Lucent Technologies
Bell Labs Innovations

UCS 1000

R4.6

Administration

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"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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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.

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

Your company's "telecommunications equipment" includes both this 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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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

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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 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 document describes the procedures needed to perform full system administration for the following areas:

- The UNIX operating system
- The voice system
- Databases
- Switch interfaces

This document also describes the procedures needed to create and access system reports and to monitor the system.

Intended Audiences

The primary audience for this document are system administrators. This includes:

- On-site technicians who perform system administration at the customer site
- End customers who choose to administer their own systems

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 xxxix for more information.

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

How This Book Is Organized

This document is designed to take you step by step through the system administration process. Each chapter contains procedures for a specific product area that requires administration.

Administration Procedures and Information

See Chapter 1, Administration Overview, to familiarize yourself with the user interface and the system administration process including the user interface and the menus.

See Chapter 2, UNIX Administration, for information about how to access the SCO ADM menu and the procedures to perform basic UnixWare-level administration.

See Chapter 3, Voice System Administration, for information about how to access the Voice System Administration menu and a description of all the administrative options. This chapter also contains the reference and procedural information for the Configuration Management option.

See Chapter 4, Switch Interface Administration, for the procedures and reference information for administering the supported analog and digital switch interfaces.

See Chapter 5, Database Administration, for the procedures and reference information for administering databases for use with the voice system.

See Chapter 6, Peripheral Administration, for procedures and reference information for configuring and administering the peripheral equipment connected to your voice system, namely modems, printers, and remote terminals.

See Chapter 7, Common Administration, for quick-reference information for some of the more common administrative tasks. Daily administration includes running system reports; performing common procedures such as system monitoring, media formatting, and backups; and administering the date and time.

Reference Material

See Appendix A, Summary of Commands, for an alphabetical list of the commands in the UCS 1000 R4.6 command language.

See the Glossary for help in identifying and defining commonly used terms and acronyms.

To Locate Specific Topics

This book includes an alphabetical index at the end for quick access to specific topics.

Conventions Used in This Book

This section describes the typography and other conventions that are used in this book.

Note: The 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 Configuration Management option on the Voice Administration System screen and then press **ENTER** is shown as

Select:

```
> Configuration Management
```

- 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 xxxi and Figure 3 on page xxxii) and request (Figure 4 on page xxxii and Figure 5 on page xxxiii) system information.

Figure 1. Example of a UCS 1000 R4.6 Menu

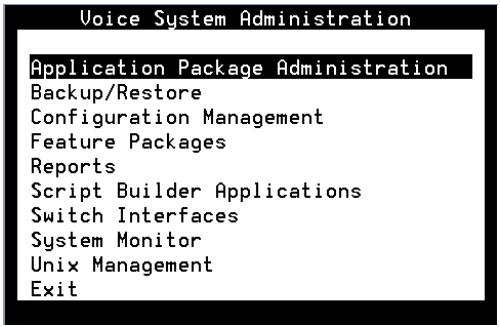

Figure 2. Example of a UCS 1000 R4.6 Screen Showing Information

```
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 a UCS 1000 R4.6 Window Showing Information

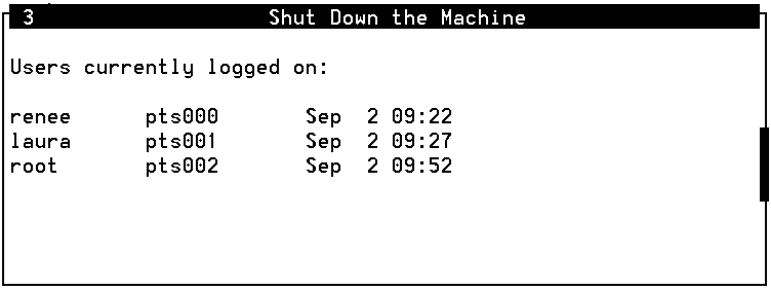

Figure 4. Example of a UCS 1000 R4.6 Screen Requesting Information

```
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 a UCS 1000 R4.6 Window Requesting Information

Keyboard and Telephone Keypad Representations

- Keys that you press on your terminal or PC are represented as 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 plus 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 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 `typewriter 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 `typewriter 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 that 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 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 takes 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.

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- 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 xl 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.

Adjusting the Window Size

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.

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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 xxxviii.

If you would want 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:

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2. Select **File | Print**.
3. Enter the page range you want to print, or select **All**. Note that the print page range is different from the page numbers on the documents (they print two to a page).
4. After the document is printed, 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 is printed, 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.

1 Administration Overview

Overview

This chapter provides an overview of system administration and is designed to familiarize you with the UCS 1000 R4.6 user interface and the system administration process including:

- User interface overview
- User interface components
- The administration menus

User Interface Overview

A user interface is a method by which a computer user accesses the information on the computer. For example, Microsoft Windows is a graphical user interface (also known as GUI).

The UCS 1000 R4.6 user interface is menu-driven; that is, you select an option from a list to display another menu or window. You can display more than one menu or window concurrently, but only the last one displayed is

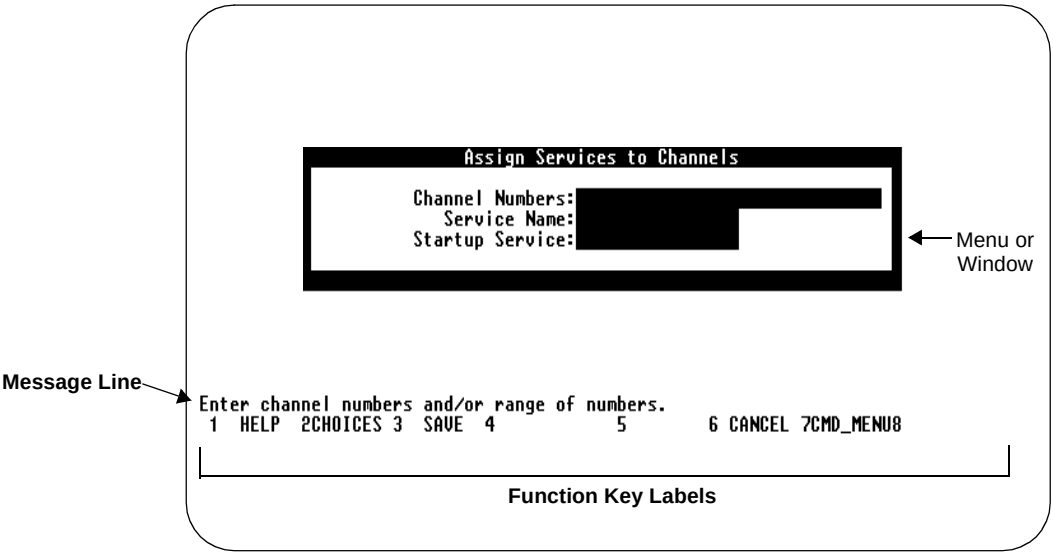
active. To return to the previous menu or window, you can cancel the active one.

