized documents. Print-optimized documents print two-screens to a side, both sides of the sheet on 8.5x11-in or A4 paper.
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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You may also fax your comments to the attention of the Lucent Technologies UCS 1000 R4.6 writing team at (303) 538-1741. Please mention the title of this book, *UCS 1000 R4.6 System Reference*, 585-313-221.

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 *UCS 1000 R4.6 Administration*, 585-313-509, 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.	1 Verify that the platform is receiving power. 2 Verify all external system connections (power cords and monitor cables) are correct. 3 Verify all external system connections are secure.

1 of 2

Table 1. Repairing Power-Up Troubles

Indication	Corrective Action
When the system boots, it displays messages in the message log report or on the console similar to the following: `Unable to attach shared memory, Bad DEVTBL, and/or VROP respawning too rapidly.`	1 Stop the voice system. See Stopping the Voice System on page 238 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 on page 235 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 4 lists the indications and possible repair procedures related to boot-up troubles.

Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
Cards are not recognized during boot up.	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 on page 48 in Chapter 2, Diagnostics. 4 Make sure that cards have the proper switch settings. If the problem continues: 1 Stop the voice system. Stopping the Voice System on page 238 in Chapter 3, Common System Procedures. 2 Enter **/etc/conf/bin/idbuild -B** to rebuild the kernel. 3 Reboot the system.

1 of 5

Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
When the system boots, it displays messages in the message log report or on the console similar to the following: `Unable to attach shared memory, Bad DEVTBL, and/or VROP respawning too rapidly.`	1 Stop the voice system. See Stopping the Voice System on page 238 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 on page 235 in Chapter 3, Common System Procedures
The system displays the following message: `Non-system disk or disk error. Replace and hit any key to continue.`	1 Check the diskette drive and confirm that it is empty. 2 Check the power connections. 3 Reboot the system. See Rebooting the UNIX System on page 243 in Chapter 3, Common System Procedures.

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Table 2. Repairing Boot-Up Troubles

Indication	Corrective Action
The system passes run level four then reboots continuously (rolling reboot).	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 on page 243 in Chapter 3, Common System Procedures. 4 Repeat step 1 through step 3 until the system reboots properly. 5 Replace the circuit cards.

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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.	1 Verify the disk partition was adequate. See “Recommended Disk Partitions” in Chapter 5, “Installing Base System Software,” in *UCS 1000 R4.6 Maintenance*, 585-313-154. 2 Remove unnecessary data files. 3 If the problem persists, restore the system software from the backup tape. See Restoring the System in Chapter 3, Common System Procedures. If no backup is available, reload the system software. See the following chapters in *UCS 1000 R4.6 Maintenance*, 585-313-154: ~ Chapter 5, “Installing Base System Software” ~ Chapter 6, “Installing UCS 1000 R4.6 Software” ~ 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.	1 Check the diskette drive and confirm that it is empty. 2 Check the power connections. 3 Check the hard disk drive indicator light for activity. 4 Reboot the system. See Rebooting the UNIX System on page 243 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.	1 Enter **display card all** 2 Check the status of all the circuit cards. 3 Make sure PLAY/CODE is assigned to an INSERV (in service) SSP, LSPS, or Quad circuit card. TTS must be assigned to an SSP or LSPS card. Quad circuit cards must be in talk mode (instead of tdm mode) to perform play and code. If the Quad card is in tdm mode, play and code must be performed by the 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: a Use **/etc/conf/bin/idtune** to increase NCHANNELS tunable parameter. b Use **/etc/conf/bin/idbuild -B** to rebuild the kernel. c Reboot the system.

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Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
The voice system answers the call, but does not play any speech.	1 Scan the Message Log Report for messages related to the trouble. 2 Enter **display card all** 3 Verify that the spadm script is not assigned to any channels. 4 Check the status of all the circuit cards. 5 Make sure PLAY/CODE is assigned to an INSERV (in service) SSP, LSPS, or Quad circuit card. TTS must be assigned to an SSP or LSPS card. Quad circuit cards must be in talk mode (instead of tdm mode) to perform play and code. If the Quad card is in tdm mode, play and code must be performed by the SSP or LSPS card. 6 If spadm is assigned, reassign the channel to the correct script name. See Chapter 3, “Voice System Administration,” of *UCS 1000 R4.6 Administration*, 585-313-509. 7 Place test calls to determine if this is occurring on every channel. 8 Review the trace output for failure indications or error messages.

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Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
	9 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. 10 Enter **trace tsm chan all | tee /tmp/trace.out** This sends the trace output to the console and to the file **/tmp/trace.out**
All calls are dropped.	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.

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Table 3. Repairing Application-Related Troubles

Indication	Corrective Action
A FAX fails to print.	See the repair procedure for FAX001 on page 319 in Chapter 4, Alarms and Log Messages.
A FAX record operation fails.	See the repair procedure for FAX002 on page 320 in Chapter 4, Alarms and Log Messages.

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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.	Scan the Message Log Report.

1 of 2

Table 4. Repairing Administrative Troubles

Indication	Corrective Action
ccasum never finishes its cron job.	1 Determine if you are transferring to more than 100 numbers. If you are, kill the cron job by completing Steps a through c: 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 *pid#* is the PID number. 2 Create an index for ccasum by completing Steps a through c: 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.	To split the file into multiple segments, enter **split *-n filename name*** where *-n* is the number of lines in each piece (1000 is the default, *filename* is the name of the files you want to split**,** and *name* is the new segment you are creating).

2 of 2

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.	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 TAM has generated a critical alarm	1 Check to see if both the A and B input power feeds are connected. Check the sensors by entering **display_tam**. The A and B feeds are normally VOLT 15 and 16. If the value displayed is near + or - 1, a feed is not connected. 2 Connect both feeds.
The **shutdown** and **init** commands will not bring the system down.	Perform a hard reboot of the system. See Rebooting the UNIX System on page 243 in Chapter 3, Common System Procedures, for the procedure.

2 of 2

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.	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 Performance Troubles

Table 7 lists the repair procedure for performance troubles.

Table 7. Repairing Performance Troubles

Indication	Corrective Action
• The system is slow or delayed in speaking. • The system performance is degraded. For example: ~ Speech breaks are occurring ~ There is bad response time to commands	Reduce the load. See Reducing Load on page 24.

Repairing Diagnostics Troubles

Table 8 on page 20 lists the repair procedures for repairing diagnostics troubles.

Table 8. Repairing Diagnostics Troubles

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

Repairing Touch-Tone Input Troubles

Table 9 lists the repair procedures for repairing touch-tone input troubles.

Table 9. Repairing Touch-Tone Input Troubles

Indication	Corrective Action
User touch-tone input is not being correctly interpreted by the system.	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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

Repairing Report Troubles

Table 10 lists the repair procedures for repairing report troubles.

Table 10. Repairing Report Troubles

Indication	Corrective Action
Call data reports are not accurate or they are not complete.	1 Determine if there is any additional free space in the database by entering **dbfrag** 2 Scan the Message Log Report.

Repairing Channel/Card State Troubles

Table 11 lists the repair procedures for repairing channel/card state troubles.

Table 11. 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 *UCS 1000 R4.6 Administration*, 585-313-509.
Channel/card is in FOOS state.	Enter **display channel *channel number*** 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 on page 356 provided in Chapter 4, Alarms and Log Messages.

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 noticable 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, enter **sar**

The system displays the CPU Resources screen (Figure 6 on page 28).

Figure 6. CPU Resources Screen

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

Note: To display current CPU usage every 5 seconds for 50 times, 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 on page 41.

Checking Disk Resources

To check the disk resources:

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

The system displays the Disk Resources screen (Figure 7 on page 30).

Figure 7. Disk Resources Screen

```
14:23:46  scall/s sread/s swrit/s  fork/s lwpcr/s  exec/s rchar/s wchar/s
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 on page 41 for repair procedures.

Checking Memory Resources

To check the CPU resources:

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

The system displays the Memory Resources screen (Figure 8 on page 31).

Figure 8. Memory Resources Screen

14:27:30	atch/s	atfree/s	atmiss/s	pgin/s	ppgin/s	pflt/s	vflt/s	slock/s
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

```
14:32:49    pgout/s  ppgout/s   ufree/s   pfree/s   uscan/s
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 33).