UCS 1000 R4.6 User Interface

Administering the voice system through the administrative screens involves many activities, and all share a common user interface. Although the information on the screen changes often, the information arrangement does not change. The typical screen contents is as follows (Figure 6 on page 3):

- Menu and/or window
- Message line
- Function key labels

Figure 6. Sample UCS 1000 R4.6 System Screen



Cursor Movement Keys

Table 1 lists the keys used to maneuver within a menu or window. They are referred to throughout this book as the cursor movement keys.

Table 1. Cursor Movement Keys

Type of Movement	Key
Move to next line in menu, list, or text; “wrap” from last item to first item in a menu or form	▼
Move to previous line in menu, list, or text; “wrap” from first item to last item in a menu or form	▲
Move down one “screenful”	**PgDw**
Move up one “screenful”	**PgUp**
Move to next field in a screen or window	**Tab**, or **Enter**
Move to previous field in a screen or window	**Shift**, or **Tab**
Move to next character within a field	►
Move to previous character within a field	◄
Delete character to the left of the cursor	**BackSpace**

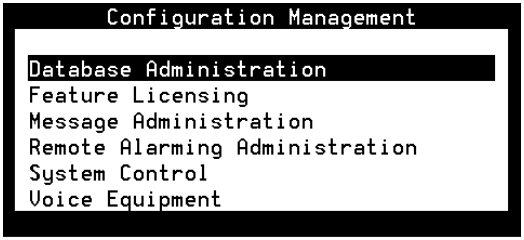
Menus and Windows

You use menus and windows to exchange information with the voice system. This exchange may involve activities such as making menu selections or populating fields. Since the display may contain more than one menu or window at the same time, each menu/window is outlined so that it is clear what information it contains. At any given time, only one menu or window on screen is designated as active.

Menus

A menu allows you to select an option that takes you to the next menu or window (Figure 7).

Figure 7. Sample Menu



The components of a menu include:

- Title — The title describes the information contained within the menu, or the tasks you can accomplish using it. In this book, titles are shown with the first letter of each word capitalized, followed by the word *menu*, such as the *Configuration Management menu*.
- Scroll Indicator — The scroll bar indicates whether there is additional text to be displayed. The ▼ indicates there is more information to view below what is presently shown. The ▲ indicates there is more information to view above what is currently displayed. Not every menu has a scroll indicator.

Selecting a Menu Item

To select a menu item, highlight it using one of the following methods and then press **Enter**:

- Use the cursor movement keys to move the highlight bar:
  - ~ Press ▼ to move the highlight bar down.
  - ~ Press ▲ to move the highlight bar up.

    Menus have a “rollover” feature. When the cursor reaches the last item of the menu, press ▼ to return to the first menu item. If the cursor is highlighting the first menu item, press ▲ to move to the last menu item.

- Type the first character(s) of the menu line. The system highlights the first menu item beginning with that letter. For example, in Figure 7 on page 5, type **S** to select `System Control`. If there is another menu item beginning with "s," type more characters.

  The menu items are not case-sensitive; that is, typing **A** is the same as typing **a**. If you type a letter for which there is no matching item, the system "beeps" and does not move the highlight bar.

Windows

A window allows you to enter and view information, and can range in size. See Figure 8 and Figure 9 on page 8.

Figure 8. Sample Window

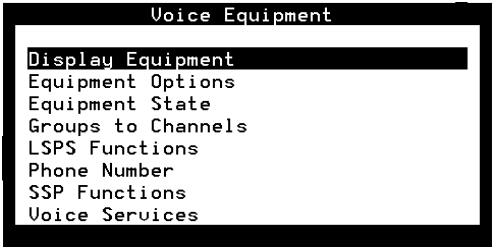


Figure 9. Sample Window

The components of a window include:

- Title — The title describes the information contained within the window, or the tasks you can accomplish using it. In this book, titles are shown with the first letter of each word capitalized, followed by the word *window*, such as *Voice Equipment window*.
- Scroll Indicator — The scroll bar indicates whether there is additional text to be displayed. The ▼ indicates there is more information to view below what is presently shown. The ▲ indicates there is more information to view above what is currently displayed. Not every window has a scroll indicator.
- Fields — Fields are the areas on a window where you enter information. For example, in Figure 6 on page 3 the fields are `Channel Numbers`, `Service Name`, and `Startup Service`. Use the **TAB** or **ENTER** keys to move through the fields in succession.

  Menus do not have fields.

Populating Fields

There are three ways to enter information in a field, as described below.

- Type the first character or first few characters of the entry.

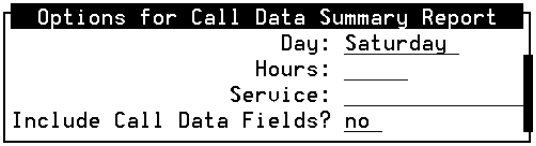
  With the cursor positioned on the field, begin to type the entry. As soon as you type enough characters to uniquely identify the desired entry, the system automatically supplies the remaining characters. If the entry is invalid, the system beeps and removes the invalid characters.

  For example, given the `Day:` field in Figure 10 on page 10, assume that valid entries are the names of the days in the week. When you type **M**, the system fills in the entire word *Monday* because there is only one valid entry that begins with *M*.

  However, if you type **S**, the system waits before filling in the day of the week because there are two valid entries that begin with *S* (Saturday and Sunday). At this point, if you type **a**, the system fills in the word *Saturday*. If you type **u**, the system fills in the word *Sunday*. This technique is not case-sensitive. In other words, typing either **M** or **m** in the above example results in the system filling in the word *Monday*.

- Press **F2** (Choices) for a list of valid entries for the particular field.

Figure 10. Fields in the Call Data Summary Report Window



- Type the entire entry.

  Move to the desired field and type the entire entry. While in a field, you can also edit the entry.

- Use the CHOICES screen selections.

  Press **F2** (Choices) to open a menu that shows the available choices for a field. Select an option as you would in a standard menu. The content of the CHOICES menu varies depending on the situation. Sometimes no CHOICES menu is available for a screen or window.

Message Line

The message line, if present on the screen, contains a brief instruction to help you decide what to do next. The message line also reports the successful or unsuccessful completion of a task.

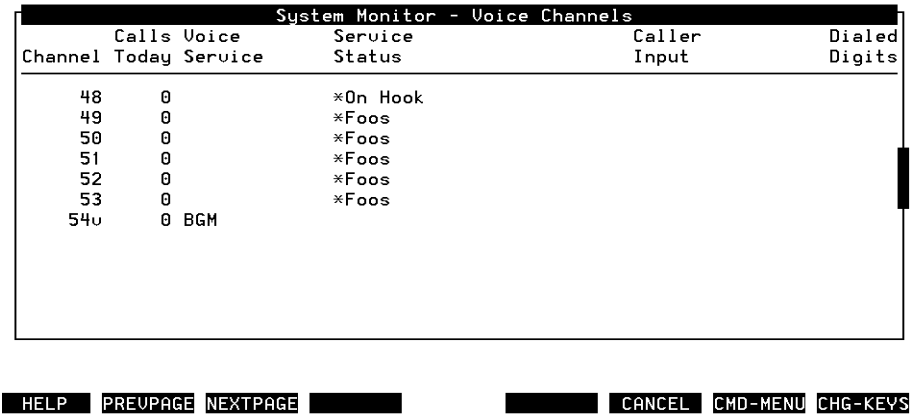
Function Keys

Your keyboard has eight to twelve function keys. The system uses the first eight function keys, labeled **F1** through **F8**.

The boxed labels at the bottom of the display correspond to the function keys on your keyboard. Function keys are the means by which you command the system to perform a function within the active menu or window. The label describes the instruction that is sent to the system when you press the corresponding function key. The commands, and therefore the labels, that are available at any given time vary depending on the active menu or window. Menus and windows may have one or two rows of function key labels. See Figure 11 on page 12 for an example of a window with function key labels.

In Figure 11 on page 12 you press **F1** to access the Help screen for the System Monitor window. Also in Figure 11 on page 12, notice that the label for **F4** is blank. This indicates that no command is issued if you press the **F4** function key. If you press an inactive function key, the system beeps and the message line either indicates an undefined function key or continues to display the last message. The function key labels displayed apply only to the active menu or window.

Figure 11. Function Key Labels — System Monitor Window



Standard Function Key Labels

Standard function key labels remain constant regardless of the active menu or window. They represent commands that are valid for every menu or window in the system. See Table 2 on page 13 for a description of standard function key labels.

Table 2. Standard Function Key Labels

Key	Description
F1 Help	Opens an online help window. See Online Help on page 17 for more information about online help.
F6 Cancel	Closes the active screen and cancels any additions, deletions, or changes made. The screen that immediately precedes the just-closed screen becomes the active screen. If there is an activity in progress, such as making a backup copy of an application on a floppy disk, pressing **F6** (CANCEL) does not interrupt the operation.
F7 Cmd-Menu	Opens the Command Menu. Options include System Monitor, Trace Service, and Exit. See Command Menu on page 249 in Chapter 7, Common Administration, for more information.

Optional Function Key Labels

The optional function key labels change based on the active menu or window, and provide commands that are unique to the menu or window. See Table 3 on page 14 for a description of optional function key labels.

Table 3. Optional Function Key Labels

Function Key Label	Description
F2 (Choices)	Opens a menu screen containing choices for the current field, if there is a finite set of choices for a particular field. Move the cursor to the field you want to fill and press **F2** (CHOICES). The CHOICES menu opens, displaying the options available for that field.
F2 (Prevpage)	Scrolls back one full page, towards the beginning of text that is too long to fit within the active screen or window.
F3 (Nextpage)	Scrolls forward, toward the end of text that is too long to fit within the active screen, menu, or window. For example, pressing **F3** in Figure 11 on page 12 orders the system to move to the next page, while pressing **F3** in Figure 12 on page 16 sounds a beep, but does nothing else because that key is “empty.”
F3 (Save)	Preserves all changes made to the screen.
F4 (Top)	Scrolls toward the top of a page.

1 of 2

Table 3. Optional Function Key Labels

Function Key Label	Description
F5 (Bottom)	Scrolls toward the bottom of a page.
F6 (Print)	Prints the information provided by the active screen, such as a report.
F7 (Frm-Mgmt)	Opens the Frame Management Menu. See Command Menu on page 249 in Chapter 7, Common Administration, for more information. Options include list, move, refresh, and UNIX system.
F8 Chg-Keys	Switches the function key labels displayed from standard to optional, or vice versa. For example, Figure 11 on page 12 and Figure 12 on page 16 show the System Monitor window. Figure 12 on page 16 displays the optional function key labels through the use of **F8** (Chg-Keys) to switch between the standard (Figure 11 on page 12) and optional (Figure 12 on page 16) labels.