Figure 10. Memory Resources Screen

```
00:00:00   freemem freeswap
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 on page 43 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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 be 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 algorithms primarily determine how much data must be transferred to do voice processing. Coding algorithms such as ADPCM16 and CELP16 pack four 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 one second 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 three seconds per block. Sound quality must be considered before moving to the ADPCM16 coding algorithms.

Phrase Length

Short phrases (less than two seconds for ADPCM32), particularly when played back-to-back (such as through a single action), place more load on the system then 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 two-second phrase uses the entire block. However, the system utilizes CPU and disk resources more efficiently when speaking a five-second phrase rather than five individual one-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 *UCS 1000 R4.6 Application Development with Advanced Methods*, 585-313-225.

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 Quad Circuit Card

When running some applications, the system may not be able use all of the spans on a Quad circuit card without exhausting the Quad card's resources. If you experience this problem, you can derate the Quad circuit card to user fewer spans and reduce its load.

To derate the Quad circuit card:

1. Use an editor to either create or update **/vs/data/mtc.rc**

This file does not exist by default on the system. However, if you have added other mtc parameters, the file may exist.

2 Enter the appropriate command from Table 12.

Table 12. Commands for Derating the Quad Circuit Card

To change the number of spans for . . .	Enter . . .
All Quad circuit cards in your system . . .	**NSPANS_DEF=*x***, where ***x*** is the number of spans you want the system to use. If you enter a number outside of the range 1 through 4, the system will use the default of 4 spans.
A specific Quad circuit card in your system . . .	**NSPANS_BD_*card number*=*x***, where ~ ***card number*** is the circuit card number (slot number) of the Quad card you want to derate ~ ***x*** is the number of spans you want the system to use. If you enter a number outside of the range 1 through 4, the system will use the default of 4 spans.

3 For the changes you made to take effect, you must stop and restart the voice system. For information on how to stop and start the voice system, see Chapter 3, Common System Procedures.

Note: When you add or remove a span, the system will automatically renumber the voice channels. In some cases, adding a span may result in an invalid NFAS configuration and all of the spans being unassigned. To correct this problem, you must readminister the spans. For information on how to administer spans, see Chapter 4, "Switch Interface Administration," of *UCS 1000 R4.6 Administration*, 585-313-509.

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 on page 35 and Reducing Load for Database on page 34 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 on page 35.

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 on page 35 and Reducing Load for Database on page 34. 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 on page 26 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 That May Be Terminated

Process	Description
xferdip	This process is used only in bridging applications. Enter **xferdip_off** to terminate the process.
lpsched	This process is only required if a line printer is being used with the system. The command **/usr/lib/lpshut** can be used to turn off the lp scheduler. You may also rename the **S80lp** file from the **/etc/rc2.d** 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 on page 37), 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.

2 Diagnostics

Overview

This chapter describes procedures for the system used by the on-site technician or system administrator to diagnose trouble with the UCS 1000 R4.6 system.

Checking Cable Connections

To check cable connections:

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 on page 241, 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, reseat 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

b Replace the circuit card. See Chapter 2, “Installing or Replacing Circuit Cards” in *UCS 1000 R4.6 Maintenance*, 585-313-154.

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

6 Reboot the operating system. See Rebooting the UNIX System on page 243 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

~ If the circuit card does not pass the diagnostic, continue with the procedure, Checking the Backplane Slot on page 47.

Checking the Backplane Slot

To check the backplane slot:

1. Shut down the system. See Shutting Down the Operating System on page 241, in Chapter 3, Common System Procedures, for the procedure.
2. Change the slot in which the circuit card resides. See
3. Login as root.
4. Start the voice system. See Starting the Voice System on page 235, 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 not changed to MANOOS, continue with the procedure Checking the Circuit Cards.

   ~ 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.

Checking the Circuit Cards

If the Checking the Backplane Slot on page 47 procedure has been attempted and the problem still exists, the problem may be attributed to another circuit card in the system.

To determine which card:

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 on page 47 and Checking the Circuit Cards on page 48 procedures on that circuit card to determine if it is the source of the problem.

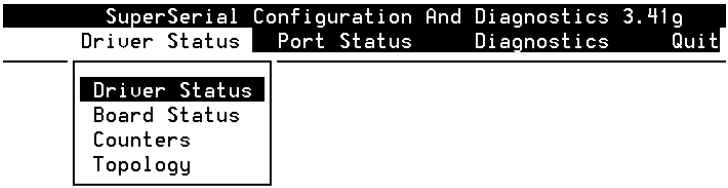
   If all cards pass diagnostics, contact your service representative.

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).

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:

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). Your system display may be slightly different.

Figure 12. Driver Status Window

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:

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). Your system display may be slightly different.

Figure 13. Board Status Window

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

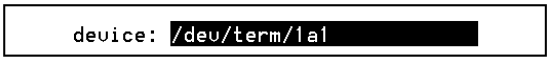
This display is useful in troubleshooting wiring problems, chattering lines or devices (modems) and in monitoring load activity over a single line. Activity

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).

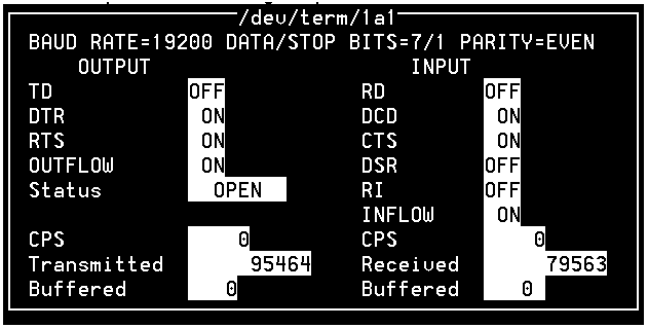
Figure 14. Prompt Window



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



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.

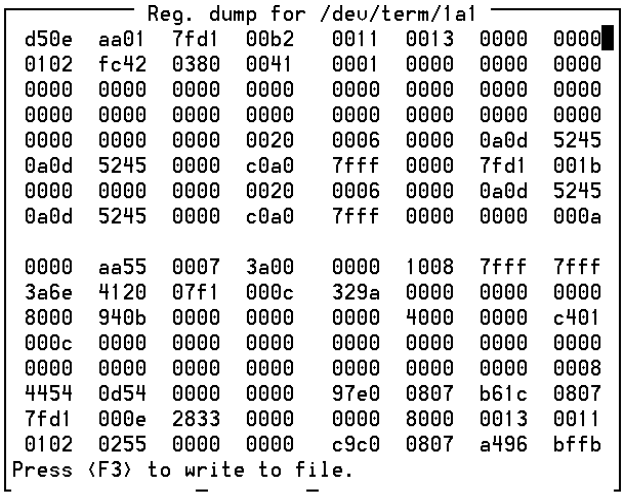
To display the Register Dump, do the following.

1. From the 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 54).
3. Enter the name of the device to be verified.

The system displays the Register Dump window (Figure 16).

Figure 16. Register Dump Window



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

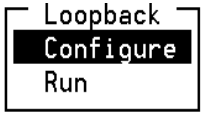
The internal loopback test is the same as the external loopback test except that it does not require that the transmit and receive pins be wired together. Because it does not test the full cabling of the port, the internal loopback test is not as thorough as the external loopback test.

To perform the serial port internal loopback test:

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).

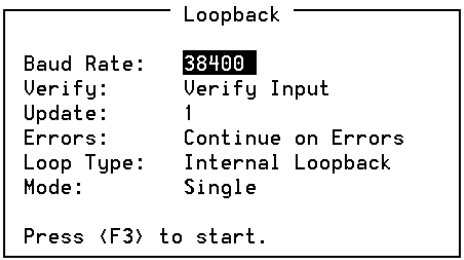
Figure 17. Loopback Menu



3 Select `Configure`.

The system displays the Loopback window (Figure 18).

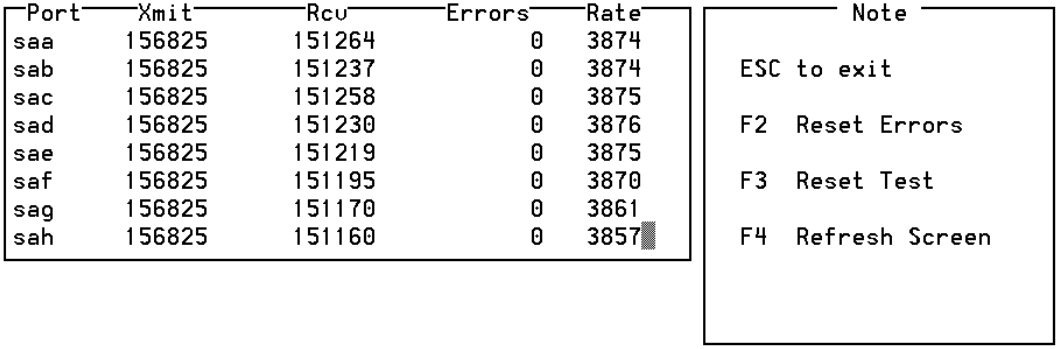
Figure 18. Loopback Window



4 Press **F3** to run the loopback test.

The system displays the Internal Loopback window (Figure 19 on page 61).

Figure 19. Internal Loopback Window



Platform Diagnostics

This section describes how to test the platform by using the diagnostic commands.

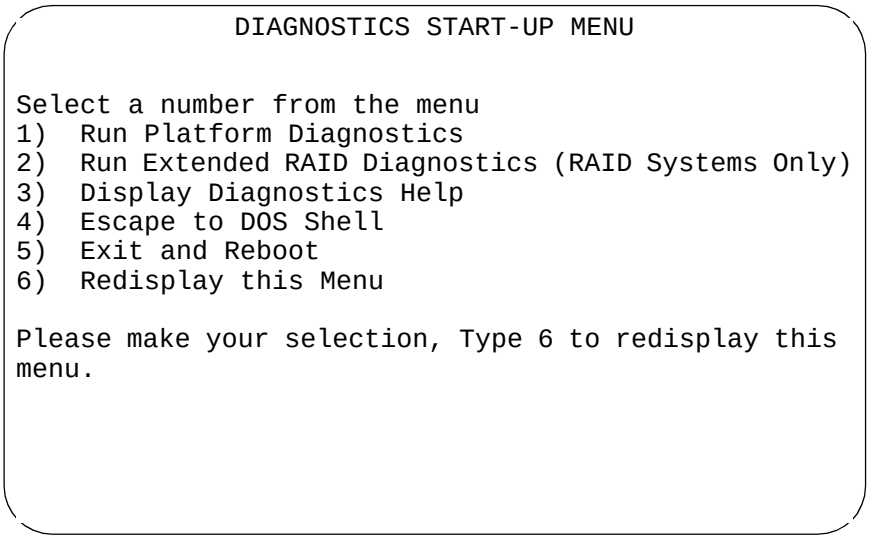
Accessing Platform Diagnostics

To perform platform diagnostics:

1. Reboot the system.
2. Press F4 when prompted.

   The system displays the Diagnostics Start-up Menu (Figure 20 on page 63).

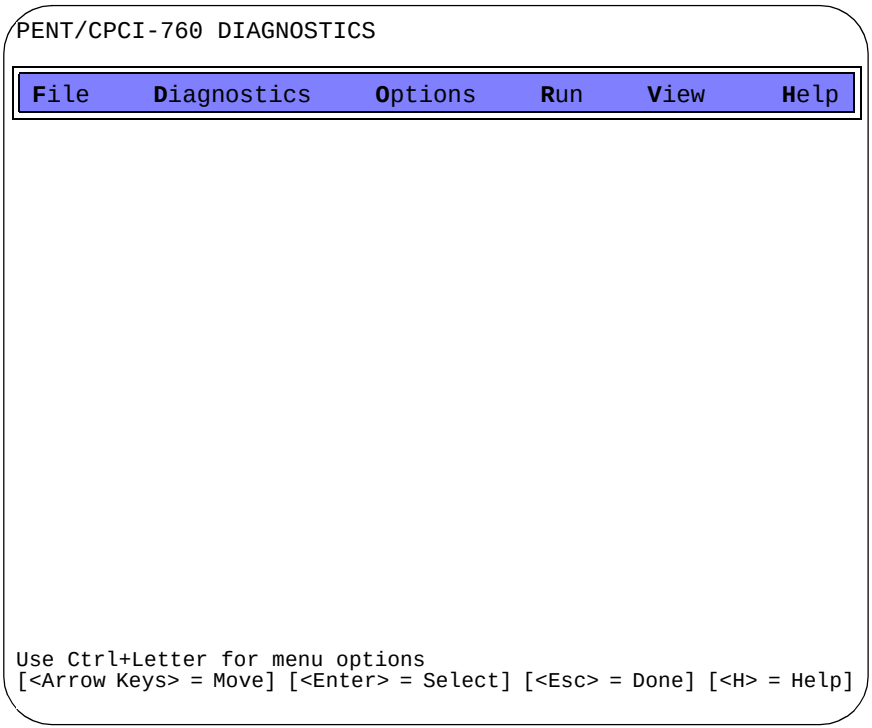
Figure 20. Diagnostics Start-up Menu



3 Enter **1**

The system displays the Diagnostics Access Screen (Figure 21 on page 64).

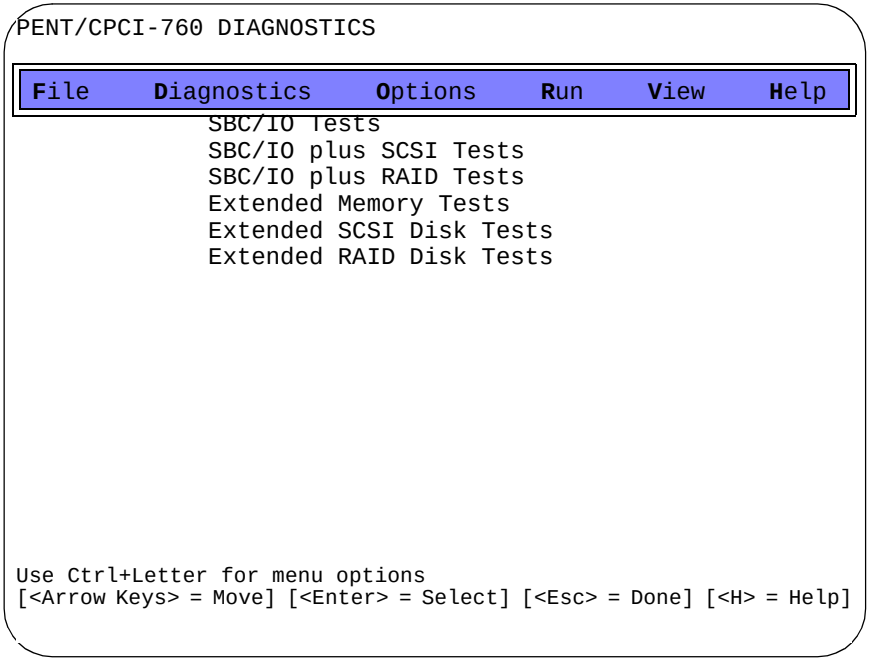
Figure 21. Diagnostics Access Screen



4 Press **CONTROL** + **D**.

The system displays the Diagnostics Selection Screen (Figure 22).

Figure 22. Diagnostics Selection Screen



The following options are available:

- The SBC/IO Tests suite runs diagnostics on all sub-functions on the CPU complex including the CPU, Interrupt and IO Controllers, Memory, Cache, PCI Bridge Devices, IDE Controller, Integrated Ethernet Controllers, COM1, COM2, parallel port, VGA Controller, and PMC Devices (for example, PMC LAN if equipped).
- The SBC/IO + SCSI Tests suite runs all tests outlined above, plus non-exhaustive (quick) SCSI disk and SCSI device tests (CD-ROM/Tape Drive).
- The SBC/IO + RAID Tests suite runs all tests outlined in "SBC/IO Tests", plus non-exhaustive RAID controller, RAID disk, CD-ROM and Tape drive tests.
- The Extended Memory Tests suite runs a more exhaustive memory test (only). This test suite is useful for trying to pinpoint potential intermittent memory problems.
- The Extended SCSI Disk Tests suite runs a more exhaustive SCSI disk test (only). This test suite may be useful for trying to determine bad surface media on a SCSI disk; however, this test will take a long time to run.
- The Extended RAID Disk Tests suite runs a more exhaustive RAID disk test (only). This test suite may be useful to determine bad surface media on one of the disk comprising the RAID array; however, this test may take a long time to run.

5 Choose one of the following procedures:

- ~ Diagnosing the Platform Using a Predetermined Test Configuration
- ~ Diagnosing the Platform Using a Custom Test Configuration

Diagnosing the Platform Using a Predetermined Test Configuration

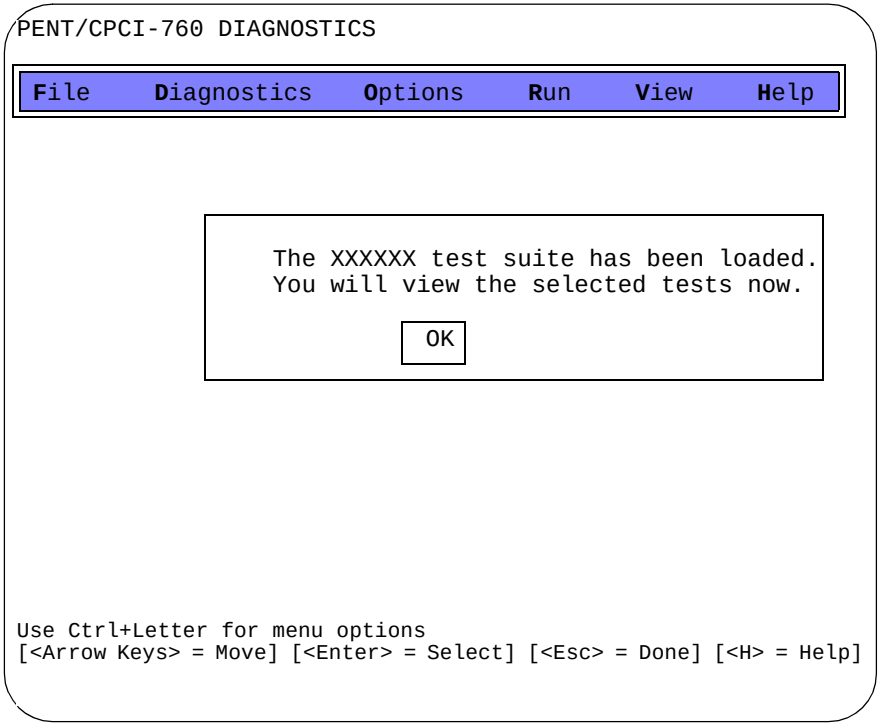
To diagnose the platform using a predetermined test configuration:

1 Access the platform diagnostics.

2 Select the appropriate test configuration.

The system displays the Diagnostics Confirmation screen (Figure 23 on page 68).

Figure 23. Diagnostics Confirmation Screen

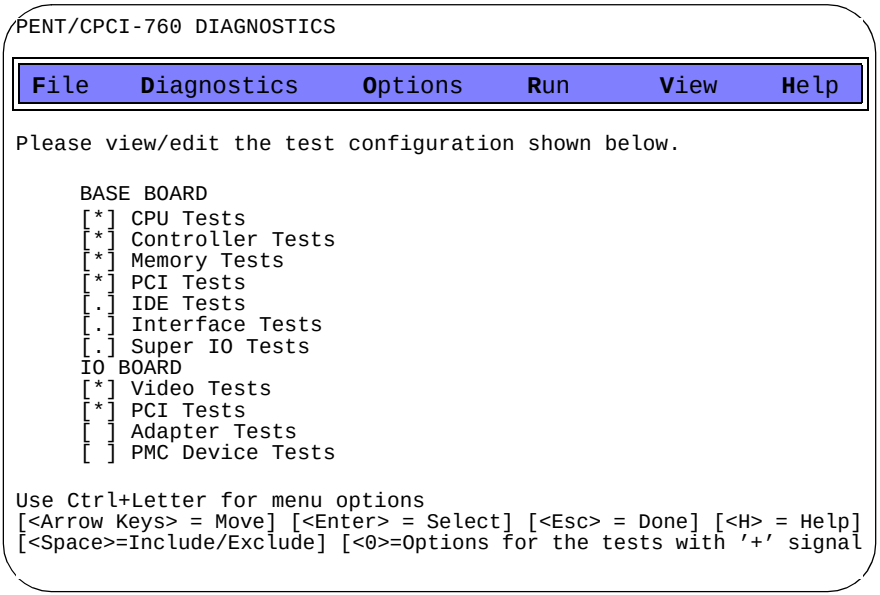


3 Press **ENTER**.

The system displays the Selected Tests screen (Figure 24 on page 70).

Note: Each test configuration uses a sub-set of the available diagnostics. Test configurations can be customized by adding or removing diagnostics.

Figure 24. Selected Tests Screen



The symbols to the left of the test categories indicate how many tests have been selected.

- [*] — This indicates that all available tests in this category will be performed.
- [.] — This indicates that some of the available tests in this category will be performed.
- [ ] — This indicates that none of the available tests in this category will be performed.

Table 14 on page 80 provides a list of all the tests that are available.

4 Press **ESC** to accept the test configuration.

The system displays the Diagnostics Access screen (Figure 21 on page 64).

5 Go to Running the Platform Diagnostics on page 72.

Diagnosing the Platform Using a Custom Test Configuration

To diagnose the platform using a custom test configuration:

1 Access the platform diagnostics.

2 Select the any test configuration.

The system displays the Diagnostics Confirmation screen (Figure 23 on page 68).

3 Press **ENTER**.

The system displays the Selected Tests screen (Figure 24 on page 70).

4 Add or delete tests as appropriate as listed in Table 14 on page 80.

~ Use the **ARROW** keys to place the cursor on a test.

~ Use the **SPACEBAR** to select or deselect the test.

5 Press **ESC** to accept the test configuration.

The system displays the Diagnostics Access screen (Figure 21 on page 64).

6 Go to Running the Platform Diagnostics on page 72.

Running the Platform Diagnostics

CAUTION:

Before starting this procedure, perform the Accessing Platform Diagnostics on page 62 and either of the following procedures:

- Diagnosing the Platform Using a Predetermined Test Configuration on page 67 or
- Diagnosing the Platform Using a Custom Test Configuration on page 71.

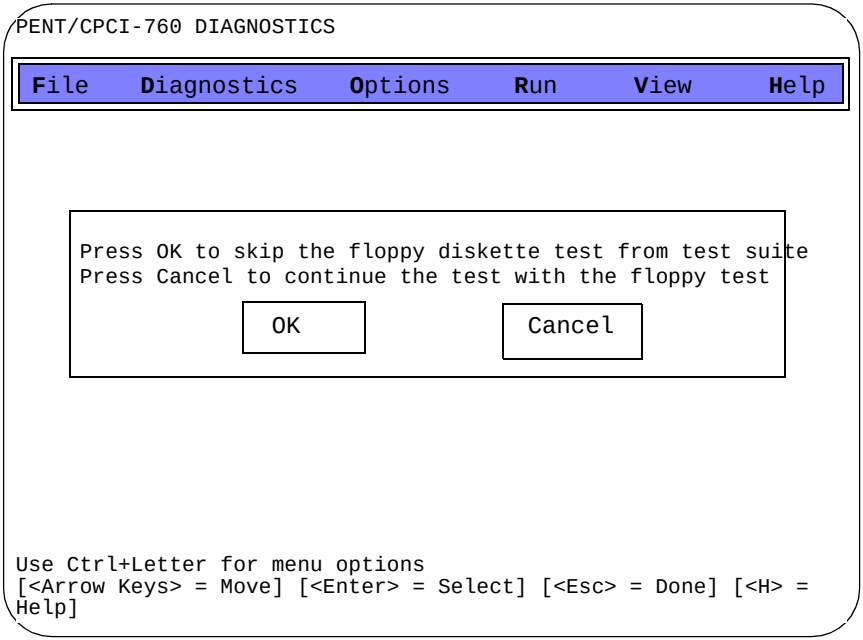
To run the platform diagnostics:

1. Start at the Diagnostics Access Screen (Figure 21 on page 64) and press **CONTROL** + **R**.
2. Select

   `Start Test`

   The system displays the Floppy Diskette Test Removal Confirmation screen (Figure 25 on page 74).

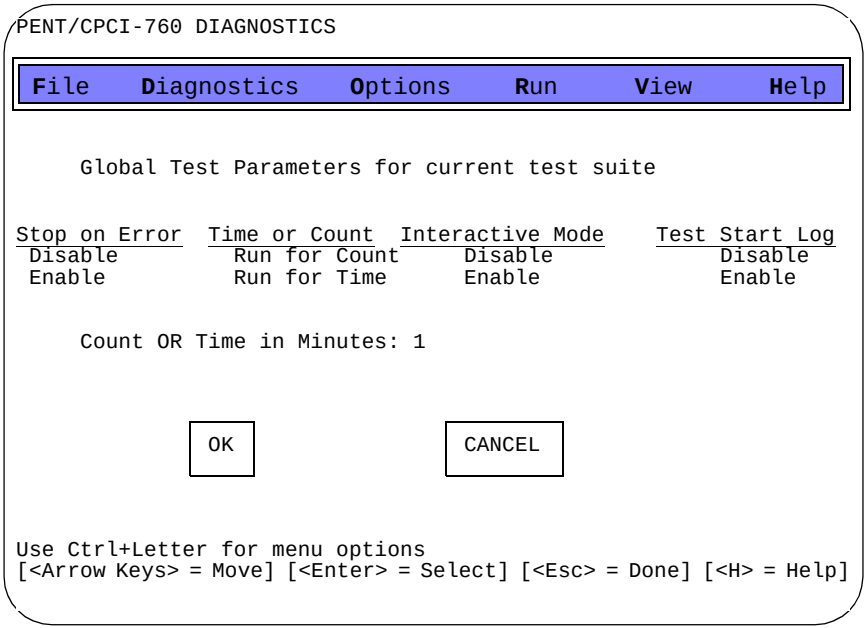
Figure 25. Floppy Diskette Test Removal Confirmation Screen



3 Press **ENTER**.

The system displays the Global Test Parameters Selection screen (Figure 26).

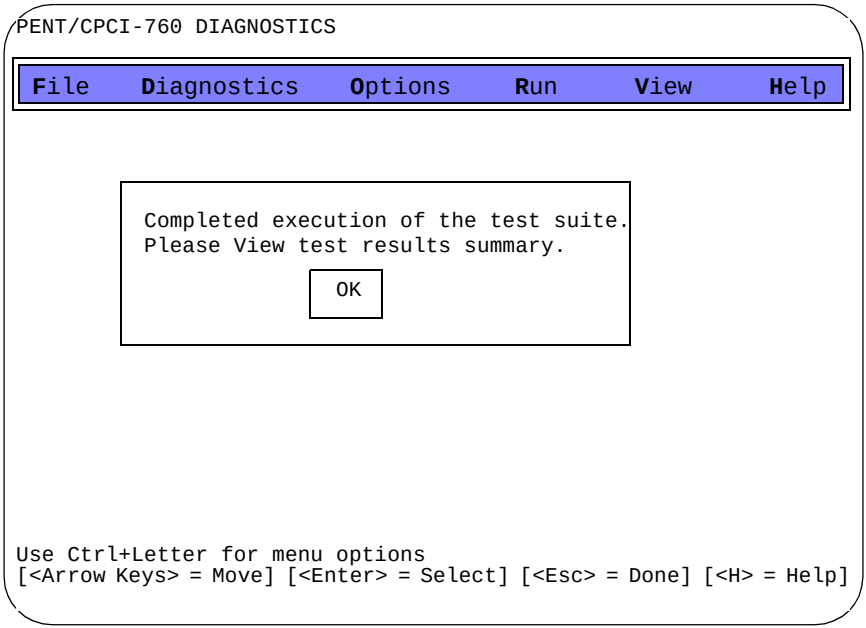
Figure 26. Global Test Parameters Selection Screen



4 Press **ENTER**.

The system completes the diagnostics and displays the Tests Completed screen (Figure 27).

Figure 27. Tests Completed Screen



5 Go to Viewing the Platform Diagnostics Results Summary on page 77.

Viewing the Platform Diagnostics Results Summary

To view the platform diagnostics results summary:

1 Start at the Diagnostics Access Screen (Figure 21 on page 64) and press **CONTROL** + **V.**

2 Select:

```
View Summary
```

The system displays the test summary for the last time the test suite was run. Figure 28 on page 78 provides an example of this test summary.

Figure 28. Tests Completed Screen

```
PENT/CPCI-760 DIAGNOSTICS

Time:  08: 38: 37                  Date: 03-14-2000

Test Name                 Pass           Fail           Total
-------------------------------------------------------------------

CPU Functionality Test      1            0               1

CPU Protected Mode Test     1            0               1

CPU Floating Point Unit Test1            0               1

DMA Controller Test         1            0               1

Interrupt Controller Test   1            0               1

Page UP - Previous Page, Page Down, - Next Page, ESC - Quit
```

For information on how to correct a test failure, see Table 14 on page 80.

3 Press **ESC** to exit.

The system displays the Diagnostics Access screen (Figure 21 on page 64).

Correcting Platform Diagnostics Test Failures

Table 14 lists the platform diagostics tests and the procedures for correcting failures of those tests.

Table 14. Procedures for Correcting Platform Diagnostics Test Failures

Test	Failure Correction Procedure
CPU Tests:	
CPU Functionality Test	If any of these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Protected Mode Test	
Floating Point Unit Test	
Controller Tests:	
DMA Controller Test	If any of these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Interrupt Controller Test	
Watch Dog Test	

Test	Failure Correction Procedure
Memory Tests:	
Low Address Test (0-1 MB)	If any of these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Parity Test	
Pattern Test	
Walking 1's Test	
Walking 0's Test	
Random Read/Write Test	
Address=Data Test	
Refresh Test	
L2 Cache Test	
BIOS Flash Test	

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Test	Failure Correction Procedure
PCI Tests:	
Host-PCI Bridge Test	If any of these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
PCI-ISA Bridge Test	
PCI-PCI Bridge Test	
IDE Tests:	
EIDE Interface Test	If any of these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
EIDE Disk Controller Test	
User Flash Test	

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Test	Failure Correction Procedure
Interface Tests:	
Ethernet Interface 1 Test	If this test fails, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. If this test passes but you are unable to get Ethernet 1 to work, check for the following possible problems: • The Ethernet driver software and TCP/IP configuration has not been completed correctly. First, check the software configuration. • Verify that Ethernet 1 is configured correctly. By default, Ethernet 1 is configured for rear I/O, SWITCH 2-3 ON. If you are trying to connect to the Ethernet 1 connector on the front of the CPU Complex, you will need to set SWITCH 2-3 to OFF. • With your LAN cable plugged in, verify that the green Ethernet 1 Link status LED on the front of the CPU Complex is on. If not, there may be a problem with your facility LAN connection. • It is also possible, but unlikely, that the CPU Rear I/O Board is bad.

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Test	Failure Correction Procedure
Ethernet Interface 2 Test	If this test fails, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. If this test passes but you are unable to get Ethernet 2 to work, check for the following possible problem: • The Ethernet driver software and TCP/IP configuration has not been completed correctly. First, check the software configuration. • The Ethernet 2 connector is on the front of the CPU Complex (only). • With your LAN cable plugged in, verify that the green Ethernet 2 Link status LED on the front of the CPU Complex is on. If not, there may be a problem with your facility LAN connection.
PCMCIA Interface	n/a
USB Interface	If this test fails, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.

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Test	Failure Correction Procedure
Super IO Tests:	
Serial Port Test	If either serial port 1 or 2 tests fail when executed in default mode (external loop-around disabled), replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. If either serial port 1 or 2 tests fail when executed with external loop-around enabled and with the external loop-around device installed, replace either the CPU Rear I/O board or the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Parallel Port Test	If this test fails when executed in default mode (external loop-around disabled), replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. If this test fails when executed with external loop-around *enabled* and with the external loop-around device installed, replace either the CPU Rear I/O board or the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.

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Test	Failure Correction Procedure
Mouse Test	If this test fails: 1 Rerun the test with a known good PS/2 mouse before deciding to replace any other components. 2 Replace either the CPU Rear I/O board or the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Floppy Test	If this test fails: 1 Rerun the test with a known good formatted diskette. 2 If it fails again, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
RTC Test NVRAM Test	If these tests fail, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.

Test	Failure Correction Procedure
Keyboard Controller Test	If these tests fail: 1 Rerun the test with a known good PS/2 keyboard before deciding to replace any other components. 2 If the test fails with the keyboard connected through the CPU Rear I/O Board but passes with the keyboard connected to the CPU Complex front I/O, then replace the CPU Rear I/O Board. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. 3 Otherwise, the CPU Complex needs to be replaced.See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
Keyboard LED Test	
Keyboard Clock Line Test	
Keyboard Data Line Test	
Keyboard Interrupt Test	
Video Tests:	

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Test	Failure Correction Procedure
Video Memory Test	If these tests fail: 1 Replace the video module. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure. 2 If the failure continues after replacing the Video Module, the CPU Complex needs to be replaced. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
SVGA Controller Test	
PCI Tests:	
Terminal Query Test	If this test fails, replace the CPU Complex. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.
PCI-PCI Bridge Test	

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Test	Failure Correction Procedure
PMC Device Tests:	
PMC RAID Hard Disk Test	Failure of the PMC RAID Hard Disk Test indicates the need to replace or service the following components, listed in order of probability: • One of the SCSI hard disk drives (view the diagnostic log file to see which drive failed) • SCSI bus cabling including SCA Backplane • SCSI terminator • PMC RAID Module Execute the Extended RAID Diagnostics tests, option 2 from the Diagnostics Startup Menu, before replacing any components. See *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedures.

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Test	Failure Correction Procedure
PMC RAID Tape Tests	If the PMC RAID Tape Test fails: 1 Rerun the test with a known good tape cartridge. 2 If the tape test fails and the PMC RAID Hard Disk Test fails, follow the recommendations above for hard disk test failures. If the PMC RAID Hard Disk Test passes, but the PMC RAID Tape Test fails, suspect the SCSI Tape Drive. 3 Execute the Extended RAID Diagnostics tests, option 2 from the Diagnostics Startup Menu, before replacing any components.
PMC RAID CD-ROM Test	If the PMC RAID CD-ROM Test fails: 1 Rerun the test with known good CD media. 2 If the CD-ROM test fails and the PMC RAID Hard Disk Test fails, follow the recommendations above for hard disk test failures. If the PMC RAID Hard Disk Test passes, but the PMC RAID CD-ROM Test fails, suspect the SCSI CD-ROM Drive. 3 Execute the Extended RAID Diagnostics tests, option 2 from the Diagnostics Startup Menu, before replacing any components.

Test	Failure Correction Procedure
PMC RAID Jaz Drive Test	If the PMC RAID Jaz Test fails: 1 Rerun the test with a known good Jaz cartridge. 2 If the Jaz test fails and the PMC RAID Hard Disk Test fails, follow the recommendations above for hard disk test failures. If the PMC RAID Hard Disk Test passes, but the PMC RAID Jaz Test fails, replace the SCSI Jaz Drive.

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Test	Failure Correction Procedure
PMC Ethernet 1 Test	This test is applicable to systems equipped with an optional PMC LAN module installed on the CPU Complex. Failure of this test indicates the PMC LAN module will need to be replaced. If this test passes but you are unable to get the associated LAN connection to work, check for the following possible problems: A typical problem is that the Ethernet driver software and TCP/IP configuration has not been completed correctly. The software configuration should be checked first. The LAN connector is on the front of the PMC LAN module. With your LAN cable plugged in, verify that the green Link status LED on the front of the LAN module is on. If not, there may be a problem with your facility LAN connection.

Test	Failure Correction Procedure
PMC Ethernet 2 Test	This test is applicable to systems equipped with an optional PMC LAN module installed on the CPU Complex. Failure of this test indicates the PMC LAN module will need to be replaced. If this test passes but you are unable to get the associated LAN connection to work, check for the following possible problems: A typical problem is that the Ethernet driver software and TCP/IP configuration has not been completed correctly. The software configuration should be checked first. The LAN connector is on the front of the PMC LAN module. With your LAN cable plugged in, verify that the green Link status LED on the front of the LAN module is on. If not, there may be a problem with your facility LAN connection.

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Exiting the Platform Diagnostics

To exit the platform diagnostics:

1. Start at the Diagnostics Access Screen (Figure 21 on page 64) and press **CONTROL** + **F**.
2. Select:

   `Exit`

The system displays the following message:

```
Do you want to exit diagnostics now?
```

3 Select OK.

The system displays the Diagnostics Start-up Menu (Figure 20 on page 63).

4 Enter **6**

Extended RAID Diagnostics

Accessing Extended RAID Diagnostics

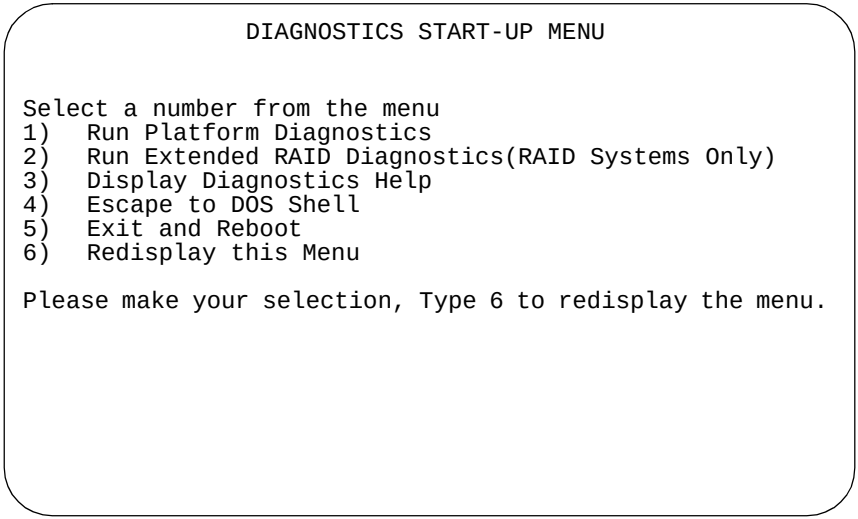
To access the extended RAID diagnostics:

1 Reboot the system. See Rebooting the UNIX System on page 243 in Chapter 3, Common System Procedures.

2 Press F4 when prompted.

The system displays the Diagnostics Start-up Menu (Figure 29 on page 95).

Figure 29. Diagnostics Start-up Menu



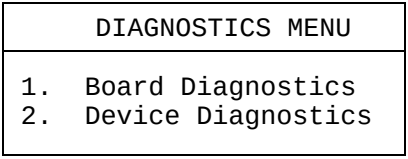
3 Type **2** and press **ENTER.**

Note: If you want to test the CD-ROM Drive or the Tape Drive, you need to insert the CD or scratch TAPE now.

4 Press any key to continue.

The system displays the Extended RAID Diagnostics Menu (Figure 30).

Figure 30. Extended RAID Diagnostics Menu



5 Continue with one of the following diagnostic procedures:

- ~ Performing RAID Disk Array Controller Hardware Diagnostics on page 96
- ~ Performing SCSI Device Diagnostics on page 100

Performing RAID Disk Array Controller Hardware Diagnostics

RAID disk array controller hardware diagnostics test the following components on the RAID module:

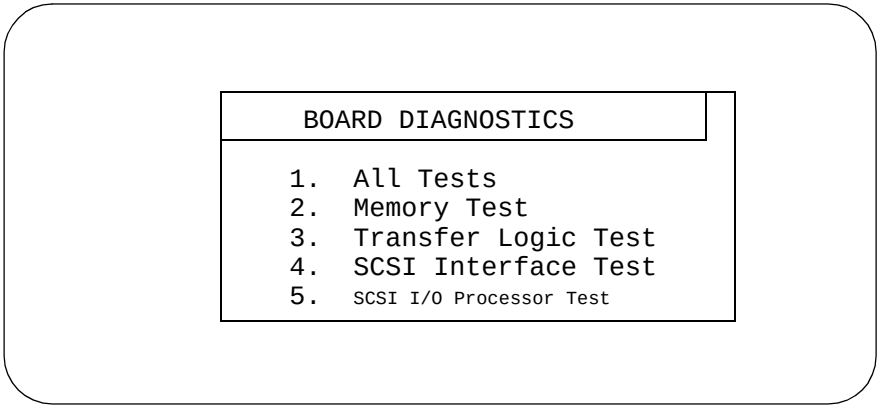
- DRAM
- NVRAM
- SCSI I/O Processor
- System Interface

To perform RAID disk array controller hardware diagnostics:

1. Access the Extended RAID Diagnostics Menu (Figure 30 on page 96). See Accessing Extended RAID Diagnostics on page 94 for more information.
2. From the Extended RAID Diagnostics Menu (Figure 30 on page 96), press the ▲ or ▼ key to select `Board Diagnostics` and press **ENTER**.

   The system displays the Board Diagnostics Menu (Figure 31).

Figure 31. Board Diagnostics Menu



Note: It is possible to perform all Board Diagnostic tests at once or to perform individual tests for each one. This procedure documents the `All Tests` option. Table 15 lists the devices tested for each selection.

Table 15. Board Diagnostic Tests

Selection	Tests Performed
All Tests	All tests listed in this table
Memory Tests	DRAM, NVRAM, RAM Fill, RAM Verify
Transfer Logic Tests	System Interface controller, Data Transfer Mechanism, and DMA Transfer
SCSI Interface Tests	SCSI Interface all channels
SCSI I/O Processor Tests	SCSI I/O processors in the controller

3 Press the ▲ or ▼ key to select `All tests` and press **ENTER**:

The screen prompts you to enter the number of passes you want to make. Press **ENTER** to select the default number of 1.

The system completes the tests and displays the results.

4 After the test is complete, press any key to return to the Board Diagnostics Menu (Figure 31 on page 97).

5 Press **ESC** to return to the Extended RAID Diagnostics Menu (Figure 30 on page 96).

Correcting RAID Disk Array Controller Hardware Failures

RAID disk array controller hardware diagnostics test the following components on the RAID module:

- DRAM
- NVRAM
- System interface
- SCSI I/O Processor

To correct controller hardware failures, replace the PCM RAID module. See Chapter 2, "Installing or Replacing Circuit Cards," in the *UCS 1000 R4.6 Maintenance*, 585-313-154, for the procedure.

Performing SCSI Device Diagnostics

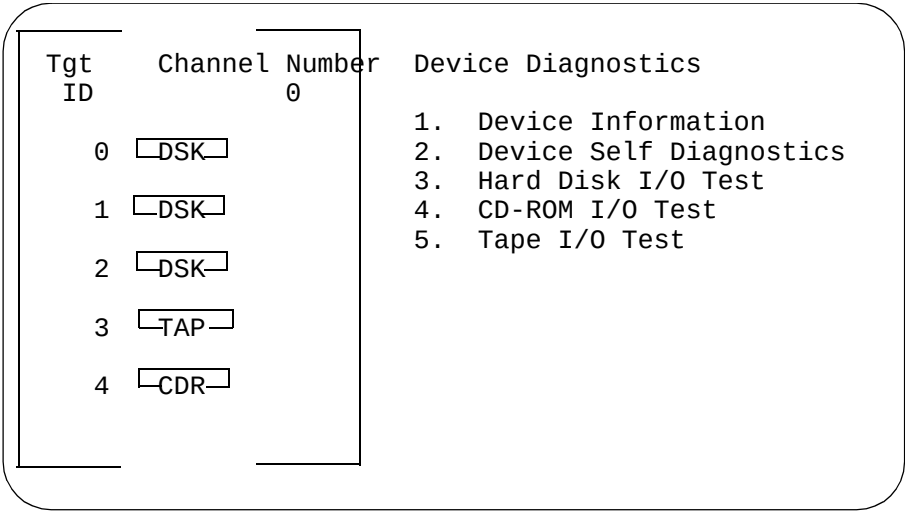
The SCSI device diagnostics test the SCSI devices connected to the RAID controller.

To perform SCSI device diagnostics:

1. Access the Extended RAID Diagnostics Menu (Figure 30 on page 96).
2. Press the ▲ or ▼ key to select `Device Diagnostics` and press **ENTER.**

   The system displays the Device Diagnostics Menu (Figure 32 on page 101).

Figure 32. Device Diagnostics Menu



Note: Figure 32 is an example only. Your system configuration may be different.

3 To acquire device information, complete the following procedure:

a Press the ▲ or ▼ key to select `Device Information` and press **ENTER**.

The system highlights the top device on the left side of the screen.

b Press **ENTER.**

The system displays the device information for the highlighted device.

c Using the ▲ or ▼ key select the next device and press **ENTER**.

d Repeat Step c for each device.

4 To initiate a device self test, complete the following procedure:

a Press the ▲ or ▼ key to select `Device Self Diagnostics` and press **ENTER**.

The system highlights the top device on the left side of the screen.

b Use the ▲ or ▼ keys to select all devices by pressing enter for each device.

c After all devices are selected press **ESC**.

The system runs the test and displays the results.

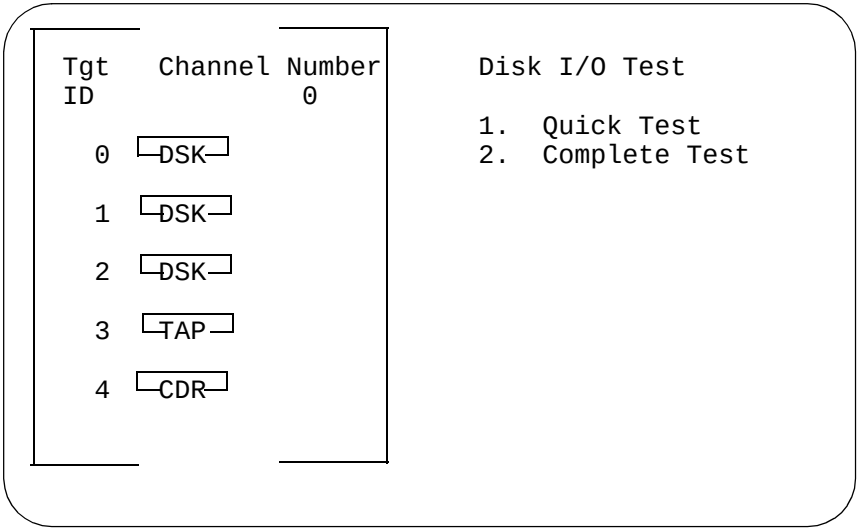
d After the test is completed, press any key to return to the Device Diagnostics Menu (Figure 32 on page 101).

5 To initiate an I/O test on the hard disk drive, complete the following procedure:

a Press the ▲ or ▼ key to select `Hard Disk I/O Test` and press **ENTER.**

The system displays the I/O Test Screen for the hard disk drive (Figure 33).

Figure 33. I/O Test Screen



Note: The title of the I/O Test screen will change depending on the device being tested (for example, CD I/O Test or TAPE I/O Test).

b Press the ▲ or ▼ key to select `Quick Test` and press **ENTER**.

The system runs the test and displays the results.

c Press any key to return to the Device Diagnostic Menu (Figure 32 on page 101).

d From the Device Diagnostic Menu press the ▲ or ▼ key to select the `Hard Disk I/O` again and press **ENTER** .

The system displays the I/O Test Screen (Figure 33 on page 103) for the hard disk drive.

e Press the ▲ or ▼ key to select `Complete Test` and press **ENTER.**

The system displays the `Non-Destructive` and `Destructive` test options in the I/O Test screen.

f Using the ▲ or ▼ key, select `Non-Destructive` and press **ENTER**.

CAUTION:
If you select and run a Destructive test, you will lose all the data on your disks.

The system highlights the top device on the left side of the screen.

g Press **ENTER**.

The system prompts you to select the LBA ranges.

Note: If you except the default LBA range displayed, the test takes approximately 50 hours to complete. The default End LBA is the maximum allowed disk address that can be tested. If you leave the starting LBA at 0 and the ending LBA range at 20,000, the test takes approximately 5 minutes to complete.

h Select the default 0 for the Start LBA by pressing **ENTER**.

i Depending on how extensive you want the test to be, type in the LBA range End number and press **ENTER**.

The system will automatically return to the next disk device.

j Repeat Step g through Step i for each device.

k After all devices are highlighted, initiate the test by pressing **ESC**.

The system runs the test and displays the test results. For information on how to correct a test failure, see Table 16 on page 111.

l Press any key to return to the Device Diagnostic Menu (Figure 32 on page 101).

6 To initiate an I/O test on the CD-ROM drive, complete the following Step a through Step j.

a From the Device Diagnostic Menu, press the ▲ or ▼ key to select `CD-ROM I/O Test` and press **ENTER.**

The system displays the I/O Test Screen (Figure 33 on page 103) for the CD-ROM.

b Press the ▲ or ▼ key to select `Quick Test` and press **ENTER**.

The system runs the test and displays the results.

c Press any key to return to the Device Diagnostics Menu (Figure 32 on page 101).

d From the Device Diagnostic Menu, press the ▲ or ▼ key to select the `CD-ROM I/O Test` again and press **ENTER** .

The system displays the I/O Test Screen (Figure 33 on page 103) for the CD-ROM.

e Press the ▲ or ▼ key to select `Complete Test` and press **ENTER.**

The system displays the `Non-Destructive` and `Destructive` test options in the I/O Test screen. You may only select the `Non-Destructive` option.

f Press **ENTER**.

The system highlights the CDR on the left side of the screen.

g Press **ENTER**.

The system prompts you to select LBA ranges.

h Press **ENTER** twice to select the default LBA ranges.

i Press **ESC** to iniate the test.

The system runs the test and displays the test results. For information on how to correct a test failure, see Table 16 on page 111.

Note: The test takes approximately 15 minutes.

j After the test is complete, press any key to return to the Device Diagnostics Menu (Figure 32 on page 101).

7 To initiate an I/O test on the Tape Drive, complete the following Step a through Step q.

Note: All TAPE tests require a tape cartridge. Any data on this cartridge will be lost during the test.

a From the Device Diagnostic Menu, press the ▲ or ▼ key to select `Tape I/O Test` and press **ENTER.**

Note: If the diagnostics report that there is not a tape device to test, exit back to the Diagnostics Start-up Menu (Figure 29 on page 95), and then access the Extended RAID Diagnostics again. It may be that the tape was inserted too late in the process. For more information on exiting the diagnostics, see Exiting the RAID Diagnostics on page 114.

b The system displays the I/O Test Screen (Figure 33 on page 103) for the TAPE drive.

c Press the ▲ or ▼ key to select `Quick Test` and press **ENTER**.

The system displays a warning and asks you if you want to proceed with a Destructive test.

d Select Yes and press **ENTER**.

The system runs the test.

During the test, the screen displays the following message:

```
The current tape drive doesn't support SCSI ERASE SHORT
command.
```

e Ignore the message and press any key to continue test.

f Select Yes and press **ENTER**.

g After the the test is complete, press any key to return to the Device Diagnostics Menu (Figure 32 on page 101).

h From the Device Diagnostic Menu, press the ▲ or ▼ key to select the `Tape I/O Test` again and press **ENTER**.

The system displays the I/O Test Screen (Figure 33 on page 103) for the TAPE drive.

i Press the ▲ or ▼ key to select `Complete Test` and press **ENTER.**

The system displays the `Non-Destructive` and `Destructive` test options in the I/O Test screen. You may only select the `Destructive` option.

j Press **ENTER**.

The system displays a warning and asks you if you want to proceed with the destructive test.

k Select Yes, and press **ENTER**.

The system highlights the TAP on the left side of the screen.

l Press **ENTER**.

The system prompts you to select the number of BLKS.

m Press **ENTER** to select the default number.

n Press **ESC** to initiate the test.

The system displays a warning and asks you if you want to proceed with the destructive test.

o Select Yes and press **ENTER**.

The system runs the test.

During the test, the screen displays the following message:

```
The current tape drive doesn't support SCSI ERASE SHORT
command.
```

p Ignore the message and press any key to continue test.

q Select Yes and press **ENTER**.

The system runs the test and displays the test results. For information on how to correct a test failure, see Table 16 on page 111.

Note: The test takes approximately 5 minutes.

r After the test is complete, press any key to return to the Device Diagnostics Menu (Figure 32 on page 101).

Correcting SCSI Device Test Failures

Table 16 lists the SCSI device tests and the procedures for correcting failures of those tests.

Table 16. Procedures for Correcting SCSI Device Test Failures

Test	Failure Correction Procedure
Device Information test	Failure of the Device Information test indicates the need to replace or service the following components, listed in order of probability: • One of the SCSI hard disk drives • SCSI bus cabling including SCA backplane • SCSI terminator • PMC RAID Module.

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Table 16. Procedures for Correcting SCSI Device Test Failures

Test	Failure Correction Procedure
Device Self Diagnostics	Failure of the Device Self Diagnostics test indicates the need to replace or service the following components, listed in order of probability: • One of the SCSI hard disk drives • SCSI bus cabling including SCA backplane • SCSI terminator • PMC RAID Module. If the Device Information test passes, but the Device Self Diagnostic test fails, one of the SCSI hard disk drives is probably defective.
Hard Disk I/O tests	Failure of the Hard Disk I/O test indicates the need to replace or service the following components, listed in order of probability: • One of the SCSI hard disk drives • SCSI bus cabling including SCA backplane • SCSI terminator • PMC RAID Module If the Device Information test passes, but the Hard Disk I/O Diagnostics test fails, one of the SCSI hard disk drives is probably defective.

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Table 16. Procedures for Correcting SCSI Device Test Failures

Test	Failure Correction Procedure
CD-ROM I/O tests	• If the CD-ROM I/O test fails, rerun the test with known good CD media. • If the CD-ROM test fails and the Hard Disk I/O test fails, follow the recommendations above for Hard Disk I/O test failures. • If the Hard Disk I/O test passes, but the CD-ROM I/O test fails, replace the SCSI CD-ROM drive.
Tape I/O tests	• If the tape I/O test fails, rerun the test with known good tape media. • If the tape test fails and the Hard Disk I/O test fails, follow the recommendations above for Hard Disk I/O test failures. • If the Hard Disk I/O test passes, but the tape I/O test fails, replace the SCSI tape drive

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Exiting the RAID Diagnostics

1. From the Device Diagnostics Menu press **ESC** to return to the Extended RAID Diagnostics Menu (Figure 30 on page 96).
2. Press **ESC** to return to the Diagnostics Start-up Menu (Figure 29 on page 95).
3. Type 5 for `Exit and Reboot` and press **ENTER**.

Database Diagnostics

To check the ORACLE database free space:

1. Execute the **dbfrag** command.

   The system displays the System Tablespace screen (Figure 34 on page 115).

Note: The data in your System Tablespace screen may be different from the data shown in Figure 34 on page 115.

Figure 34. 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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 *UCS 1000 R4.6 Administration*, 585-313-509, for information on increasing the database size.

Extents Diagnostics

An extent is an 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 UCS 1000 R4.6 system is 2,147,483,645.

To check the number of extents:

1 Enter **dbused**

The system displays the Space Allocated screen (Figure 35 on page 117).

Note: The data in your Space Allocated screen may be different from the data shown in Figure 35 on page 117.

Figure 35. 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 *UCS 1000 R4.6 Administration*, 585-313-509, for information on increasing the database size.

You have completed this procedure.

ORACLE Network Diagnostics

To check the ORACLE network:

1. Determine the machine name. See Chapter 5, “Database Administration,” in *UCS 1000 R4.6 Administration*, 585-313-509.
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 36.

Figure 36. 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 *UCS 1000 R4.6 Communication Development*, 585-313-224.

7 Verify the database connection by completing the following procedure:

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:

- **arp**
- **ndstat**
- **netstat**
- **ping**
- **traceroute**
- **tcpdump**

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.
- In some modes, tcpdump will seriously degrade the performance of the server.
- 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
- **-I *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 *UCS 1000 R4.6 Administration*, 585-313-509.

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
- **-l** — 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
- **-I** — 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 *UCS 1000 R4.6 Administration*, 585-313-509.

Simple Network Management Protocol

SNMP is the current working standard for network management information. The SNMP feature on the UCS 1000 R4.6 allows network system administrators to use SNMP to consolidate the monitoring and controlling of remote systems from a central location. This remote monitoring and controlling takes place over an IP LAN or WAN and allows a central management workstation to:

- Receive alarm and resolution event notifications from remote managed elements (UCS 1000 R4.6 systems)
- Receive system status information from remote managed elements
- Execute common administrative commands for remote managed elements

Management Information Bases Available with UCS 1000 R4.6 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, no all MIB-II variables are supported.

Private MIB

In addition to MIB-II support, the SNMP agent provides a private (enterprise-specific) MIB consisting of five files.

The following system information can be received:

- 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
- Critical, major, and minor alarms active on the system

The MIB also allows the remote execution of system comands for the following tasks:

- Starting and stopping the voice system
- Shutting down and starting the system

- Removing and restoring cards, spans, and channels
- Detaching and attaching cards
- Diagnosing cards and the main bus
- Silencing audio alarms
- Retiring active alarms

Also see MIB Definition on page 132.

SNMP Configuration

You must configure both HP Openview and the SNMP agent on the UCS 1000 R4.6 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 the UCS 1000 R4.6:

Note: The following procedure must be done at least once to configure HP Openview for the UCS 1000 R4.6. If you are monitoring multiple UCS 1000 R4.6 systems with a single HP Openview, you need 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 management workstation.

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

To 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 UCS 1000 R4.6 for the HP Openview

To configure the system for the HP Openview:

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
   - alarmMon.sh
   - tmn-agt

Guidelines for Using SNMP

This section provides guidelines for using SNMP on the UCS 1000 R4.6.

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 UCS 1000 R4.6. See HP Openview documentation for information on how to integrate the UCS 1000 R4.6 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 UCS 1000 R4.6 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 UCS 1000 R4.6 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.

Loading the MIB Files

The MIB consists of five files, which should be loaded in the following order:

1. lucent-reg.mib
2. cornerstone-reg.mib
3. tmn-mapping.mib
4. c2-tmn-alarms.mib
5. cs.mib

MIB Definition

Definitions for each of the five files in the MIB are given in the following sections.

lucent-reg.mib

```
LUCENT-REGISTRATION DEFINITIONS ::= BEGIN

IMPORTS
   enterprises
                  FROM SNMPv2-SMI;

lucentOBJECT IDENTIFIER ::= {enterprises 1751 }
lucentProductsOBJECT IDENTIFIER ::= { lucent 1 }
lucentMibsOBJECT IDENTIFIER ::= { lucent 2 }

END
```

cornerstone-reg.mib

```
CORNERSTONE-REGISTRATION DEFINITIONS ::= BEGIN

IMPORTS
   products, mibs
                  FROM LUCENT-REGISTRATION;

-- XXX register these

intuityProductsOBJECT IDENTIFIER ::= { lucentProducts 10 }
intuityMibsOBJECT IDENTIFIER ::= { lucentMibs 10 }

cornerstone4-3 OBJECT-IDENTITY
   STATUS current
```

```
    DESCRIPTION
        "The Cornerstone 4.3 platform."

    ::= { intuityProducts 1 }

END
```

tmn-mapping.mib

```
TMN-MAPPING-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, OBJECT-IDENTITY, Unsigned32
                    FROM SNMPv2-SMI
    TEXTUAL-CONVENTION, DisplayString, DateAndTime, RowPointer,
    RowStatus, TruthValue
                    FROM SNMPv2-TC
    intuityMibs
                    FROM CORNERSTONE-REGISTRATION;

tmnMappingMib MODULE-IDENTITY
    LAST-UPDATED "9908160000Z"
    ORGANIZATION "Lucent Technologies"
    CONTACT-INFO
                              ""
    DESCRIPTION
         "This module defines OBJECT IDENTIFIERS, OBJECT-
          IDENTITYs, and TEXTUAL-CONVENTIONS corresponding to
          data types defined in the TMN Structure of Management
          Information document (ITU-T X.721, a.k.a.
          ISO/IEC 10165-2).  The purpose of this module is to
          clarify the mapping of the TMN standards documents to
```

```
          SNMP."

-- XXX - Hopefully this can eventually be moved under the Lucent
Common Enterprise
-- MIB branch.

   ::= { intuityMibs 3 }

managedObjectClasses OBJECT IDENTIFIER ::= { tmnMappingMib 1 }
--  REFERENCE
--                 "ITU-T X.721, section 6."

genericAttributes OBJECT IDENTIFIER ::= { tmnMappingMib 2 }
--  REFERENCE
--                 "ITU-T X.721, section 9."

specificAttributes OBJECT IDENTIFIER ::= { tmnMappingMib 3 }
--  REFERENCE
--                 "ITU-T X.721, sections 10 and 14.2."

-- NOTE on SET-valued specific attributes: would be possible to
   define generic
-- SNMP tables through which to map SET-valued specific
   attributes, and this was in fact considered, but rejected in
   favor of using the ObjectReference
-- TC to point to the attribute, which can then be defined in a
   manner
-- appropriate for the specific application.
```

```
naming OBJECT IDENTIFIER ::= { specificAttributes 1 }
--  REFERENCE
--                "ITU-T X.721, section 10.1."

LogRecordId ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION
         "An object that uniquely identifies a log record.  It
          is typically implemented as a non-volatile counter
          that wraps."
   SYNTAX Unsigned32

eventsRelated OBJECT IDENTIFIER ::= { specificAttributes 2 }
--  REFERENCE
--                "ITU-T X.721, section 10.7.1."

-- AdditonalText => DisplayString
--  REFERENCE
--                ITU-T X.721, section 10.7.1.2, X.733, section
8.1.2.13, RFC 2579.

AdditionalInformation ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION
         "Additional information about an alarm, in the form of
          a sequence of octets."
   REFERENCE
                "ITU-T X.721, section 10.7.1.1, X.733,
section 8.1.2.14."
   SYNTAX OCTET STRING (0..1024)
```

```
-- BackedUpStatus => TruthValue
--  REFERENCE
--                 "ITU-T X.721, section 10.7.1.6."

-- EventTime => DateAndTime
-- REFERENCE
--                 ITU-T X.721, section 10.7.1.8, X.733, section
                   8.1.2.13, RFC 2579.

PerceivedSeverity ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION
                   "Perceived event/alarm severity levels."
   REFERENCE
                   "ITU-T X.721, section 10.7.1.12."
   SYNTAX INTEGER {
                   indeterminate(1),
                   critical(2),
                   major(3),
                   minor(4),
                   warning(5),
                   cleared(6)
   }

notifications OBJECT IDENTIFIER ::= { tmnMappingMib 4 }
--  REFERENCE
--                 "ITU-T X.721, sections 13 and 14.2, X.733,
                    section 8.1.1."
```

```
ObjectClassAndInstance ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION
         "An OBJECT IDENTIFIER that refers to an SNMP scalar
          group or conceptual table row instance which models
          an instance of a TMN Managed Object Class.  In
          simpler terms, a pointer form one managed object to
          another.  Note that SNMP combines the concepts of
          'object type' (analogous to a TMN class) and 'object
          instance' into a single OBJECT IDENTIFIER.  This is
          one of the key differences bewteen the TMN SMI and
          the SNMP SMI, and is a major source of difficulty in
          mapping between the two object models.

          NOTE:  This TC is very similar to the RowPointer TC,
          except that it explicitly allows pointers to scalar
          groups as well as conceptual rows."
   REFERENCE
         "Managed Object Class/Instance definition:  ITU-T
          X.701 managedObjectClass attribute:  ITU-T X.721 Sec.
          10.7.4.12 managedObjectInstance attribute:  ITU-T
          X.721 Sec. 10.7.4.13"
   SYNTAX OBJECT IDENTIFIER

END
```

c2-tmn-alarms.mib

```
TMN-ALARMS-MIB DEFINITIONS ::= BEGIN
IMPORTS
   MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, Integer32,
   Unsigned32
```

```
                    FROM SNMPv2-SMI
    intuityMibs
                    FROM CORNERSTONE-REGISTRATION
    managedObjectClasses, LogRecordId, PerceivedSeverity,
    TrendIndication,
                    ObjectClassAndInstance
                    FROM TMN-MAPPING-MIB;

alarmReportingMib MODULE-IDENTITY
    LAST-UPDATED "9908130000Z"
    ORGANIZATION "Lucent Technologies"
    CONTACT-INFO
                    ""
    DESCRIPTION
                    "This module provides an SNMP mapping of the
                    TMN Alarm Reporting standard defined in
                    ITU-T X.733."

    ::= { intuityMibs 4 }

-- Managed Object Classes

alarmReportingClasses OBJECT IDENTIFIER ::= {
managedObjectClasses 1 }

-- Alarm Log Table

alarmLog OBJECT-TYPE
    SYNTAX SEQUENCE OF AlarmRecord
    MAX-ACCESS not-accessible
```

```
    STATUS current
    DESCRIPTION
          "A circular buffer of alarms recently
           generated by the system. This table
           corresponds to an instance of the 'log'
           managed object class defined in ITU-T X.721.
           The size of the buffer is indicated by the
           alarmLogCapacity object defined below."

    ::= { alarmReportingClasses 1 }

alarmRecord OBJECT-TYPE
    SYNTAX AlarmRecord
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
          "A row containing one alarm entry. This table entry
           corresponds to the 'alarmRecord' managed object
           class defined in ITU-T X.721."
    INDEX          { IMPLIED alarmRecordId }

    ::= { alarmLog 1 }

AlarmRecord ::= SEQUENCE {
    alarmRecordId                    OCTET STRING,
    alarmRecordEventTime        DateAndTime,
    alarmRecordPerceivedSeverityPerceivedSeverity,
    alarmRecordAdditionalTextDisplayString,
    alarmRecordAdditionalInformationAdditionalInformation
}
```

```
alarmRecordId OBJECT-TYPE
   SYNTAX OCTET STRING (SIZE(1..64))
   MAX-ACCESS not-accessible
   STATUS current
   DESCRIPTION
         "An OCTET STRING that uniquely identifies the alarm."

   ::= { alarmRecord 1 }

alarmRecordEventTime OBJECT-TYPE
   SYNTAX DateAndTime
   MAX-ACCESS read-only
   STATUS current
   DESCRIPTION
         "The time at which the alarm occurred."

   ::= { alarmRecord 2 }

alarmRecordPerceivedSeverity OBJECT-TYPE
   SYNTAX PerceivedSeverity
   MAX-ACCESS read-write
   STATUS current
   DESCRIPTION
      "The perceived severity of the alarm.  The value of
      this object can be set to 'cleared' to clear the alarm.
      Attempts to set the value to any value other than
      'cleared'will cause the operation to fail with an error
      -status of 'inconsistentValue. Whether or not the alarm
      is removed from the table after being cleared is
```

```
       implementation-dependent."

   ::= { alarmRecord 7 }

alarmRecordAdditionalText OBJECT-TYPE
   SYNTAX DisplayString
   MAX-ACCESS read-only
   STATUS current
   DESCRIPTION
          "Human-readable textual information about the alarm."

   ::= { alarmRecord 17 }

alarmRecordAdditionalInformation OBJECT-TYPE
   SYNTAX AdditionalInformation
   MAX-ACCESS read-only
   STATUS current
   DESCRIPTION
          "Application-specific, additional information about
           the alarm, not necessarily human-readable."

   ::= { alarmRecord 18 }




alarmMgCMDs    OBJECT IDENTIFIER  ::= { alarmReportingClasses 2
}
-- alarmMgCMDs
audioalarm     OBJECT-TYPE
```

```
                                SYNTAX      DisplayString
                                MAX-ACCESS  read-write
                                STATUS      current
                                DESCRIPTION "When used with SET, the only
                                          valid value is off, it will
                                          silent the audio alarm. When
                                          being queried, information about
                                          the previous alarm_cutoff command
                                          is displayed."
                        ::= { alarmMgCMDs 1 }

                        retireAlarmByLvl    OBJECT-TYPE
                                SYNTAX      DisplayString
                                MAX-ACCESS  read-write
                                STATUS      current
                                DESCRIPTION "When used with SET, the valid
                                          values are minor, major or
                                          critical, it will retire all
                                          active alarms at this level. When
                                          being queried, information about
                                          the previous retActAlmByLvl
                                          command is displayed. "
                                ::= { alarmMgCMDs 2 }

                        END
```

cs.mib

```
                        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 }
lucentMibsOBJECT IDENTIFIER ::= { lucent 2 }

intuityProductsOBJECT IDENTIFIER ::= { lucentProducts 10 }
intuityMibsOBJECT 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 }


csSystemStatusOBJECT IDENTIFIER ::= { platformMIB 1 }
csSsMtceOBJECT IDENTIFIER ::= { csSystemStatus 1 }
csSsVs              OBJECT IDENTIFIER ::= { csSystemStatus 2 }

csSwInst OBJECT IDENTIFIER ::= { platformMIB 2 }
```

```
csHwInstOBJECT IDENTIFIER ::= { platformMIB 3 }


ssMtceFsChkOBJECT-TYPE
                        SYNTAX DisplayString
                        MAX-ACCESSread-only
                        STATUScurrent
                       DESCRIPTION"file system check. This
                                   variable returns a string
                                   stating whether the check
                                   passed or failed."
                        ::= { csSsMtce 1 }

ssMtceIpcQChkOBJECT-TYPE
                        SYNTAXDisplayString
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION "Ipc Queue Check.  This
                                    variable returns a string
                                    stating whether the check
                                    passed or failed."
                        ::= { csSsMtce 2 }


ssVsStatOBJECT-TYPE
                        SYNTAXDisplayString
                        MAX-ACCESSread-only
                        STATUScurrent
```

```
                        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
                        SYNTAXINTEGER(0..64)
                        MAX-ACCESS  read-only
                        STATUScurrent
                        DESCRIPTION "Number of purchased voice
                                    ports."
                        ::= { csSsVs 2 }

ssVsSvcvcprtOBJECT-TYPE
                        SYNTAXINTEGER(0..64)
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION "number of voice ports in
                                    service"
                        ::= { csSsVs 3 }

ssVsPurchrspchOBJECT-TYPE
                        SYNTAXINTEGER(0..2000)
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION "purchased hours of speech"
                        ::= { csSsVs 4 }
```

```
ssVsUsedhrspch OBJECT-TYPE
                        SYNTAXINTEGER(0..2000)
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION "used hours of speech"
                        ::= { csSsVs 5 }

ssVsPothrspch OBJECT-TYPE
                        SYNTAXINTEGER(0..2000)
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION "potential hours of speech"
                        ::= {csSsVs 6}

swInstPkgOBJECT-TYPE
                        SYNTAX SEQUENCE OF PkgInfo
                        MAX-ACCESSnot-accessible
                        STATUScurrent
                       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 intuity"
                        ::= { csSwInst 1 }

pkgInfo           OBJECT-TYPE
                        SYNTAX PkgInfo
                        MAX-ACCESSnot-accessible
```

```
                        STATUScurrent
                        DESCRIPTION"Info on package"
                        INDEX { pkgNumber }
                        ::= { swInstPkg 1 }

PkgInfo::=
                    SEQUENCE {
                        pkgNumberINTEGER,
                        pkgDescrDisplayString
                    }

pkgNumberOBJECT-TYPE
                        SYNTAXINTEGER(0..50)
                        MAX-ACCESSnot-accessible
                        STATUScurrent
                        DESCRIPTION"Index for package
description"
                    ::= { pkgInfo 1 }

pkgDescrOBJECT-TYPE
                        SYNTAXDisplayString
                        MAX-ACCESSread-only
                        STATUScurrent
                        DESCRIPTION"package description"
                    ::= { pkgInfo 2 }

displayCard OBJECT-TYPE
                    SYNTAX SEQUENCE OF CardStatus
                    MAX-ACCESSnot-accessible
                        STATUScurrent
```

```
                    DESCRIPTION   "table of entries with each
                                   entry corresponding to the
                                   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-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"entry for each card"
                    INDEX         { dsplCardNum }
                    ::= { displayCard 1 }

CardStatus ::=
                    SEQUENCE {
                        dsplCardNumINTEGER,
                        dsplInfoDisplayString
                    }

dsplCardNumOBJECT-TYPE
                    SYNTAX        INTEGER(0..24)
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"card number"
```

```
                    ::= { cardStatus 1 }

dsplInfoOBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"card information"
                    ::= { cardStatus 2 }


displayChan OBJECT-TYPE
                    SYNTAX SEQUENCE OF ChanStatus
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    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-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"entry for each channel"
                    INDEX        { dsplCsChanNum }
                    ::= { displayChan 1 }
```

```
ChanStatus ::=
                    SEQUENCE {
                              dsplCsChanNumINTEGER,
                              dsplCsChanInfoDisplayString
                    }

dsplCsChanNumOBJECT-TYPE
                    SYNTAX        INTEGER(0..1200)
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"chan number"
                    ::= { chanStatus 1 }

dsplCsChanInfoOBJECT-TYPE
                    SYNTAX        DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"chan info"
                    ::= { chanStatus 2 }

displaySvcs      OBJECT-TYPE
                    SYNTAX SEQUENCE OF Svcs
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"List of services provided on the
                                system. Info includes serial
                                number and service name"
                    ::= { csHwInst 3 }

svcs                OBJECT-TYPE
```

```
                    SYNTAX       Svcs
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION""
                    INDEX        { svcNum }
                    ::= { displaySvcs 1 }

Svcs ::= SEQUENCE {
                        svcNumINTEGER,
                        svcNameDisplayString
                      }

svcNum              OBJECT-TYPE
                    SYNTAX       INTEGER(0..50)
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"Service Name"
                    ::= { svcs 1 }


svcName             OBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Service Name"
                    ::= { svcs 2 }

displayDnisOBJECT-TYPE
                    SYNTAX SEQUENCE OF DnisAniSvcGp
                    MAX-ACCESSnot-accessible
```