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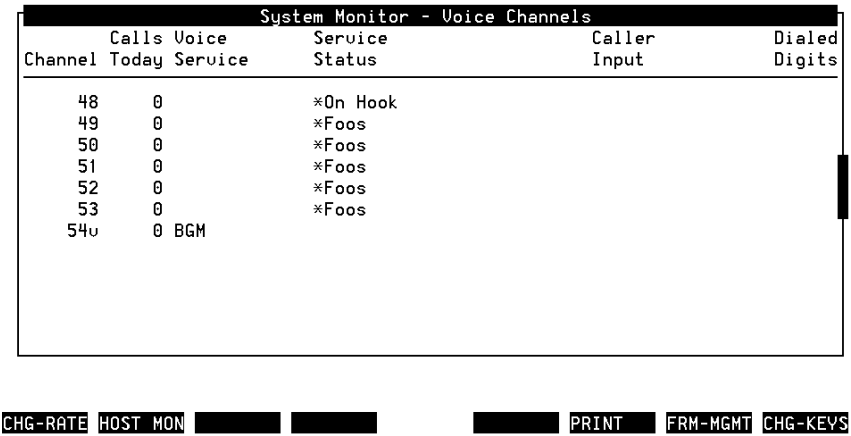
Figure 12. Change Keys — System Monitor Screen

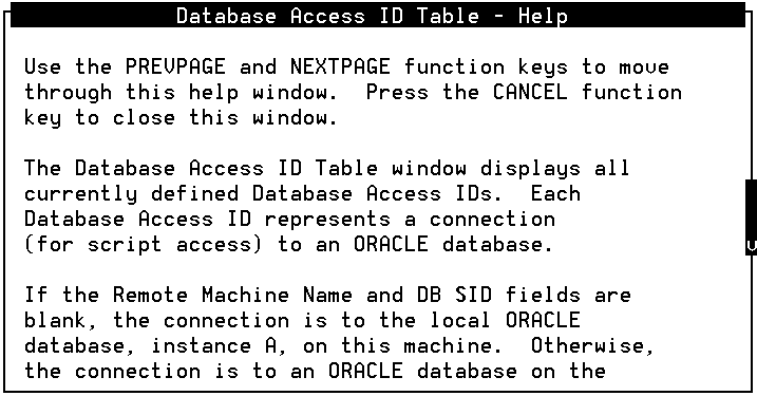


Note: In Figure 12, the **Host Mon** function key selection does not appear if host software is not installed.

Online Help

Most screens and windows have a companion text window that contains helpful reference information. Figure 13 shows the help screen associated with the Database Access ID Table window. The system online help windows are not designed to be a substitute for this book. They briefly describe each of your options for a given menu or window. Press **F1** to access online help.

Figure 13. Sample Online Help Screen, Database Access ID Table



Accessing the Administration Menus

To access the administration menu:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter one of the following commands at the prompt:

   ~ To display the administration menu, enter **cvis_mainmenu**

   The system displays the administration menu (Figure 14).

Figure 14. Administration Menu

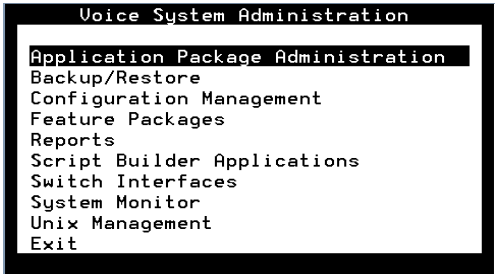
   ~ To display the Voice System Administration menu, enter **cvis_menu**

CAUTION:

Do not simultaneously change data in multiple **cvis_menu** sessions. You can display multiple systems, but do not make changes across sessions. Doing so can interfere with the changes.

The system displays the Voice System Administration menu (Figure 15).

Figure 15. Voice System Administration Menu



See Chapter 3, Voice System Administration, for more information and procedures on voice system administration.

Administration Menu Options

From the administration menu, you can initiate UNIX System Administration and Voice System Administration, or you may exit.

UNIX System Administration

From the UNIX System Administration menu, you can set up a variety of generic software operations including backups, printer operations, and peripheral setup. See Chapter 2, UNIX Administration, for more information and procedures on UNIX administration.

Voice System Administration

From the Voice System Administration menu, you can begin your session for administering the system, such as application packages or reports. See Chapter 3, Voice System Administration, for more information and procedures on voice system administration.

Exit

Exit takes you out of the administration menus and returns you to the UNIX system prompt.

Press **F6** (Cancel) from almost any place in the Administration menu structure to close the active window and return to the previous menu. If you press **F6** (Cancel) enough times, depending on how deep into the menus you are, you will eventually exit the menu structure completely and return to the operating system prompt.

Note: **F6** (Cancel) does not exit from the UNIX System Administration menus.

2 UNIX Administration

Overview

This chapter the procedures to access the UnixWare administration menu.

For complete information on UnixWare administration, see the UnixWare documentation at http:/www.sco.com/documentation.

UNIX System Administration Access

To access SCOADM, the OA&M menu interface of UnixWare:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter **cvis_mainmenu**

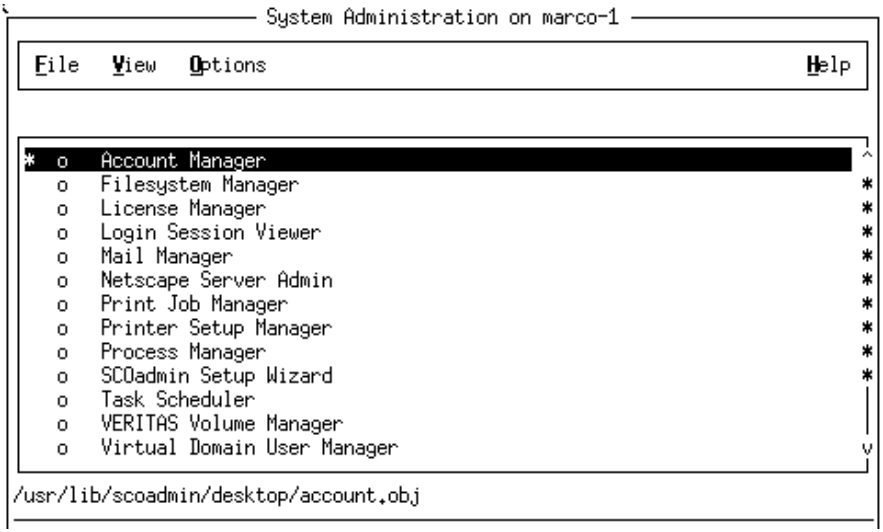
   The system displays the main menu (Figure 16 on page 22).