```
                    STATUScurrent
                DESCRIPTION"display dnis an ani service
groups"
                ::= { csHwInst 4 }

dnisAniSvcGpOBJECT-TYPE
                SYNTAX       DnisAniSvcGp
                MAX-ACCESSnot-accessible
                    STATUScurrent
                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,
                          dnisEntryDisplayString
                }

dnisIdx         OBJECT-TYPE
                SYNTAX       INTEGER(0..100)
                MAX-ACCESSnot-accessible
                    STATUScurrent
                DESCRIPTION"Index for entries displayed"
                ::= { dnisAniSvcGp 1 }

dnisEntryOBJECT-TYPE
```

```
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Display dnis entry"
                    ::= { dnisAniSvcGp 2 }


dsplAssgnOBJECT-TYPE
                    SYNTAX SEQUENCE OF AssgnEntry
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"Table of assignments to channels
                              with channel number, service name
                              and startup service"
                    ::= { csHwInst 5 }

assgnEntryOBJECT-TYPE
                    SYNTAX       AssgnEntry
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"Entry for one channel "
                    INDEX        { dspChanNum }
                    ::= { dsplAssgn 1 }

AssgnEntry ::=
                    SEQUENCE {
                        dspChanNumINTEGER,
                        dspAssgnEntryDisplayString
                    }
```

```
dspChanNumOBJECT-TYPE
                    SYNTAX       INTEGER(0..1200)
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"Channel Number"
                    ::= { assgnEntry 1 }

dspAssgnEntryOBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Entry for Services assigned"
                    ::= { assgnEntry 2 }


hwMtce              OBJECT-TYPE
                    SYNTAX SEQUENCE OF HwInfo
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    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
                        SYNTAXHwInfo
                        MAX-ACCESSnot-accessible
                        STATUScurrent
```

```
                        DESCRIPTION ""
                        INDEX { dummyidx }
                    ::= { hwMtce 1 }

HwInfo              ::=
                      SEQUENCE {
                        dummyidxINTEGER,
                        hwChassisDisplayString,
                        hwInstMemDisplayString,
                        hwHd  DisplayString,
                        hwSerialDisplayString
                        }

dummyidxOBJECT-TYPE
                    SYNTAX       INTEGER(0..1)
                    MAX-ACCESSnot-accessible
                    STATUS       current
                    DESCRIPTION     "Dummy index since hwinfo is
                                     only one row"
                    ::= { hwInfo 1 }

hwChassis OBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Chassis type"
                    ::= { hwInfo 2 }

hwInstMem OBJECT-TYPE
```

```
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Installed memory"
                    ::= { hwInfo 3 }

hwHd                OBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Hard Drive Size and scsi id"
                    ::= { hwInfo 4 }

hwSerialOBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"Serial Card Installed or not"
                    ::= { hwInfo 6 }

hwVsOBJECT-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 }


vsEntryOBJECT-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 }


hwRaidExistsOBJECT-TYPE
```

```
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                    STATUS       current
                    DESCRIPTION"Does this system have RAID on it?
                               yes/no"
                    ::= { csHwInst 8 }

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

hwRaidStatOBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                    STATUS       current
                    DESCRIPTION"Display RAID drive status
                               logical, physical"
                    ::= { csHwInst 10 }

displayServer OBJECT-TYPE
                    SYNTAX SEQUENCE OF ServerStatus
                    MAX-ACCESSnot-accessible
                        STATUScurrent
                    DESCRIPTION"table of entries with each entry
                               corresponding to description of
```

```
                                    each server/managed object on the
                                    system. Info is same as output of
                                    display server.  Output includes
                                    server number, name, type, state,
                                    and address."
                        ::= { csHwInst 11 }

serverStatus OBJECT-TYPE
                        SYNTAX       ServerStatus
                        MAX-ACCESSnot-accessible
                            STATUScurrent
                        DESCRIPTION"entry for each server"
                        INDEX        { dsplServerNum }
                        ::= { displayServer 1 }

ServerStatus ::=
                        SEQUENCE {
                            dsplServerNumINTEGER,
                            dsplServerInfoDisplayString,
                            dsplServerTextDisplayString
                        }

dsplServerNumOBJECT-TYPE
                        SYNTAX       INTEGER(0..24)
                        MAX-ACCESSnot-accessible
                            STATUScurrent
                        DESCRIPTION"server number"
                        ::= { serverStatus 1 }

dsplServerInfoOBJECT-TYPE
```

```
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"server information"
                    ::= { serverStatus 2 }

dsplServerTextOBJECT-TYPE
                    SYNTAX       DisplayString
                    MAX-ACCESSread-only
                        STATUScurrent
                    DESCRIPTION"additional server information"
                    ::= { serverStatus 3 }


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 i
    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 {
       csAlarmIndexINTEGER (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 }


-- Commands that control voice system, card, span, channel and
the
-- whole system etc.
csCommands OBJECT IDENTIFIER ::= { platformMIB 6 }

voiceSysCMDs OBJECT-TYPE
                SYNTAX          DisplayString
                MAX-ACCESS      read-write
                    STATUS      current
                DESCRIPTION     "When used with SET, valid value
                                is either start_vs or stop_vs.
                                When being queried, information
                                about the previous start_vs or
                                stop_vs command is displayed."
                  ::= { csCommands 1 }

cardMgCMDsOBJECT IDENTIFIER ::= { csCommands 2 }
```

```
channelMgCMDs      OBJECT IDENTIFIER ::= { csCommands 3 }
spanMgCMDs      OBJECT IDENTIFIER ::= { csCommands 4 }
busMgCMDs OBJECT IDENTIFIER ::= { csCommands 5 }

systemCMDsOBJECT-TYPE
                SYNTAX          DisplayString
                MAX-ACCESS      read-write
                    STATUS      current
               DESCRIPTION     "When used with SET, valid value
is either
                                reboot or shutdown. When being
queried,
                               information about the previous
command is
                               displayed."
                  ::= { csCommands 6 }


-- cardMgCMDs: removeCard, restoreCard, attachCard, detachCard,
diagnoseCard

-- removeCard
removeCard OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS      read-write
                    STATUS      current
                DESCRIPTION     "When used with SET, valid value
                               is a positive integer
                               representing the card number,
                               with optional immed option, and
                               the card number being SET will be
```

```
                                    removed. When being queried,
                                    information about the previous
                                    remove card command is
                                    displayed."
                    ::= { cardMgCMDs 1 }


-- restoreCard
restoreCard OBJECT-TYPE
                      SYNTAX          DisplayString
                  MAX-ACCESS       read-write
                      STATUS       current
                 DESCRIPTION      "When used with SET, valid value
                                  is a positive integer
                                  representing the card number,
                                  with optional immed option, and
                                  the card number being SET will be
                                  restored. When being queried,
                                  information about the previous
                                  restore card command is
                                  displayed."
                    ::= { cardMgCMDs 2 }


-- attachCard
attachCard OBJECT-TYPE
                      SYNTAX          DisplayString
                  MAX-ACCESS       read-write
                      STATUS       current
                 DESCRIPTION      "When used with SET, valid value
                                  is a positive integer
```

```
                                    representing the card number,
                                    and the card number being SET
                                    will be attached. When being
                                    queried, information about
                                    the previous attach card command
                                    is displayed."
                    ::= { cardMgCMDs 3 }

-- detachCard
detachCard OBJECT-TYPE
                    SYNTAX DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                   DESCRIPTION     "When used with SET, valid value
                                    is a positive integer
                                    representing the card number,
                                    and the card number being SET
                                    will be detached. When being
                                    queried, information about
                                    the previous detach card command
                                    is displayed."
                    ::= { cardMgCMDs 4 }


-- diagnoseCard
diagnoseCard OBJECT-TYPE
                    SYNTAX DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                   DESCRIPTION     "When used with SET, valid value
```

```
                                    is a positive integer
                                    representing the card number,
                                    and the card number being SET
                                    will be diagnosed. When being
                                    queried, information about
                                      the previous diagnose card
                                    command is displayed."
                    ::= { cardMgCMDs 5 }


-- channelMgCMDs: removeChannel, restoreChanell

-- removeChannel
removeChannel OBJECT-TYPE
                    SYNTAX          DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                    DESCRIPTION     "When used with SET, valid value
                                    is a positive integer
                                    representing the channel number,
                                    and the channel number being SET
                                    will be removed. When being
                                    queried, information about
                                     the previous remove chan command
                                    is displayed."
                    ::= { channelMgCMDs 1 }

-- restoreChannel
restoreChannel OBJECT-TYPE
                    SYNTAX          DisplayString
```

```
                    MAX-ACCESS      read-write
                        STATUS      current
                    DESCRIPTION     "When used with SET, valid value
                                    is a positive integer
                                    representing the channel number,
                                    and the channel number being SET
                                    will be restored. When being
                                    queried, information about
                                    the previous restore chan command
                                    is displayed."
                    ::= { channelMgCMDs 2 }


-- spanMgCMDs: removeSpan, restoreSpan

-- removeSpan
removeSpan OBJECT-TYPE
                    SYNTAX          DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                    DESCRIPTION     "When used with SET, valid value
                                    is a positive integer followed
                                    by a dot, then another integer,
                                    representing the span number,
                                    and the span number being SET
                                    will be removed. When being
                                    queried, information about
                                     the previous remove span command
                                    is displayed."
```

```
                    ::= { spanMgCMDs 1 }

restoreSpan OBJECT-TYPE
                    SYNTAX          DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                    DESCRIPTION     "When used with SET, valid value
                                    is a positive integer followed
                                    by a dot, then another integer,
                                    representing the span number,
                                    and the span number being SET
                                    will be restored. When being
                                    queried, information about
                                    the previous restore span command
                                    is displayed."
                    ::= { spanMgCMDs 2 }


-- busMgCMDs: diagnoseBus
diagnoseBus     OBJECT-TYPE
                    SYNTAX          DisplayString
                    MAX-ACCESS      read-write
                        STATUS      current
                    DESCRIPTION     "When used with SET, valid value
                                    is a positive integer
                                    representing the bus number, and
                                    the bus number being SET will be
                                    diagnosed. When being queried,
                                    information about the previous
                                    diagnose bus command is
```

```
                                        displayed."
                                ::= { busMgCMDs 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 UCS 1000 R4.6. The system 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 UCS 1000 R4.6 has a 4-Gbyte tape drive. The tape drive supports hardware compression, which allows you to store 8-GB of data on a 4-GB cartridge tape.

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

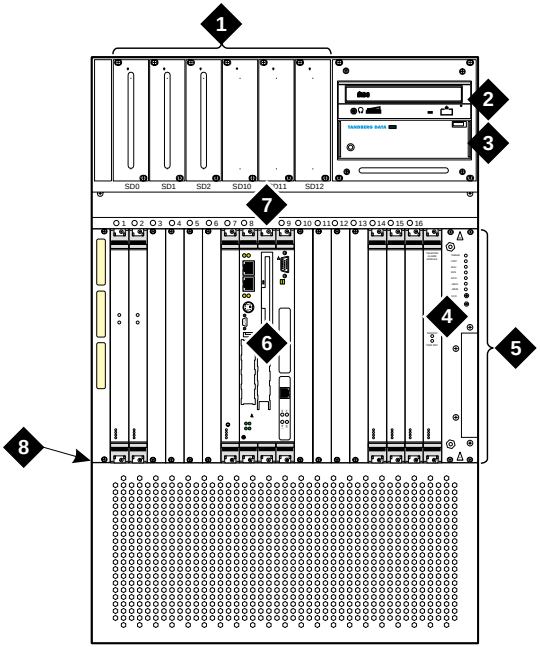
This section details the procedures for inserting and removing cartridge tapes from a 4-Gbyte tape drive.

Inserting the Cartridge Tape

To insert a 4-Gbyte cartridge tape:

1 Locate the tape drive on the front of the platform (Figure 37 on page 175).

Figure 37. Front View of the Platform



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

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.

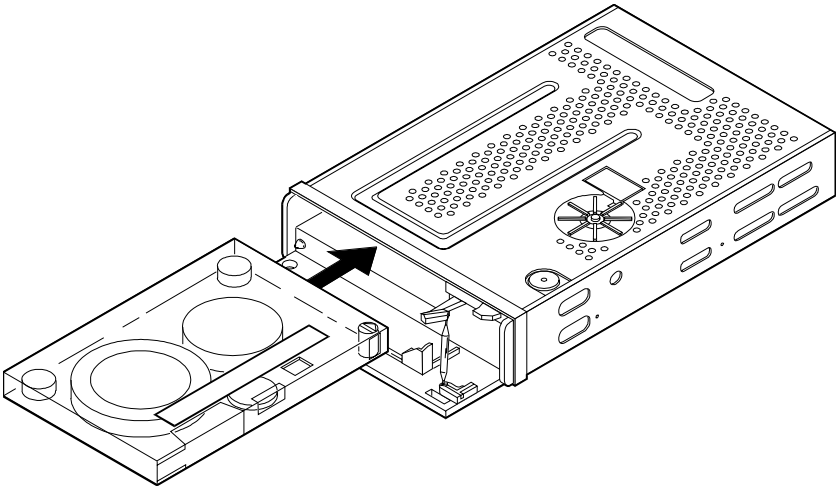
3 Complete step a through step c to insert the tape in the drive.

   a Press the button on the upper right corner of the drive to open the drive door.

   b Insert the tape (Figure 38 on page 177).

   c Close the door to push in the tape.

Figure 38. 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:

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 UCS 1000 R4.6.

Types of Diskettes

The UCS 1000 R4.6 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:

1. Locate the diskette drive on the front of the CompactPCI (Figure 37 on page 175).
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:

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

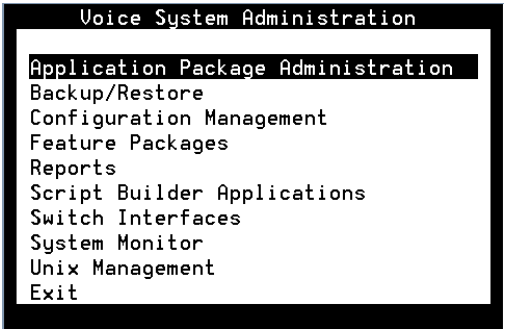
Formatting Diskettes

To format a diskette:

1 Enter **cvis_menu**.

The system displays the Voice Administration menu (Figure 39).

Figure 39. Administration Menu

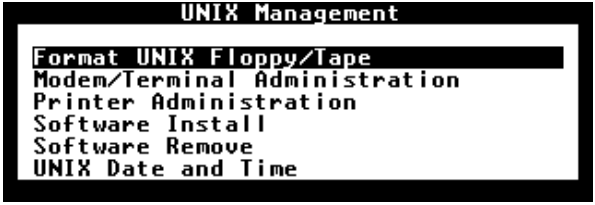


2 Select:

```
> UNIX Management
```

The system displays the Unix Management menu (Figure 40).

Figure 40. Unix Management Menu



3 Verify that the diskette is not write-protected and insert the diskette into the disk drive.

4 Select:

```
> Format UNIX Floppy/Tape
```

5 The system displays the Format UNIX Floppy/Tape menu (Figure 41 on page 182).

Figure 41. Format UNIX Floppy/Tape 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 UCS 1000 R4.6 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 on page 183 for the procedures.
- Perform a full backup using the BRU tool. See Backing Up the System Using BRU on page 188 for the procedures.

Creating a Disaster Recovery Tape

To use QuickStart to create a disaster recovery tape or baseline your system:

1. Log in as root.
2. Insert the diskette labeled “QuickStart Data Rescue” into the diskette drive.
3. Type **shutdown -i6 -g0 -y**

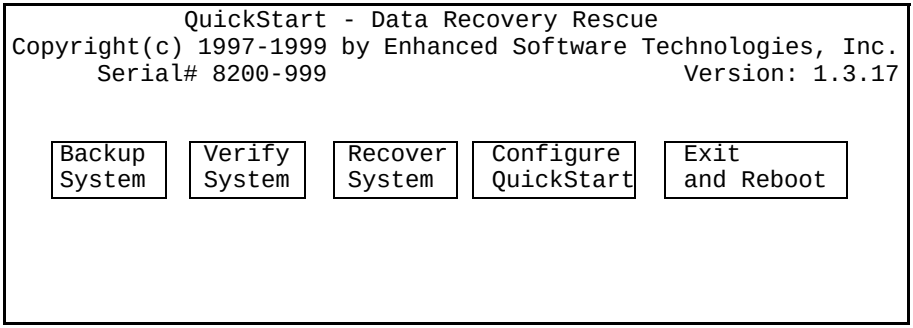
   The system reboots from the QuickStart diskette and displays the following message:

```
Detecting devices.
```

After a few minutes, the system displays the QuickStart Data Rescue screen (Figure 42).

Use **TAB** to move between the buttons.

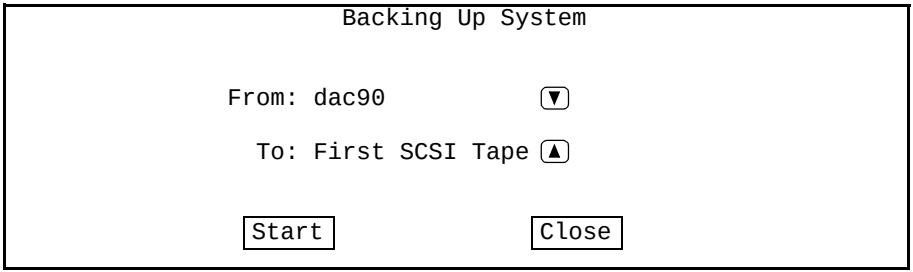
Figure 42. QuickStart Data Rescue Screen



4 Select `Backup System` and then press **ENTER**.

The system displays the Backing Up System screen (Figure 43 on page 185).

Figure 43. Backing Up System Screen



5 Label the cartridge tapes "UCS 1000 R4.6 Disaster Recovery Tape *x* (QuickStart) *date*", where *x* indicates the insertion sequence, **QuickStart** is the utility used to make this tape, and *date* is the current date.

6 Insert the first tape to be used for backup into the cartridge tape drive.

7 In the `From:` field, select `dac90`.

Use the ▲ and ▼ keys to move through the field selections. Use **TAB** to move between the fields and buttons.

8 In the `To:` field, select `First SCSI Tape Drive`.

Use the ▲ and ▼ keys to move through the field selections. Use **TAB** to move between the fields and buttons.

9 Press the **TAB** key to highlight the Start button, and then press **ENTER**.

The system displays the following message:

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

       Continue         Cancel
```

10 Select `Continue`.

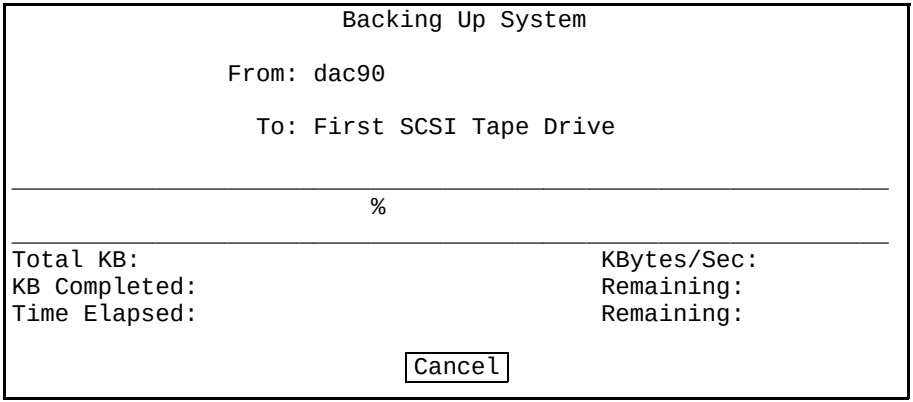
The system displays the following message.

```
Automatically verify archive?