Figure 16. UCS 1000 R4.6 Main Menu

4 Select `UNIX System Administration`.

The system displays the UNIX System Administration menu (Figure 17 on page 23).

Figure 17. UNIX System Administration Menu



All of the procedures in this document assume that you are using the SCOADM user interface menus. The procedures provide references to the books detailing command line interfaces when possible.

3 Voice System Administration

Overview

The Voice System Administration menu provides access to many administrative options. This chapter describes how to access the Voice System Administration menu, and describes all of the administrative options. This chapter contains the reference and procedural information for the Configuration Management option.

Accessing the Voice System Administration Menu

To access the Voice System Administration menu:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

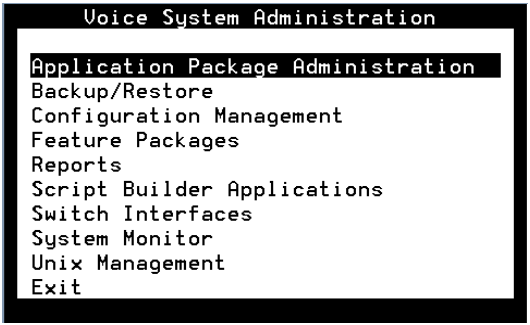
2. Enter your root password.

   The system displays the system prompt #.

3. Enter **cvis_menu**

The system displays the Voice System Administration menu (Figure 18).

Figure 18. Voice System Administration Menu



Voice System Administration Menu Options

From the Voice System Administration menu, you have access to all of the major administrative features of the voice system.

This section provides a brief overview of each of the administrative options on this menu.

Application Package Administration

The Application Package Administration menu provides administrative access to the applications currently installed on your system.

Backup/Restore

The Backup/Restore menu simplifies the backup and restore procedures by providing a user interface for differential and full backups.

See “Common System Procedures," in *UCS 1000 R4.6 System Reference*, 585-313-221, for more information on performing backup and restore procedures.

Configuration Management

The Configuration Management menu provides capabilities for you to perform the following administrative tasks:

- Add or remove database access IDs
- License features to the voice system
- Configure host sessions and manage host protocols
- Modify system messages
- Administer alarms
- Diagnose equipment
- Report system status
- Stop and start the voice system
- Manage all voice system circuit card resources
- Administer channels numbers and functionality

See Configuration Management on page 28 for more information.

Feature Packages

The Feature Packages menu provides administrative access to the optional feature packages currently installed.

Reports

The Reports menu allows you to generate and customize reports for:

- Call classification and data
- System messages
- System traffic

See Chapter 7, Common Administration, for more information on using the Reports menu.

Switch Interfaces

The Switch Interfaces menu provides access to administer digital switch parameters.

See Chapter 4, Switch Interface Administration, for more information on using the Switch Interfaces menu.

System Monitor

The System Monitor window displays the voice channels on the system and provides input on channel states (on-hook, dialing, and so on), call states, and caller input.

See Chapter 7, Common Administration, for more information on using the System Monitor window.

Unix Management

The Unix Management menu provides capabilities to format diskettes and tapes, administer printers and modems, install and remove software, and modify the system time and date.

See Chapter 6, Peripheral Administration, for more information on administering printers, modems, and terminals.

Configuration Management

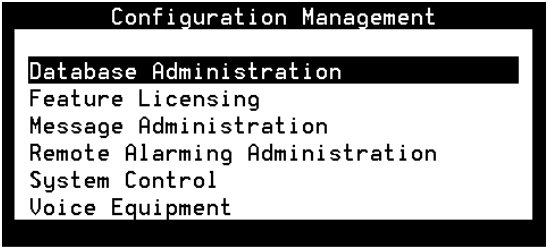
To access the Configuration Management menu:

1 Start at the Voice System Administration menu (Figure 18 on page 25) and select:

```
> Configuration Management
```

The system displays the Configuration Management menu (Figure 19 on page 29).

Figure 19. Configuration Management Menu



The Configuration Management menu contains the following options:

- Feature licensing (display Feature Licensing *only*)
- Message administration
- Remote alarming administration

Note: Remote alarming is not supported on UCS 1000 R4.6 systems.

- System control
- Voice equipment

See Chapter 5, Database Administration, for information on Database Administration.

Use the procedures in the following sections to perform voice system administration for the supported Configuration Management menu options.

Feature Licensing

Feature Licensing allows customers to purchase features on a per–channel basis. Only Lucent services personnel can activate and change the feature licenses. Feature licenses cannot be modified by the administrator.

An administrator can display and print a report of the current feature licenses.

CAUTION:
Your system's machine name is used by the Feature Licensing software. Call your support center before changing the machine name and thus avoid losing any of your feature licenses.

To access the Feature Licensing window and display the current feature licenses:

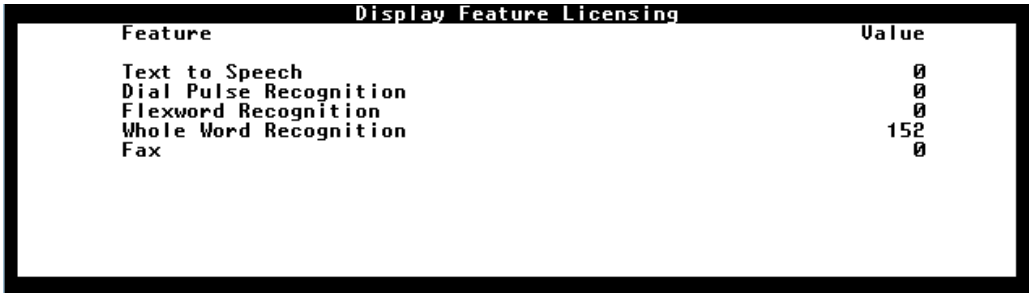
1 Start at the Configuration Management menu (Figure 19 on page 29) and select:

```
> Feature Licensing
```

The system displays the Display Feature Licensing window (Figure 20 on page 31).

Note: Figure 20 is a sample window. Your Display Feature Licensing window may look different depending on the feature packages you purchased.

Figure 20. Display Feature Licensing Window



Printing a Feature License Report

To print a report of the current system feature licenses:

1 Start at the Display Feature Licensing window (Figure 20 on page 31) and press **F8** (Actions).

The system displays the Actions menu (Figure 21).

Figure 21. Actions Menu

2 Select:

The system prints a copy of the Display Feature Licensing window (Figure 20 on page 31).

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

Message Administration

Messages are used to provide information about events and errors during system operations. System messages vary in content, priority, destination, and threshold parameters. Use the System Message Administration window to:

- List all the parameters associated with a particular system message.
- Add or remove a new destination to or from the current list of destinations for the current system message.
- Modify a message priority.
- Modify the system message threshold period.
- Add or remove a new threshold or threshold message ID pair to or from the current list of thresholds for the current system message.

Note: Some messages are generated with destinations and priorities that are not administrable through the System Message Administration windows (that is, GEN001, GEN002, and THR001–4). Almost all other messages can be administered through the System Message Administration windows.

Accessing Message Administration

To access message administration:

1 Start at the Configuration Management menu (Figure 19 on page 29) and select:

```
> Message Administration
```

The system displays the System Message Administration window (Figure 22).

Figure 22. System Message Administration Window

2 Enter the message ID of the message you want to administer in the `Message ID:` field, or press **F2** (Choices) to choose from a menu of currently defined messages.

3 Press **F3** (Save).

The system displays the System Message Display window (Figure 23).

Figure 23. System Message Display Window

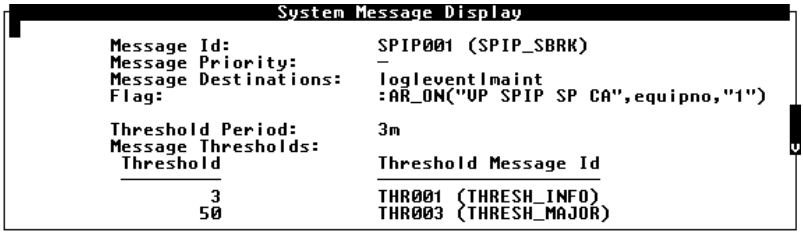


Table 4 on page 36 describes the fields in this window.

Table 4. Field Descriptions for the System Message Display Window

Field	Description
Message ID:	Specifies a unique name for each message in the system.
Message Priority:	Specifies the urgency level of the message. The Message Priority may be NONE or – (for none), * (for minor), ** (for major), or *C (for critical).
Message Destinations:	Specifies a list of destinations where the message should be sent. By default, messages are sent to the message master log and either the alarm log (if the message is an alarm) or the event log (if the message is an event).
Threshold Period:	Specifies the length of time the message is included in the threshold count, provided that one or more thresholds are defined for this message.
Message Thresholds:	Shows the message threshold for the corresponding Message ID in the Threshold Message ID: column. Most messages are not associated with a threshold.

1 of 2

Table 4. Field Descriptions for the System Message Display Window

Field	Description
Threshold:	Specifies the number of messages to be generated within the threshold period necessary to trigger the threshold action.
Threshold Message ID:	Specifies the ID of the message to be generated when a threshold is reached. The priority and the destinations for the threshold message should be meaningful as a thresholding action. For example, message ID VROP003 may have a priority of minor (*), while its corresponding threshold message ID could be THR003 which has a major (**) priority. Generating the THR003 message after enough VROP003 messages have been generated within the Threshold Period is the threshold action. THR001, THR002, THR003, and THR004 have priorities of none (–), minor (*), major (**), and critical (*C), respectively.
Message Text:	Text displayed when the message is generated. The message text can not be administered from the System Message Display window.

2 of 2

Adding Message Destinations

The system's message log provides a complete account of all messages generated by the voice system. All system messages are assigned to the appropriate destination during installation.

Note: If a message is changed from the event destination to the alarm destination, a similar change should be made on the message priority from none (–) to minor (*) and vice versa.

To add a destination to a message:

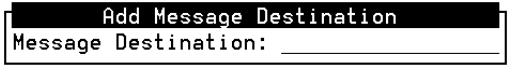
1. Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F1** (Add–Dest).

   The system displays the Add Message Destination window (Figure 24).

Figure 24. Add Message Destination Window



3 Enter the destination for the message you want to add in the `Message Destination:` field or press **F2** (Choices) to select from a menu.

Valid message destinations are:

- stderr — The standard error of the process generating the message. Since most system processes redirect standard error to the system console, specifying this destination may result in the message being sent to the system console.
- console — The system console or **/dev/console**.
- alertPipe — A specially named pipe for messages that must be sent directly to the alerter. The alerter pipe is used for some special system processes. Specification of the alerter pipe for other system messages has little or no effect on the system message facility or on the alerter itself. The system is distributed with some messages specified with the alerter pipe as a destination. This destination should not be removed from the message.

Note: Separating alarm destinations from event destinations ensures that alarm messages do not overrun event messages, and vice versa.

- alarm — Specifies that the delivery system send all alarm level messages, that is, minor, major, and critical (denoted by “*”, “**” and “*C”, respectively) to the alarm log. The alarm log may be accessed via the **display messages** command or the Message Log Report window.

~ event — Specifies that the delivery system send all event level messages (priority "–") to the event log. The event log may be accessed via the **display messages** command or the Message Log Report window.

4 Press **F3** (Save).

The system redisplays the System Message Display window (Figure 23 on page 35) showing the new message destination.

5 Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

The system installs the changes on the voice system.

Removing Message Destinations

This procedure allows you to remove a destination from the current list of destinations for the current system message.

To remove a message destination:

1 Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

The system displays the alternate set of function keys.

2 Press **F2** (Rem–Dest).

The system displays the Remove Message Destination window (Figure 25).