       Yes   No
```

11 Select **Yes** to automatically verify the backup tape. If you do not verify the QuickStart tape at the time of the backup, see Backing Up the System Using mkimage on page 200.

The system displays the Backing Up System status window (Figure 44 on page 187).

Figure 44. Backing Up the System Status Window



When the procedure is complete, the system displays the following message:

```
Backup Completed
Time Elapsed:
KBytes/Sec:
```

12 Press **ENTER**.

The system displays the QuickStart main menu.

13 Remove the QuickStart boot diskette from the diskette drive.

14 Select `Exit and Reboot` to reboot the UCS 1000 R4.6 system.

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:

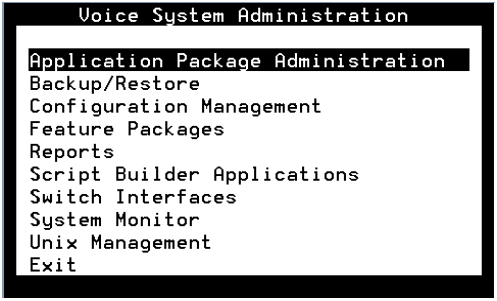
- Estimate - this determines how much has changed since the last backup.
- Backup - this is the actual backup performance.

To perform a Full UNIX-level backup:

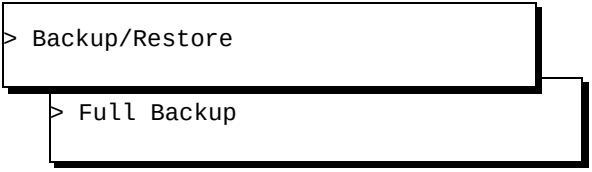
1. Starting at the administration menu (Figure 39 on page 180), select Voice System Administration.

The system displays the Voice System Administration Menu (Figure 45):

Figure 45. Voice System Administration Menu



2 Select:



The system displays the Full Backup menu (Figure 46):

Figure 46. Full Backup Menu

3 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 Full Backup estimate...

bru:1volume 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 46 on page 191).

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 on page 198 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.

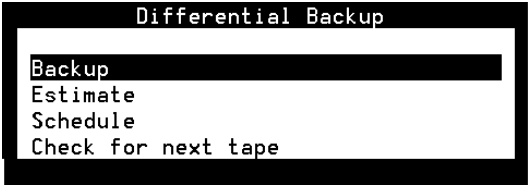
To perform a Differential UNIX-level backup:

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:

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

The system displays the Differential Backup menu (Figure 47):

Figure 47. Differential Backup Menu



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:1volume xxxxx 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 47 on page 193).

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 on page 198 for the procedure.

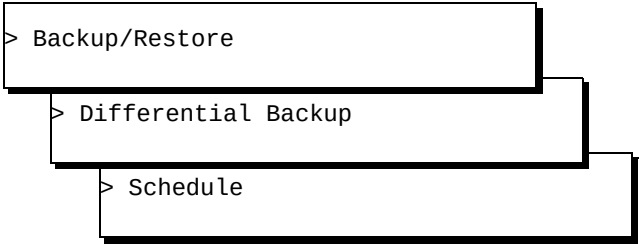
Scheduling a Differential UNIX-Level Backup

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:

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



The system displays the Differential Backup Schedule window (Figure 48).

Figure 48. Differential Backup Schedule Window

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 47 on page 193).

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

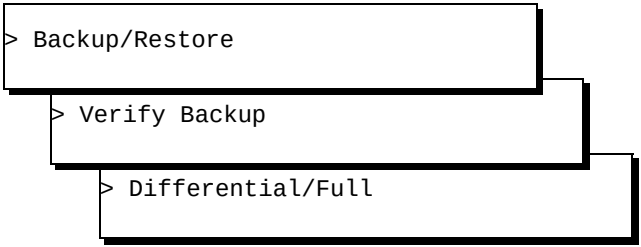
Verifying the BRU Backup

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:

1. Insert the backup tape into the tape drive.
2. Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



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 *UCS 1000 R4.6 Administration*, 585-313-509, for additional information about the **mkimage** command.

Performing a mkimage Backup

To conduct a full system backup using **mkimage**:

1. Log in as root.
2. Stop the voice system. See Stopping the Voice System on page 238 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 on page 201.

Backing Up the Root File System

To back up the root file system:

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 'Voice System 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 "Voice System Image Tape X", where "X" indicates the insertion sequence. Also include the current date on the label.

4 Insert the cartridge tape labeled “Voice System Image Tape 1” into the cartridge tape drive.

5 Press **ENTER**.

The system takes approximately one hour per 1-GB to load the information onto one cartridge tape. For a 4-GB tape, the system could take four hours.

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 “Voice System Image Tape 1” from the cartridge tape drive.

b Insert the cartridge tape labeled “Voice System 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 "Voice System 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 on page 205 procedure.

If your system has only one disk, continue with the Verifying the mkimage Backup on page 208 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 'Voice System 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:

1. Label the appropriate number of cartridge tapes.

   Label the tapes "Voice System Speech Tape X" where "X" indicates the insertion sequence. Also include the current date on the label.

2. Insert the cartridge tape labeled “Voice System Speech Tape 1” into the cartridge tape drive.

3. Press **ENTER**.

   The system takes approximately one hour per 1-GB to load the information onto one cartridge tape. For a 4-GB tape, the system could take four hours.

   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 “Voice System Speech Tape 1” from the cartridge tape drive.

   b. Insert the cartridge tape labeled “Voice System 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 "Voice System 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 on page 208 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:

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 Voice System 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 system 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:

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:

```
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:

1 Enter **cd /speech/talk**

2 Enter **ls**

The system displays a message similar to the following:

```
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:

```
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:

1 Enter **cd *lsave 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:

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 **tblsav *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 **tblsav** command can be found by entering **tblsav**, without any additional arguments, on the system. See *UCS 1000 R4.6 Administration*, 585-313-509, 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 back up speech files:

Note: The following procedure applies when you are backing up speech files to a Windows NT or Windows 95 system.

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

1. From a DOS prompt on the system, 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 on page 209.

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 on page 210.

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 back up database tables:

1. From a DOS prompt on the system, 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 on page 211.

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 on page 211.

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:

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.

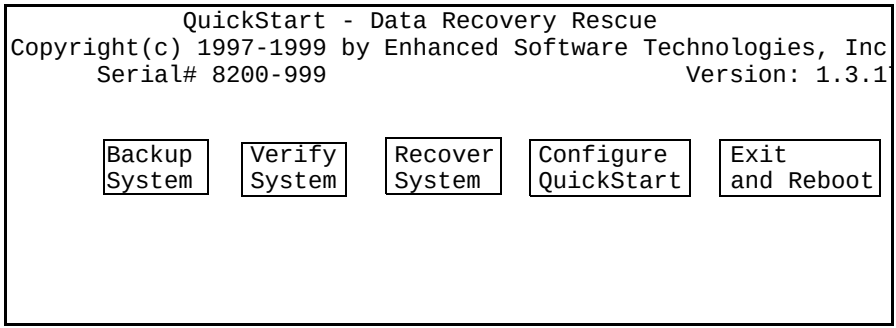
4 Press **ENTER**.

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 49).

Figure 49. QuickStart Data Rescue Screen

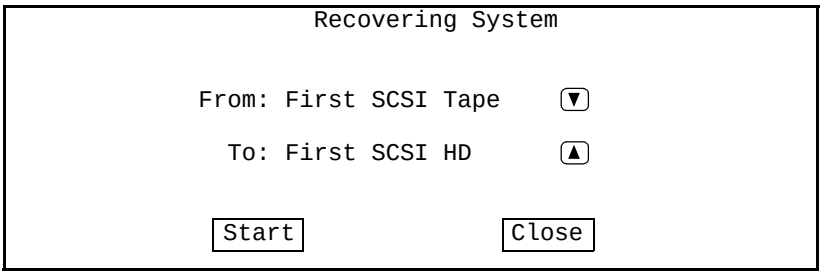


5 Use the **TAB** and **Shift+TAB** keys to move between the selection buttons.
Use the **SPACEBAR** or **ENTER** keys to activate your selection.

6 Select `Recover System`.

The system displays the Recovering System screen (Figure 50).

Figure 50. 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`.

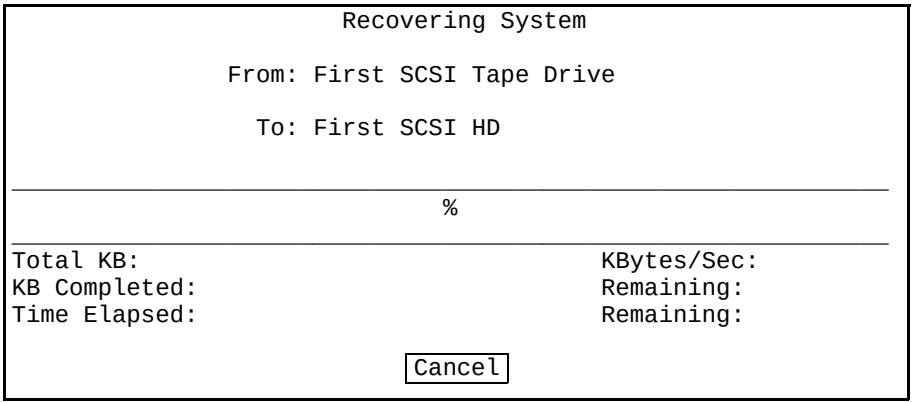
The system displays the following message:

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

11 Select `Continue`.

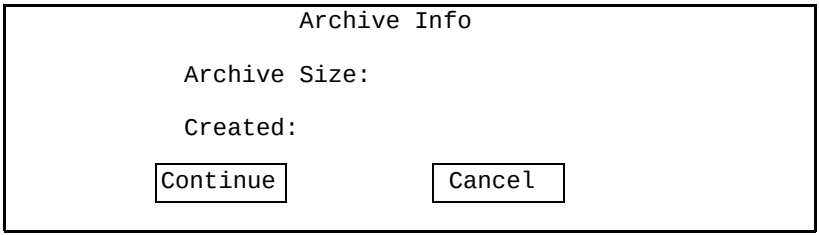
The system displays the Recovering System screen (Figure 51).

Figure 51. Recovering System Screen



After the system reads the tape header, it displays the Archive Info screen (Figure 52).

Figure 52. Archive Info Screen

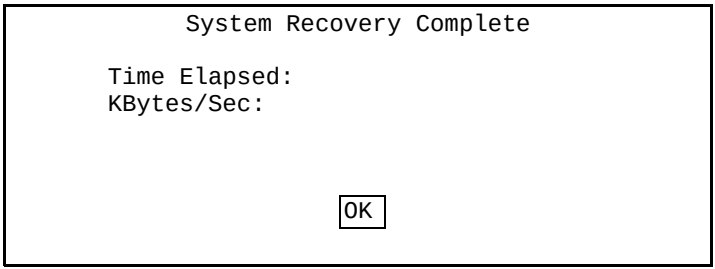


12 Select `Continue`.

The system displays the Recovering System screen (Figure 51 on page 220), 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 53).

Figure 53. System Recovery Complete Screen



13 Select OK.

The system displays the QuickStart Data Rescue screen (Figure 42 on page 184).

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 UCS 1000 R4.6.

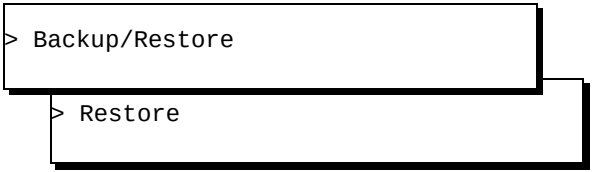
Restore the System Using BRU

Once you have 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:

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



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:

```
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.

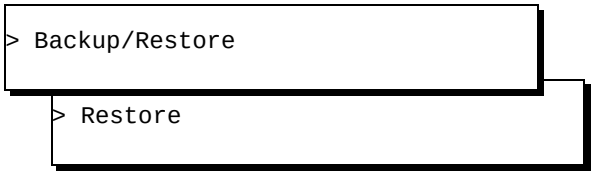
5 Continue with Performing a Differential Restore on page 225.

Performing a Differential Restore

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

To perform a Differential Restore:

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



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 “Differential Backup Created [*latest date available*].”

The system displays a message similar to the following:

```
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:

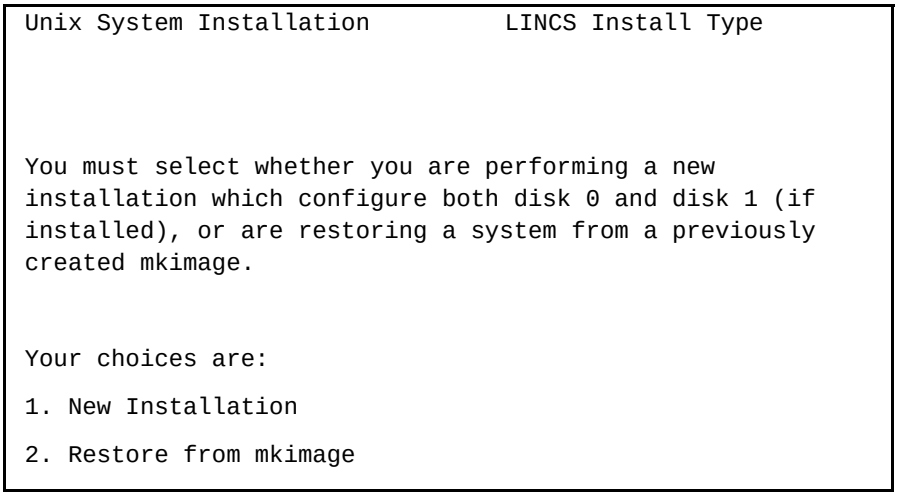
1 From Chapter 5, “Installing Base System Software,” in *UCS 1000 R4.6 Maintenance*, 585-313-154, use the following procedures:

a “Beginning the UnixWare Installation”

b “Setting Up the UnixWare Environment”

When the system displays the Install Type screen (Figure 54), continue with *this* restore procedure.

Figure 54. Install Type Screen



2 Insert your system backup cartridge tape labeled “UCS 1000 R4.6 Image Tape 1” into the tape drive.

3 Enter **2**

The system displays the Insert Tape screen (Figure 55).

Figure 55. 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 56) after retensioning the tape.

Figure 56. 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 “UCS 1000 R4.6 Image Tape 1” from the tape drive.

6 Press **ENTER**.

The system reboots.

7 Reboot the system. See the Rebooting the UNIX System on page 243 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 *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

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 on page 245 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 on page 244 for the procedure.

5 Start the voice system. See Starting the Voice System on page 235 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:

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 on page 209.

2 On the system, 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 on page 209.

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 on page 210.

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 system 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 system 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 on page 209.

Restoring Database Tables

To restore database tables:

1 On the system, 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 on page 211.

5 Enter **lcd *backup directory***

where *backup directory* is the directory on the system 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 system.

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

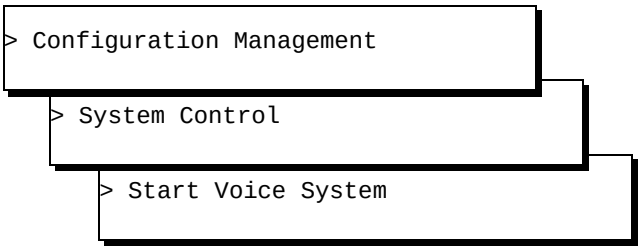
Starting the Voice System

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

Using the System Windows

To start the voice system using the system windows:

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



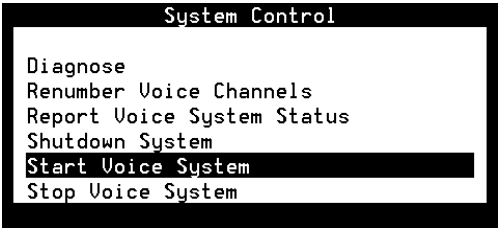
The system displays the following messages:

```
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 57).

Figure 57. System Control Menu



Using the Command Line

To start the voice system using the command line:

1 Enter **start_vs**

The system displays a message such as the following:

```
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.

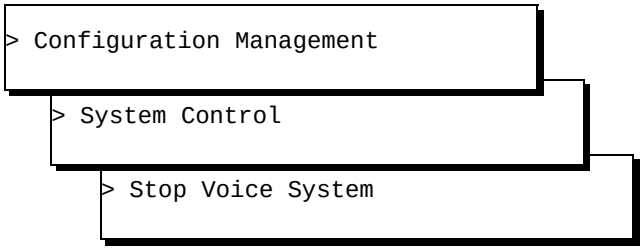
The voice system can be stopped from either the windows or the command line.

Using the System Windows

To stop the voice system using the system windows:

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

1 Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



The system displays the Wait Time window (Figure 58).

Figure 58. 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 57 on page 237).

Using the Command Line

To stop the voice system using the command line:

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.

Administering the Operating System

The process of 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:

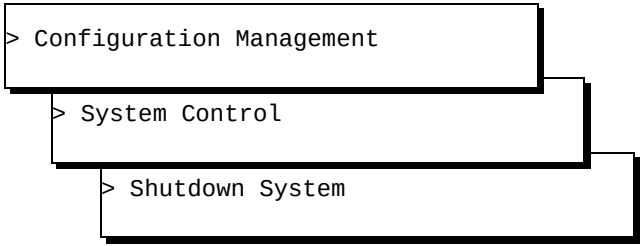
- Using the system windows
- Using the command line

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

To shut down the operating system:

1. Stop the voice system. See Stopping the Voice System on page 238.
2. Starting at the Voice System Administration Menu (Figure 45 on page 190), select:



   The system displays the Wait Time window (Figure 58 on page 239).

3. Enter a number between 0 and 60.

   This is the number of seconds you want the system to wait for all users to log off before shutting down the voice system.

4. Press **F3** (Save).

   The system displays the following messages:

   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:

1. Stop the voice system. See Stopping the Voice System on page 238.
2. Enter **shutdown -i0 -y -g0**

Rebooting the UNIX System

To reboot the UNIX system:

1. Stop the voice system. See Stopping the Voice System on page 238 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:

1 Enter **/oracle/bin/ior w**

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

```
ORACLE instance started.
Total System Global Area      59461008 bytes
Fixed Size                    64912 bytes
Variable Size                 55128064 bytes
Database Buffers              4096000 bytes
Redo Buffers                  172032 bytes
Database mounted.
Database opened.
```

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:

1. If the voice system is still running, perform Stopping the Voice System on page 238.
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/ior c**

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.

To drop a database table:

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 on page 244 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 on page 245 for the procedure.

c Start the database. See Starting the Database System on page 244 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:

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

1 Stop the voice system. See Stopping the Voice System on page 238 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 on page 235 for the procedure.

Verifying the Date and Time

Checking the Date and Time Window

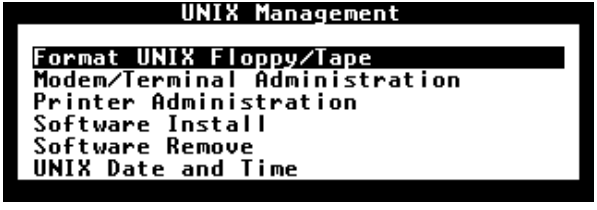
To check the date and time:

1 Starting at the Voice Administration menu (Figure 39 on page 180), select:

```
> UNIX Management
```

The system displays the Unix Management menu (Figure 59).

Figure 59. Unix Management Menu

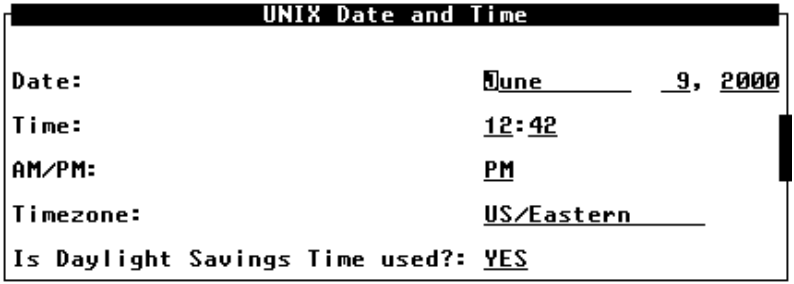


2 Select:

```
> UNIX Date and Time
```

The system displays the UNIX Date and Time window (Figure 60).

Figure 60. UNIX Date and Time Window



3 Check each of the fields.

4 If all of the fields are correct, press **F3** (Save).

If a field contains incorrect information, continue with Changing the Date and Time on page 251.

Changing the Date and Time

To change the date and time, start at the UNIX Date and Time window (Figure 60 on page 250) and perform the following procedures.

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.
4. 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 on page 252.

   If the year shown is correct, press **`Tab`** for no change and to move to the `Time:` field. Continue with Changing the Time Field on page 252.

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 on page 252.

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 on page 252.

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 on page 253.

If `AM/PM:` is correct as shown, **`Tab`** to move to the `Timezone:` field. Continue with Changing the Timezone Field on page 253.

Changing the Timezone Field

If the time zone shown is not correct, complete step 1 through step 3 and continue with Changing the Is Daylight Savings Time in Effect Field on page 254.

1. Press **F2** (Choices) to display the list of time zones (Figure 61).

Figure 61. UNIX Time Zone Choices Menu

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 on page 254.