Figure 25. Remove Message Destination Window

3 Enter the Message Destination that you want to remove in the `Message Destination:` field, or press **F2** (Choices) to select from a menu.

Note: The destination on **log** is not a valid choice since this destination cannot be removed using the Remove Message Destination window.

4 Press **F3** (Save).

The system redisplays the System Message Display window (Figure 23 on page 35) showing the removed message destination.

5 Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

The system installs the changes on the voice system.

Adding Thresholds

Message thresholds are triggering devices that alert operations personnel to take action when a certain number of messages are generated over a certain period of time. Message thresholding allows for escalation of message priority or criticality. A system message may be of little concern when it occurs in small numbers over long time intervals. However, an increase of message occurrences over shorter time intervals may indicate more serious problems with the system. Message thresholding sends a new message to be sent when a threshold is reached. The new message may be higher in priority and have a different destination set than the original message.

This procedure adds a new threshold and thresholding message ID pair to the current list of thresholds for the current system message.

To add a message threshold:

1 Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

The system displays the alternate set of function keys.

2 Press **F3** (Add–Thsh).

The system displays the Add Threshold window (Figure 26).

Figure 26. Add Threshold Window

3 Enter a nonnegative integer threshold value or **none** in the `Threshold:` field.

4 Enter **THR001** (for none), **THR002** (for minor), **THR003** (for major), or **THR004** (for critical) in the `Threshold Message Id:` field, or press **F2** (Choices) to select from a menu.

5 Press **F3** (Save).

The system redisplays the System Message Display window (Figure 23 on page 35) showing the new message threshold.

6 Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

The system installs the changes on the voice system.

Removing Thresholds

This procedure allows you to remove a threshold or a threshold message ID pair from the list of thresholds for the current system message.

To remove a message threshold:

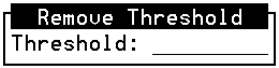
1. Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F4** (Rem-Thsh).

   The system displays the Remove Threshold window (Figure 27).

Figure 27. Remove Threshold Window



3. Enter a nonnegative integer message threshold value in the `Threshold:` field.

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

   The system redisplays the System Message Display window (Figure 23 on page 35) showing the message threshold removed.

5 Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

The system installs the changes on the voice system.

Modifying Message Priorities

This procedure allows you to modify message priority. When the system is installed, each message is assigned a particular priority. In most cases, these priorities are appropriate and do not need to be modified. Depending on the type of application, however, you may want to modify a message priority.

Events are messages of priority none (denoted by "–" in the System Message Administration window). Alarms are messages of priority minor, major, and critical (denoted by "*", "**", and *C, respectively) in the System Message Administration window.

Note: If you modify the message priority of some system messages, it can have an impact on other processes within the system. For example, if you change the message priority of HDWR001 to critical (*C), the alarm on the TAM is also changed to critical. See "HDWR Alarms and Log Messages" in Chapter 4, "Alarms and Log Messages," in *UCS 1000 R4.6 System Reference*, 585-313-221, for more information on the HDWR alarms and the TAM.

To modify a message priority:

1. Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F5** (Msg–Prio).

   The system displays the System Message Priority window (Figure 28).

Figure 28. System Message Priority Window

3. Enter a priority in the `Message Priority:` field or press **F2** (Choices) to select from a menu.
4. Press **F3** (Save).

   The system redisplays the System Message Display window (Figure 23 on page 35) showing the message threshold removed.

5. Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

   The system installs the changes on the voice system.

Modifying Threshold Periods

This procedure allows you to modify the system message threshold period, or the interval of time over which messages are counted for a given threshold.

To modify a threshold period:

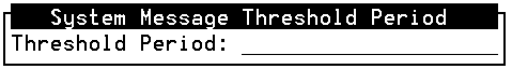
1. Start at the System Message Display window (Figure 23 on page 35) for a given message, and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F6** (Thsh-Per).

   The system displays the System Message Threshold Period window (Figure 29).

Figure 29. System Message Threshold Period Window



3. Enter a time interval in the `Threshold Period:` field or press **F2** (Choices) to select from a menu.

You must enter the threshold period as a time interval with the following syntax:

number[dimension] number[dimension]

where *number* is a positive integer and *dimension* is one of the following single characters:

- **w** for weeks
- **d** for days
- **h** for hours
- **m** for minutes
- **s** for seconds

Table 5 provides examples of threshold periods and the required syntax.

Table 5. Threshold Period Examples

Specification	Value or Description
1s 1h	A 3601-second threshold period
2w	A 14-day threshold period
5m 30s	A 330-second threshold period
5m 3m	BAD INTERVAL — Two minute specifications

4 Press **F3** (Save).

The system displays the System Message Display window (Figure 23 on page 35) showing the new threshold period.

5 Complete the Saving Changes and Exiting Message Administration on page 49 procedure.

The system installs the changes on the voice system.

Saving Changes and Exiting Message Administration

CAUTION:
You MUST perform this procedure if you want to save your message administration changes.

To save message administration changes and exit the Message Administration menu:

1 Start from any menu or window in the Message Administration menus and press **F6** (Cancel) until you return to the System Message Administration window (Figure 22 on page 34).

2 Press **F8** (Chg-Keys).

The system displays the alternate set of function keys.

3 Press **F4** (Install).

The system saves changes and returns to the Configuration Management menu (Figure 19 on page 29).

System Control

Use the System Control menu to:

- Display the status of the UCS 1000 R4.6 system
- Start and stop the voice system
- Diagnose circuit cards, channels, and buses

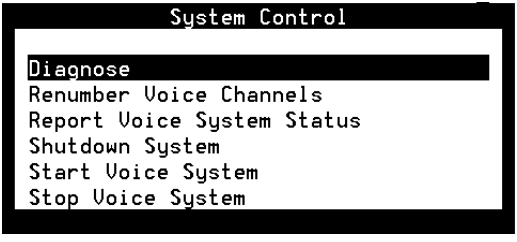
To access the System Control menu:

1 Start at the Configuration Management menu (Figure 19 on page 29) and select:

```
> System Control
```

The system displays the System Control menu (Figure 30).