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

To change 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.

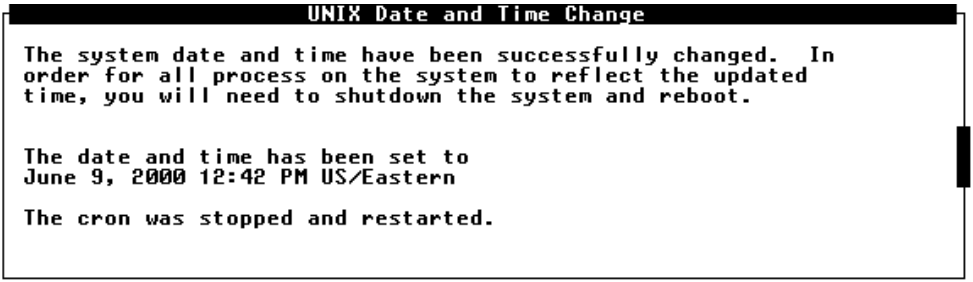
Acknowledging the Changes to the Date and Time Window

After the changes have been made to the UNIX Date and Time window, the user must ensure that the system recognizes the new information.

To acknowledge the new information:

1. Once you press F3 (Save) to save and record all the changes you made in the window, the system responds with the UNIX Date and Time Change window (Figure 62 on page 255).

Figure 62. UNIX Date and Time Change Window



2 Reboot the system. See Rebooting the UNIX System on page 243 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 on page 249 to ensure that the changes have been correctly recorded.

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 **fchk** 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 `Configuration Management` 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 UCS 1000 R4.6 software package. See Chapter 7, "Installing the Optional Feature Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154.
3. Remove any software package that is incompatible and install the proper version. See Chapter 7, "Installing the Optional Feature Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

CGEN002

Alarm Level: Major.

Description: The voice 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 Unixware documentation 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 UnixWare documentation 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Administration*, 585-313-509.
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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 *UCS 1000 R4.6 System Description*, 585-313-222, for channel maximums.

2 Renumber the voice channels. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

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 UCS 1000 R4.6 Software Package. See Chapter 6, "Installing the UCS 1000 R4.6 Software" in *UCS 1000 R4.6 Maintenance*, 585-313-154.
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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 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:
   - Call Classification Analysis

- ISDN Primary Rate Interface Package
- Speech Recognition Package - US English
- Text-to-Speech Package
- FlexWord Recognition Package

2. Use pkgrm command to remove the ASP Driver Package.
3. Reinstall the UCS 1000 R4.6 Software Package. See Chapter 6, "Installing the UCS 1000 R4.6 Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154.
4. If the problem persists, reinstall the ASP driver. See "Installing the ASP Driver," in Chapter 7, "Installing the Optional Feature Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154.
5. Reinstall all of the other packages removed in step 1. See Chapter 7, "Installing the Optional Feature Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 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.

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 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.

Note: A DB001 alarm is generated if the CALL, SERVICE, and EVENTS Call Data Handling (CDH) database tables are empty. In this case, this condition causes no harm and can be ignored.

- .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 that the error was logged will not be correct.
- If the source is CDH_Summary, the nonCCA traffic data reports for the date that 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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 DB002 Application Developer Notes on page 296.

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 on page 296.

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 *UCS 1000 R4.6 Administration*, 585-313-509.

5 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.

6 If the database system started successfully but the problem persists, do the following:

a Stop the voice system.

b Drop the database.

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.

DB002 Application Developer Notes

1 Check the application and make sure that the application refers to the correct table name.

2 Make sure the table is read before an attempt is made to modify it.

3 If the application refers to a wrong table, change the application.

4 If the application is correct, restore the application table from the backup. If no backup is available, recreate the application table.

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, recreate 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 on page 299.

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 on page 302.

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 *UCS 1000 R4.6 Administration*, 585-313-509.
2. If the maximum number of extents is reached, perform the "Redefining the Database Table Storage" procedure in Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
3. Perform the "Checking the Database Free Space" procedure in Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
4. If the database is running out of free space, do the following:
   a. See Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509, 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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 *UCS 1000 R4.6 Administration*, 585-313-509.
2. If the maximum number of extents is exceeded, perform the "Redefining the Database Table Storage" procedure in Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
3. Perform the "Checking the Database Free Space" procedure in Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
4. If database is running out of free space, do the following:
   a. See Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509, 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 *UCS 1000 R4.6 Administration*, 585-313-509.

2. Perform the repair procedure for system message DB011 on page 307.

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 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/ldbdip.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 to 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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/ldbdip.rc** file. Make sure the **FIRST_TMOUT** and **SECOND_TMOUT** values are not less than 10 seconds.

   See Chapter 5, "Database Administration," in *UCS 1000 R4.6 Administration*, 585-313-509, 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/ldbdip.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 on page 313.
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 **vdf** 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 **vdf** 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 **vdf** 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

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).

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 *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 operate the UCS 1000 R4.6 without both power supplies in place.

See “Replacing the Power Supply,” in Chapter 4, “Replacing Other Components,” in the *UCS 1000 R4.6 Maintenance*, 585-313-154, 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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:

   ```
   drwxrxrx 3 root bin 64 Dec 30 12:11 /vs/etc
   ```

2. If the mode is not `drwxrxrr`, 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 or span, previously recognized to be present in the system, cannot be located. Call processing may be impaired.

Repair Procedure:

- If the card or span has been removed and is not going to be replaced, renumber the voice channels. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
- If the card or span has been removed and is going to be replaced, disregard the message.
- If the card or span has not been removed, verify that the card or span is set up correctly. See Chapter 2, "Installing or Replacing Circuit Cards," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

INIT003

Alarm Level: None.

Description: The identified card or span has been added to the system. The card or span 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 the card name for the voice system 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

INIT007

Alarm Level: Major.

Description: The unassigned protocol has been assigned to the span. The identified span has been re-assigned to the unassigned protocol. The reason for the reassignment is indicated in the reason field of the message. The span should be re-administered.

Repair Procedure: If the reason is:

```
Channels in D-channel group <group number> are not
contiguous. Span <span number> unassigned.
```

the cards in the PRI D-channel group must be made contiguous. See Chapter 4, "Switch Interfaces," in *UCS 1000 R4.6 Administration*, 585-313-509.

INIT008

Alarm Level: None.

Description: Channels have been renumbered as a result of a change in configuration.

Repair Procedure: This event occurs when the channel numbers are no longer contiguous, such as might occur in the following cases:

- When a span has been added or removed from a Quad circuit card
- When a T1/E1 or Quad circuit card is inserted between two existing T1/E1 or Quad cards
- When a card in the system has been replaced by another card of the same class, but with a different card name

Re-administer the circuit cards. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

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 is your remote maintenance center activates it.

Repair Procedure: Renumber the voice channels. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 UCS 1000 R4.6 software. See Chapter 6, "Installing the UCS 1000 R4.6 Software," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

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 on page 24 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 on page 24 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 INSERV 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 INSERV, 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 on page 346.

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.

Note: If text files for LSPS Text-to-Speech contain non-printable characters, an LSPSIP008 event will be generated at run time, and the TTS request will fail.

Repair Procedure: Follow the repair procedures for LSPSIP006 on page 349.

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 on page 349.

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.

LSPSIP014

Alarm Level: Major.

Description: The indicated LSPS II board has been taken out of service, for the reason displayed in the message. The board will be diagnosed; if it passes diagnostics, it is placed back in service. Otherwise, it is placed in the BROKEN state.

Repair Procedure:

1. If the card has remained in the BROKEN state, check the circuit card.
2. If the card remains in the BROKEN state, reinstall the LSPS II circuit card driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

LSPSIP015

Alarm Level: Minor.

Description: The resource requested from the LSPS board is not available.

Repair Procedure: Check the Resource Manager usage files and verify that the numbers there do not conflict with the numbers assigned with the **mkboardtype** command.

MTC Alarms and Log Messages

MTC002

Alarm Level: None.

Description: The identified channel, card, or span has had a state transition as the result of an external condition.

Repair Procedure: No corrective action is necessary.

MTC003

Alarm Level: Major.

Description: The identified channel, card, or span has had a state transition. The channel, card, or span state has been changed to BROKEN. Applications dependent on this channel, card, or span 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 channel, card, or span does not come up in the BROKEN state. See Chapter 3, "Voice System Administration," of *UCS 1000 R4.6 Administration*, 585-313-509.
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.

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 on page 339 first.

This message occurs until the problem causing the INIT006 message is cleared. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509, 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 **pkginfo**

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 *UCS 1000 R4.6 Maintenance*, 585-313-154, for information on installing software. See Chapter 3, "Voice System Administration" in *UCS 1000 R4.6 Administration*, 585-313-509, for information on card assignments.

3 Change the assignment of the card to the defaults of play+code. See Chapter 3, "Voice System Administration" in *UCS 1000 R4.6 Administration*, 585-313-509, for information on assigning functions to SSP card.

4 Diagnose the card by completing step a through step c:

a Enter **diagnose card *card number***

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

b If the card passes diagnostics, re-administer the original functions on the card. See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

c Try to place it into service by entering

restore card *card number*

where *card number* is the card number of the card you want to restore to service.

MTC010

Alarm Level:

Description: The telephony bus *bus number* 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 that the cards are properly seated.

2 Check for bent pins on the card or slot.

3 If the problem persists, then a card or slot is causing the problem. If a card is marked BROKEN, try inserting the card into a different slot to see if the problem migrates with the card of slot.

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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

MTC011

Alarm Level: None.

Description: The telephony bus *bus number* 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 telephony bus *bus number*.

Repair Procedure: No corrective action is necessary.

MTC014

Alarm Level: Critical.

Description: Failed to make a card primary master of the telephony bus. There are currently no cards in the system that can be made the primary master of the bus. All E1/T1 or Quad cards are either marked BROKEN or have been detached (NONEX).

Repair Procedure: If the E1/T1 or Quad cards are in the BROKEN state, do the following:

1. Diagnose the cards. You can enter **diagnose card *card number*** where *card number* is the card number of the card.
2. If the cards remain in the BROKEN state, ensure that the card has been inserted properly.

If the cards are NONEX, enter **attach card *card number*** where *card number* is the card number of the E1/T1 or Quad card.

MTC015

Alarm Level: None.

Description: Failed to make a board secondary master of the telephony bus.

Repair Procedure: No corrective action is necessary.

MTC016

Alarm Level: Critical.

Description: Error determining the ***master*** masters clock source.

Repair Procedure:

1. Stop the voice system.
2. Start the voice system.
3. If the problem persists, reboot the system.

MTC017

Alarm Level: Major.

Description: The mtc process has respawned.

Repair Procedure:

1. Stop the voice system.
2. Start the voice system.
3. If the problem persists, contact your remote maintenance field support.

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 digital network-interface 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 and span number that matches the *equip #* value in the alarm message, or that has the same D-channel group ID as the circuit card that reports the alarm.

The D-channel state can be INSERV (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 INSERV, 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.

a Look for any TWIP messages in the system message log that indicate a T1/E1 failure for the associated T1/E1 or Quad circuit card and span that was obtained in step 1.

b Follow the recommendations for any of these messages in order to restore the T1/E1 or Quad card to service.

c The D-channel status should be checked at the terminating switch and any associated switch problems should be resolved.

d 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 or Quad interface, or system-wide problem. If this alarm occurs frequently or repeatedly, then it is a T1/E1 or Quad 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 17 on page 371 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 17. 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

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Table 17. PRI007 Error Types

Error Type	Error Value	Meaning
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
CV_NETFAIL	38	Network out of order
CV_TFAIL	41	Temporary failure
CV_SEC	42	Switching equipment congestion
CV_UID	43	User information discarded

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Table 17. PRI007 Error Types

Error Type	Error Value	Meaning
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_BCNPA	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
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

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Table 17. PRI007 Error Types

Error Type	Error Value	Meaning
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_ROTE	102	Recovery on timer expiry
CV_IOCU	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
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

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Table 17. PRI007 Error Types

Error Type	Error Value	Meaning
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
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

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Table 17. PRI007 Error Types

Error Type	Error Value	Meaning
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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PRI008

Alarm Level: None.

Description: The ISDN PRI firmware has reported an event that may be useful for debugging or for explaining subsequent errors. This does not necessarily indicate an error.

Repair Procedure: No corrective action is necessary.

RAID Alarms

RAID001

Description:

The physical disk drive in slot *phys_drive_no* has failed.

The physical SCSI disk drive indicated has failed and must be replaced. The physical drive number *phys_drive_no* indicated in this alarm is the same number as the SCSI ID of the failed disk drive and corresponds to the labeling for the disk-drive bay. (For example, physical disk drive 1 corresponds to the SCSI disk in disk bay 1.)

This condition places the system in critical (degraded) mode. Although the system continues to operate, it will fail if another physical drive fails. In the unlikely event that one of the existing drives encounters a bad block, the data stored in that block will be lost.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=*phys_drive_no* lun=0 Event=PHYSDEV_DEAD

Repair Procedure:

Replace the drive. Follow the procedures given in Chapter 3, "Replacing the Hard Disk Drive Assembly," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

RAID002

Description:

Logical system drive *sys_drive_no* is no longer protected by RAID. Probably due to the failure of a physical disk drive.

The logical system drive indicated is in critical mode. Although the system continues to run normally, it does not have RAID protection.

This alarm occurs with RAID001.

CAUTION:

The logical system drive number *sys_drive_no* does not correspond to a SCSI device. For example, a RAID001 alarm might indicate that physical device (SCSI disk) 4 has failed. A RAID002 alarm also is generated and indicates that logical system drive 0 is in critical mode. Replace the SCSI disk in disk-drive bay 4, per the RAID001 message—if you mistakenly replace the disk in drive bay 0, the system will crash.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=SYSDEV_CRITICAL

Repair Procedure:

This condition is repaired when the repair procedure for RAID001 is completed.

RAID003

Description: A rebuild has begun on logical system drive *sys_drive_no.* The system will continue to operate.

The indicated system drive has started to rebuild, most likely because a physical drive was replaced. The system will continue to operate normally, but it does not have RAID protection while it is rebuilding. All data is available, but disk access can be slower than normal.

Corresponding entries in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of the REBUILD_START entries.)

- SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=SYSDEV_MANUAL_REBUILD_START
- SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=SYSDEV_AUTO_REBUILD_START

Repair Procedure: No corrective action is necessary.

RAID004

Description: The rebuild of logical system drive *sys_drive_no* is complete.

The indicated logical system drive has been rebuilt. When all logical system drives have been rebuilt, the system will have RAID protection. View the RAID002 events to see how many system drives were in critical mode.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=SYSDEV_REBUILD_DONE

Repair Procedure: No corrective action is necessary.

RAID005

Description: The rebuild of logical system drive *sys_drive_no* has been canceled.

The rebuild of the indicated logical system drive was canceled. Cancellation of a rebuild is usually initiated by an operator.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=REBUILD_CANCELED

Repair Procedure:

1. Attempt to rebuild the logical system drive a second time.

2 If the second attempt fails, use another replacement drive and try again.

3 If the second replacement drive also fails, schedule a shutdown of the system and diagnose the problem using DACD:

   a Reboot the system.

   b Press F4 to enter Diagnostic Mode when prompted by the system BIOS.

   c When the Diagnostic Startup Menu is displayed, execute the Mylex DACD diagnostics by selecting option 2, "Run Extended RAID Diagnostics". Diagnostics can be executed on the RAID controller hardware or on disk drives as desired by selecting the appropriate menu options.

RAID006

Description: An error occurred with the rebuild of system drive *sys_drive_no*.

An error occurred when the indicated system drive was rebuilding. The rebuild did not necessarily fail or was not necessarily stopped.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=REBUILD_ERROR

Repair Procedure:

1. Continue to monitor the rebuild procedure. Check for additional event messages to determine if the rebuild failed or completed.
2. If the rebuild failed, initiate another rebuild.
3. If the rebuild is still in progress, wait for two hours and again check to see the status of the rebuild.

RAID007

Description:

The rebuild of logical system drive *sys_drive_no* has failed.

The rebuild of the indicated logical system drive has failed.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=0 lun=*sys_drive_no* Event=SYSTEM_REBUILD_NEWDEV_FAILED

Repair Procedure:

1. Attempt to rebuild the logical system drive a second time.
2. If the second attempt fails, use another replacement drive and try again.
3. If the second replacement drive also fails, schedule a shutdown of the system and diagnose the problem using DACD:
   a. Reboot the system

b Press F4 to enter Diagnostic Mode when prompted by the system BIOS.

c When the Diagnostic Startup Menu is displayed, execute the Mylex DACD diagnostics by selecting option 2, "Run Extended RAID Diagnostics". Diagnostics can be executed on the RAID controller hardware or on disk drives as desired by selecting the appropriate menu options.

RAID008

Description: A bad block was found on physical drive *phys_drive_no* and has been remapped.

The data stored at the bad block address was recovered by the RAID controller from redundant data on the other physical drives.

Corresponding entry in the log file /etc/log/gamevlog.log: (Look for associated entries in the vicinity of this entry.)

SeqNo=sss ctl=0 ch=0 tgt=*phys_drive_no* lun=0 Event=PHYSDEV_SOFT_ERROR

Repair Procedure No corrective action is necessary.

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 or Quad circuit 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 or Quad card, or the 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 or Quad card and see SPIP001 repeatedly for the same card.

2 Diagnose the card by entering:

diagnose card *card number*

where *card number* is the card number of the SSP or Quad card.

3 If the problem persists, replace the SSP or Quad card. See Chapter 2, "Installing or Replacing Circuit Cards," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

SPIP002

Alarm Level: Minor.

Description: The output signal level on an SSP or Quad 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 *UCS 1000 R4.6 Administration*, 585-313-509, 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 or Quad card. See Chapter 2, "Installing or Replacing Circuit Cards," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

SPIP003

Alarm Level: None.

Description: Unexpected speech recognition behavior occurred on the SSPor Quad card. The card 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 or Quad 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 or Quad card you want to restore to service.

3 Check the circuit card.

SPIP004

Alarm Level: Critical.

Description: An error occurred on the SSP or Quad card. The 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 or Quad 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.

SPIP010

Alarm Level: Minor.

Description: An application is running on a channel associated with a Quad T1 card. This Quad T1 card is unable to connect the channel to the H110 bus.

Repair Procedure: Reduce the number of channels in sevice on the Quad T1 card. For information on derating (reducing the number a Quad Circuit card, see Reducing Load on the Quad Circuit Card on page 39.

SPIP011

Alarm Level: Minor.

Description: An application is running on a channel associated with a Quad T1 card. This Quad T1 card is unable to satisfy a request to bridge two channels together. The channel the application is running on and the channel the application is attempting to bridge to are specified in the alarm.

Repair Procedure: Reduce the number of channels in service on the Quad T1 card. For information on derating a Quad Circuit card, see Reducing Load on the Quad Circuit Card on page 39.

SPIP012

Alarm Level: None.

Description: Loss of Primary CT bus clock detected. This message is typically accompanied by a MTC014 message.

Repair Procedure: No corrective action is necessary for the SPIP012 alarm. See repair procedure for the MTC014 alarm if appropriate.

SPIP013

Alarm Level: None.

Description: Loss of Secondary CT bus clock detected.

Repair Procedure: No corrective action is necessary.

SPIP014

Alarm Level: None.

Description: Secondary CT bus clock restored.

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 Programmerís 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: Minor.

Description: Request failed. Reason: ***reason***

The voice system communicates with the TAM board using the COM2 port. The COM2 serial port of the CPU is internally wired to the TAM, so COM2 may appear free when it is not.

Repair Procedure: Do the following:

1. Verify that there is nothing connected to COM2 of the CPU or the TAM board that could be interfering with communication.
2. Verify that all software has been properly installed such that none of it interferes with the COM2 communication.
3. Determine if any new packages have been installed since the problem first occurred. If yes, do the following:
   - ~ Check the installation instructions for these packages. See *UCS 1000 R4.6 Maintenance*, 585-313-154.

- ~ If the package involves COM port communication, reinstall the package and answer the prompts as specified to avoid conflicts.

4 If the reason in the message text is `Timed out waiting for response` or `Received NAK from TAM`, do the following:

- ~ Perform the Checking the Card procedure in Chapter 3, "Common Maintenance Procedures," of *UCS 1000 R4.6 System Reference*, 585-313-221.
- ~ Make sure that the TAM board is properly inserted.
- ~ If the problem persists, reboot the system.
- ~ If the problem persists, replace the TAM board and run the **configure_tam** command to configure the new board.

5 If the reason in the message text is Received INVALID from TAM, this may indicate a problem with the temperature sensors.

a Enter **display_tam** to see the status of the TEMP sensors.

b If the output shows INVALID for any of the TEMP sensors, check the temperature sensor's switch settings, as documented in "TAM Temperature Sensors" in Chapter 2 of *UCS 1000 R4.6 Maintenance*, 585-313-154.

TAM002

Alarm Level: Minor.

Description: Operation of device failed. Reason ***reason***

Repair Procedure: If the message indicates a failure to the device **/dev/tty01**, do the following:

1. Verify that there is nothing connected to COM2 of the CPU or the TAM board that could be interfering with communication.
2. Verify that all software has been properly installed such that none of it interferes with the COM2 communication.
3. Determine if any new packages have been installed since the problem first occurred. If yes, do the following:
   - ~ Check the installation instructions for these packages. See *UCS 1000 R4.6 Maintenance*, 585-313-154.
   - ~ If the package involves COM port communication, reinstall the package and answer the prompts as specified to avoid conflicts.

If the message indicates a failure to open, read, or write a file such as **/vs/data/tam_sensor_map**, do the following:

1. Enter **ls -l *filename*** where *filename* is the name of the file identified in the message text.

2 If the file does not exist or is zero length, reinstall the Telecom Alarms package.

If the message indicates a failure to the pipe **/vs/data/tamCpipe** or **command pipe**, reboot the system.

TAM003

Alarm Level: None.

Description: The message ***message*** was ignored. Reason: ***reason***

A message sent to the TAM board was ignored. The message sent and the reason the TAM board ignored the message is contained in the message text.

Repair Procedure: No corrective action is necessary.

TAM004

Alarm Level: Major.

Description: Unable to save the external alarm board's configuration.

Repair Procedure:

1. Enter **configure_tam** to save the configuration.
2. If the configure_tam command fails, reboot the system.
3. If the problem persists, do the following:
   - ~ Perform the Checking the Card procedure in Chapter 3, "Common Maintenance Procedures," of *UCS 1000 R4.6 System Reference*, 585-313-221.
   - ~ Make sure that the TAM board is properly inserted.

TAM005

Alarm Level: Minor.

Description: The request to turn on an alarm failed.

Repair Procedure:

1. Perform the Checking the Card procedure in Chapter 3, "Common Maintenance Procedures," of *UCS 1000 R4.6 System Reference*, 585-313-221.
2. Make sure that the TAM board is properly inserted.

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: For SSP and LSPS II circuit cards only. The service running on the indicated channel was unable to perform the specified function because the speech-processing circuit card was overloaded. This is a temporary condition due to the dynamic nature of SSP or LSPS II resource allocation on the system. This condition will be relieved when the system demand on speech-processing card resources decreases or the system SSP or LSPS II capacity increases. Call processing on the channel has been degraded.

The impact may be significant is 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 or LSPS II cards that are assigned to the indicated function may be out of service, thus putting too much load on the cards that remain in service.

Determine if any SSor LSPS II cards that are assigned the indicated function are out of service by entering **display card sp**

a If any SSP or LSPS II 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 or LSPS II cards are in a state other than Manoos, check the circuit card.

2 If all 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 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 or LSPS card for the indicated function, check the circuit card.

Otherwise, reduce the load.

TSM004

Alarm Level: Critical.

Description: For SSP and LSPS II circuit cards only. The service running on the indicated channel was unable to perform the specified function. There is not a sufficient number of SSor LSPS II cards in service that perform this function. Call processing has been degraded or inhibited completely on all channels needing this 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 or LSPS II cards assigned to the indicated function, or all cards that are assigned to that function may be out of service.

1 Determine if any SSP or LSPS II cards that are assigned the indicated function are out of service by entering **display card sp**

2 If any SSP or LSPS II 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 or LSPS II 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 cards assigned to the indicated function, you can assign the function to an SSP or LSPS II card by completing the following Steps a through d:

a If the 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 or LSPS II obtained from the display card sp command output.

b Assign the appropriate function to the card(s). See Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

c Enter **diagnose card *card number***

where *card number* is the number of the card on which you want to run diagnostics.

d Enter **restore card *card number***

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

TSM010

Alarm Level: Minor.

Description: The script running on the indicated channel has executed too many speech queueing instructions. TSM has cleared the speech queue, which will result in speech being played prematurely.

Repair Procedure: Modify the script so that fewer speech queuing instructions are executed before speech is cleared. If this action is not possible, add the following line to the **/vs/data/irAPI.rc** file: **SPEECH_QUEUE_LIMIT=*value***

Replace ***value*** with the new limit. The default value for the limit is 256, and the minimum allowable value is 32. There is no maximum limit, but higher numbers can affect performance.

TSM011

Alarm Level: None.

Description: TSM is unable to allocate echo cancellation and speech recognition on the same SSP or LSPS II circuit card. TSM will attempt to start recognition on a different SSP or LSPS II circuit card. Barge-in will not be possible.

Repair Procedure: Do one of the following:

- Add more SSP or LSPS II circuit cards
- Decrease the capacity of the system
- Function without barge-in

TSM012

Alarm Level: Minor.

Description: The script running on the indicated channel executed a TSM extend instruction with an invalid extension-function-identifier at the indicated address.

Repair Procedure: The IRAPI extension **table Iri_ExtendExecute_table** does not have an entry that corresponds to the extension-function identifier that was indicated in the event.

1. Use the command **tas -I script.T** to show the address of each script instruction.
2. Examine the address and determine:
   - ~ if the the extension-function identifier in the script is wrong
   - ~ if the Iri_ExtendExecut_table is not initialized correctly

TM013

Alarm Level: None.

Description: TSM received an event for the indicated channel, but a script was not running on the channel.

Repair Procedure: Attempt to obtain a trace when the problem occurs, and determine if an errant process is sending TSM events. In unusual cases, IRAPI can cause the event, but it is not a problem.

TSM014

Alarm Level: Critical.

Description: TSM is unable to determine the telephony type of a channel.

Repair Procedure: The RM Driver tunable parameter NCHANNELS is probably too low for the number of telephony channels configured on the system. Enter the following to change the value of NCHANNELS, replacing ***value*** with the new number:

/etc/conf/bin/idtune NCHANNELS *value*
/etc/conf/bin/idbuild -B
stop_vs
cd /
/etc/shutdown -y -g0 -i6

You must reboot UnixWare for the change to take effect.

TSM015

Alarm Level: Critical.

Description: TSM is not able to register with the IRAPI. There are several possible causes. For example, the PROFILE_SIZE tunable parameter might need to be increased to accommodate all the IRAPI save-on-exec parameters, or there might have been a shortage of UNIX semaphores.

Repair Procedure: To determine the cause, attempt to obtain a trace while the problem occurs.

If the PROFILE_SIZE parameter needs to be increased, enter the following, replacing ***value*** with the new number that the trace indicated it should be:

/etc/conf/bin/idtune PROFILE_SIZE *value*
/etc/conf/bin/idbuild -B
stop_vs
cd /
/etc/shutdown -y -g0 -i6

If you cannot determine the cause, contact your support organization for assistance.

TSM016

Alarm Level: Critical.

Description: TSM is unable to determine the number of telephony channels configured in the system. The problem is probably caused by corrupted shared memory.

Repair Procedure:

1 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.

2 If the problem persists:

a Stop the voice system.

b Start the voice system.

3 If the problem still persists, reboot the operating system.

TSM017

Alarm Level: Critical.

Description: TSM is unable to allocate enough memory. The problem is probably caused by an errant process that is consuming an excessive amount of system memory.

Repair Procedure: To find which process is using excess system memory, enter **ps -efl**

The *SZ* column indicates the amount of memory used. You will need to determine why the program is using excess memory and resolve the issue.

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 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 ISDNPRI Layer 1 Protocol as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

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 on page 428 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 though 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/E1card.

   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 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/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 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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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/E1channel failed as a result of unexpected network behavior.

Repair Procedure: This problem is usually due to the use of a T1/E1configuration option not normally used by the voice system.

This alarm is logged as a result of the indicated T1/E1channel 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 shared memory, with the desired configuration. You can view shared memory with the command **shmview -c -x**
2. 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.
3. 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/E1 channel, 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 shared memory, with the desired configuration. You can view shared memory with the command **shmview -c -x**
2. 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 shared memory, with the desired configuration. You can view shared memory with the command **shmview -c -x**
2. 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 *UCS 1000 R4.6 Administration*, 585-313-509.

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/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.

TWIP008

Alarm Level: Critical.

Description: The voice system is unable to communicate with the T1/E1 cards in the system. Calls cannot be processed on any T1/E1 card.

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/E1 driver. See Chapter 2, "Installing or Replacing Circuit Cards," in *UCS 1000 R4.6 Maintenance*, 585-313-154.

TWIP009

Alarm Level: Major.

Description: The identified T1/E1 card 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/E1 card 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 *UCS 1000 R4.6 Administration*, 585-313-509.

3. Restore the card to service. Enter:

   restore card *card number*

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

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/E1 channel 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/E1 or Quad span 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 8-pin modular connector on the back of the T1/E1 or Quad span which connects to the switch and/or CSU.

- a Check cable continuity on pins 1, 2, 4, and 5.
- 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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

2 If the cabling/connections appear to be correct and if another T1/E1 or Quad span exists in the voice system and is functioning properly complete step a though step e to determine if the problem can be attributed to an external factor rather than the span.

a. Remove the functioning T1/E1 or Quad span from service by entering:

   remove span *card#.span#*

   where *card#.span#* is the number of the functioning span.

b. Swap the cables to both spans.

c. Restore the previously functioning span to service by entering:

   restore span *card#.span#*

   where *card#.span#* is the number of the functioning T1/E1 or Quad span.

d. Observe the two spans to see if the problem migrates with the cable.

e. Return the cables to their original spans.

3. If the problem is observed to migrate with the cable complete step a and step b:

   a. Contact the network switch administrator to verify that service is turned on at the switch.

   b. 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. If the problem is observed to migrate to the span, check the circuit card.

TWIP014

Alarm Level: Major.

Description: The identified T1/E1or Quad span is experiencing an extreme number of bipolar violations in the DS1 signal. The voice system is unable to process calls on this span.

Repair Procedure:

1. Check and administer the framing/line coding option of the span as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
2. Contact the network switch administrator to verify that the switch is administered with compatible options.
3. If another T1/E1or Quad span 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 span.
   a. Remove the functioning T1/E1 or Quad span from service by entering:

      remove span *card#.span#*

      where *card#.span#* is the number of the functioning span.
   b. Swap the cables to both spans.
   c. Restore the previously functioning span to service by entering:

restore span *card#.span#*

where *card#.span#* is the number of the functioning span.

d Observe the two spans to see if the problem migrates with the cable.

e Return cables to their original spans.

4 If, as a result of step 3, the problem is observed to migrate with the cable, or if a second or Quad span is not available to perform step 3, check the cable between the 8-pin modular connector on the back of the T1/E1 or Quad span which connects to the switch and/or CSU.

a Check cable continuity on pins 1, 2, 4, and 5.

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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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/E1 or Quad span is detecting excessive cyclic redundancy check (CRC) errors in the DS1 signal. The voice system is unable to process calls on this span.

Repair Procedure:

1. Check and administer the framing/line coding option of the span for ESF framing and B8ZS zero suppression, as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
2. Contact the network switch administrator to verify that the switch is administered with compatible options.
3. If another T1/E1 or Quad span exists in the voice system and is functioning properly, check if the problem can be attributed to an external factor and not the span.
   a. Remove the functioning span from service by entering:

      remove span *card#.span#*

      where *card#.span#* is the number of the functioning span.

   b. Swap the cables to both spans.
   c. Restore the previously functioning span to service by entering:

restore span *card#.span#*

where *card#.span#* is the number of the functioning span.

d Observe the two spans to see if the problem migrates with the cable.

e Return cables to their original spans.

4 If, as a result of step 3, the problem is observed to migrate with the cable, or if a second T1/E1 or Quad span is not available to perform step 3, check the cable between the 8-pin modular connector on the back of the T1/E1 or Quad span that connects to the switch and/or CSU.

a Check cable continuity on pins 1, 2, 4, and 5.

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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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/E1or Quad span is not detecting any signal from the network. The voice system is unable to process calls on this span.

Repair Procedure:

1 If another T1/E1 or Quad span exists in the voice system and is functioning properly, check if the problem can be attributed to an external factor and not the span.

   a Remove the functioning span from service by entering:

   remove span *card#.span#*

   where *card#.span#* is the number of the functioning span.

   b Swap the cables to both spans.

   c Restore the previously functioning span to service by entering:

   restore span *card#.span#*

   where *card#.span#* is the number of the functioning span.

   d Observe the two spans to see if the problem migrates with the cable.

   e Return cables to their original spans.

2 If, as a result of step 1, the problem is observed to migrate with the cable, or if a second T1/E1 or Quad span is not available to perform step 1, check the cable between the 8-pin modular connector on the back of the span that connects to the switch and/or CSU.

   a Check cable continuity on pins 1, 2, 4, and 5.

   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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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 or Quad span 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 span.

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 span as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
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/E1or Quad span is detecting a remote frame alarm (yellow alarm). The network is experiencing problems receiving the DS1 signal sent by the T1/E1 or Quad span. The voice system is unable to process calls on this span.

Note: The TWIP018 alarm is generated after the voice system is stopped and started. In this case, this condition causes no harm and can be ignored.

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 8-pin modular connector on the back of the T1/E1 or Quad span that connects to the switch and/or CSU.

   a. Check cable continuity on pins 1, 2, 4, and 5.

   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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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 span as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

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 *UCS 1000 R4.6 New System Installation*, 585-313-153, for proper T1/E1cable wiring instructions.
- The T1/E1 card may not be properly administered. See Chapter 3, "Voice System Administration," and Chapter 4, "Switch Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
- 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 *UCS 1000 R4.6 Administration*, 585-313-509.
- 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 commandís 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 *UCS 1000 R4.6 Maintenance*, 585-313-154.

TWIP021

Alarm Level: Minor.

Description: The identified T1/E1 or Quad span detected the shown number of bipolar violations in the DS1 within the previous minute. The span was able to recover automatically from this error.

Repair Procedure:

1 Check and administer the framing/line coding option of the span as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.

2 Contact the network switch administrator to verify that the switch is administered with compatible options.

3 If another T1/E1 or Quad span 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 span.

a Remove the functioning T1/E1 or Quad span from service by entering:

remove span *card#.span#*

where *card#.span#* is the number of the functioning span.

b Swap the cables to both spans.

c Restore the previously functioning span to service by entering:

restore span *card#.span#*

where *card#.span#* is the number of the functioning span.

d Observe the two spans to see if the problem migrates with the cable.

e Return cables to their original spans.

4 If, as a result of step 3, the problem is observed to migrate with the cable, or if a second T1/E1 or Quad span is not available to perform step 3, span that connects to the switch and/or CSU.

a Check cable continuity on pins 1, 2, 4, and 5.

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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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:

1 Stop the voice system.

2 Start the voice system.

3 If the problem persists, reboot the system.

TWIP024

Alarm Level: None.

Description: Loss of Primary CT bus clock detected. This message is typically accompanied by a MTC014 message.

Repair Procedure: No corrective action is necessary for the TWIP024 alarm. See repair procedure for the MTC014 alarm if appropriate.

TWIP025

Alarm Level: None.

Description: Loss of Secondary CT bus clock detected.

Repair Procedure: No corrective action is necessary.

TWIP026

Alarm Level: None.

Description: Secondary CT bus clock restored.

Repair Procedure: No corrective action is necessary.

TWIP027

Alarm Level: None.

Description: Conference capacity exceeded for this card.

Note that the conference call feature is not supported in this release of UCS 1000 R4.6.

Repair Procedure: No corrective action is necessary. To avoid further problems, reduce the use of conferencing by applications, or spread conferencing across more E1/T1 or Quad circuit cards.

TWIP028

Alarm Level: None.

Description: CAM memory capacity exceeded for this card.

Note that the conference call feature is not supported in this release of UCS 1000 R4.6.

Repair Procedure: No corrective action is necessary. To avoid further problems, reduce the use of conferencing by applications, or spread conferencing across more E1/T1 circuit cards.

TWIP029

Alarm Level: Major.

Description: The identified T1/E1 or Quad span is detecting excessive cyclic redundancy check (CRC) errors in the DS1 signal. The voice system is, for the moment, still processing calls on this span.

Repair Procedure:

1. Check and administer the framing/line coding option of the span for ESF framing and B8ZS zero suppression, as described in Chapter 3, "Voice System Administration," in *UCS 1000 R4.6 Administration*, 585-313-509.
2. Contact the network switch administrator to verify that the switch is administered with compatible options.
3. If another T1/E1 or Quad span exists in the voice system and is functioning properly, check if the problem can be attributed to an external factor and not the span.
   a. Remove the functioning span from service by entering:

      remove span *card#.span#*

      where *card#.span#* is the number of the functioning span.

   b. Swap the cables to both spans.
   c. Restore the previously functioning span to service by entering:

restore span *card#.span#*

where *card#.span#* is the number of the functioning span.

d. Observe the two spans to see if the problem migrates with the cable.

e. Return cables to their original spans.

4. If, as a result of step 3, the problem is observed to migrate with the cable, or if a second T1/E1 or Quad span is not available to perform step 3, check the cable between the 8-pin modular connector on the back of the span that connects to the switch and/or CSU.

   a. Check cable continuity on pins 1, 2, 4, and 5.

   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 *UCS 1000 R4.6 New System Installation*, 585-313-153.

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.

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.

INFO (UNIX001) messages provide general information.

Repair Procedure: No corrective action is necessary.

UNIX002

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 (UNIX002) messages generally indicate problems of a less severe nature than WARNING (UNIX003) messages.

Repair Procedure: No corrective action is necessary.

UNIX003

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 (UNIX003) messages may not cause a system halt (PANIC) but might 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.

UNIX004

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.

ERROR (UNIX004) messages may not cause a system halt (PANIC) but might 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.

UNIX005

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.

TROUBLE (UNIX005) 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.

UNIX006

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.

CRITICAL (UNIX006) 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.

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-xrootsys409Feb516:57/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 INSERV state.

3 If all SSP cards assigned for VOICE function are INSERV 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 that 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 "five twenty five" 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 *UCS 1000 R4.6 Administration*, 585-313-509.

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 ínbufsí 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 on page 467 or eliminate unused phrases on the voice system by performing repair procedure for system message VROP007 on page 468.

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 on page 475.
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 on page 478 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 INSERV 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®

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 PTTS.

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 National Standards Institute

(ANSI) A private non-profit organization that develops and publishes voluntary standards for various industries in the United States.

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

ANSI

American National Standards Institute

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 UCS 1000 R4.6 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

ETSI

European Telecommunications Standards Institute

Ethernet

A name for a local area network that follows IEEE standard 802.3. Supported implementations are 10BaseT and/or 100BaseT.

European Telecommunications Standards Institute

(ETSI) The European counterpart to ANSI (American National Standards Institute). Develops and publishes telecommunications standards.

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

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.

multithreaded application

A single process/application that controls several channels. Each thread of the application is managed explicitly. Typically this means state information for each thread 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

PTTS

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.

PRA

Primary Rate Access

Primary Rate Access

The ETSI equivalent of ISDN PRI (Primary Rate Interface).

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 ANSI.

Proxy Text-to-Speech

The capability to do Text-to-Speech processing using one or more auxiliary computers that are connected to the system in a client/server configuration. PTTS is an alternative to the standard Text-to-Speech feature and is used in applications where the demand is very high or where a language is needed that is not supported on the speech processing circuit cards.

pseudo driver

A driver that does not control any hardware.

PSTN

public switch telephone network

PTTS

Proxy Text-to-Speech

pulse code modulation

A digital modulation method of encoding voice signals into digital signals. See also adaptive differential pulse code modulation.

Q

Quad circuit card (CWB10, CWB11, or CWB12)

A series of three digital network-interface circuit cards, each of which can be configured to support up to four E1 or T1 connections (or spans):

- Quad T1 (CWB10, with CYD10 rear I/O transition card, RJ48C connectors)
- Quad E1 (CWB11, with CYD10 rear I/O transition card, RJ48C connectors)
- Quad E1 (CWB12, with CYD12 rear I/O transition card, coaxial connectors)

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 the UCS 1000 R4.6. 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).

span

A network-interface connection on an E1/T1 (CWB2), Quad T1(CWB10) or Quad E1 (CWB11 and CWB12) circuit card. Each Quad circuit card has from one to four spans (0, 1, 2, 3). An E1/T1 circuit card has one span (0).

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

UCS

Unified Communications Server

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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