Figure 30. System Control Menu



Diagnose

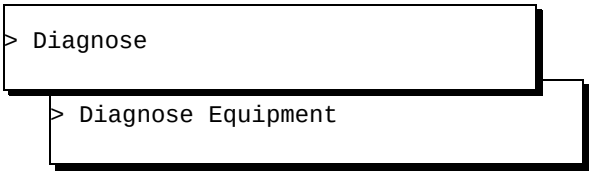
The Diagnose menu allows you to perform diagnostics on system equipment.

Diagnose Equipment

You can run diagnostics on E1/T1, Quad, LSPS, and SSP circuit cards. Run diagnostics whenever the system displays a message indicating circuit card failure.

To diagnose equipment:

1 Start at the System Control menu (Figure 30 on page 50) and select:



The system displays the Diagnose Equipment window (Figure 31).

Figure 31. Diagnose Equipment Window

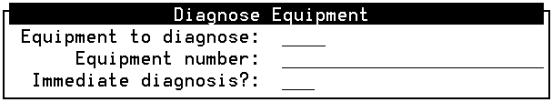


Table 6 describes the fields in this window.

Table 6. Field Descriptions for Diagnose Equipment Window

Field	Description
`Equipment to diagnose:`	Specifies whether the type of equipment to be diagnosed is a circuit card or a bus. Enter **card** or **bus**, or press **F2** (Choices) to select from a menu. There is no default value for this field. This is a required field.
`Equipment number:`	A number that identifies each E1/T1, LSPS, or SSP circuit card. Equipment numbers are defined by the position of the circuit card in the circuit card table shown on the Display Voice Equipment window (Figure 37 on page 62). Card range can be from 1 to 16. When you specify a range of circuit cards, cards are diagnosed in order, one at a time. This is a required field. The bus value must be **1**.
`Immediate diagnosis?:`	Specifies whether there should be immediate diagnosis on the selected circuit card. Type **y** for yes, **n** for no, or press **F2** (Choices) to select from a menu. If you choose yes, all calls on active channels for the specified equipment are terminated. If there are active calls and you choose no, the circuit card is returned to the original state and diagnostics are not performed. This is a required field. This field does not apply to bus diagnostics.

2 Enter the information as described in Table 6 on page 52.

3 Press **F3** (Save).

The system displays a report showing the status of the specified equipment.

4 Press **F6** (Cancel) repeatedly until you return to the System Control menu.

For more information on diagnostics, see Chapter 2, "Diagnostics," of *UCS 1000 R4.6 System Reference*, 585-313-221.

Renumbering Voice Channels

The Renumber Voice Channels option removes all nonexistent (NONEX) circuit cards from the voice equipment table. It then reorders all existing equipment. This reordering changes the channel numbers of some circuit cards. However, user-defined characteristics such as options, attributes, and script assignments do not change. If a circuit card is found in the system that was not in the voice equipment table, it is added under the appropriate heading with default settings.

The voice system automatically renumbers the voice channels in some circumstances, such as when you add or remove a span. Voice channels are also renumbered when you add an E1/T1 or Quad circuit card between

existing E1/T1 or Quad circuit cards so that the channels will again be consecutive.

CAUTION:
Renumbering voice channels shuts the system down immediately and restarts it. When you select this option, a warning is displayed and you are given the option of continuing with the procedure or returning to the System Control menu.

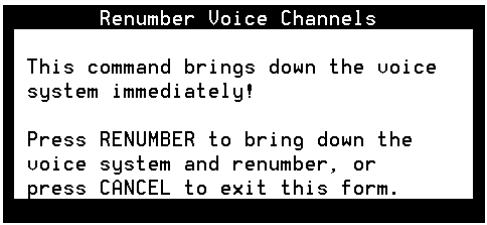
To renumber voice channels:

1 Start at the System Control menu (Figure 30 on page 50) and select:

```
> Renumber Voice Channels
```

The system displays the Renumber Voice Channels window (Figure 32).

Figure 32. Renumber Voice Channels Window



2 Press **F3** (Renumber) to continue.

The system renumbers voice channels.

Reporting Voice System Status

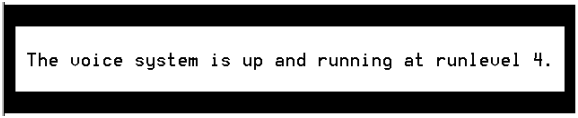
To see whether the voice system is running or stopped, and to view the current voice system run level.

1 Start at the System Control menu (Figure 30 on page 50) and select:

```
> Report Voice System Status
```

The system displays the Status of Voice System window (Figure 33).

Figure 33. Status of Voice System Window



2 Press **F1** (Acknowledge Message).

The system returns to the System Control menu (Figure 30 on page 50).

Stopping the Voice System

This procedure stops the voice system by taking all system channels out of service with the option to wait for in-progress calls to end. Stopping the system is usually done when you are performing some type of routine service such as backup and restore. When the system is stopped, the CPU does the following:

- Places the entire system in the idle state when all lines are free
- Saves internal system tables
- Turns off voice system processes

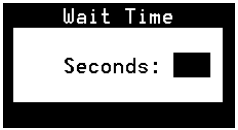
Use the following procedure to stop the voice system:

1 Start at the System Control menu (Figure 30 on page 50) and select:

```
> Stop Voice System
```

The system displays the Wait Time window (Figure 34).

Figure 34. Wait Time Window



2 Enter a time interval between 60 and 600 seconds in the `Seconds:` field, or press **F2** (Choices). The default is 180.

Note: During this wait time, all calls in progress are completed, but no new calls are accepted.

3 Press **F3** (Save).

The system displays a message telling you it will stop the voice system if you press **ENTER**.

Note: To return to the System Control menu without stopping the system, press **F6** (Cancel)

4 Press **ENTER**.

The system displays messages telling you it is stopping the voice system.

Shutting Down the System

CAUTION:
Always stop the voice system before executing a shutdown. Shutting down the system without stopping the voice system may negatively affect the software.

To shut down the system:

1 Start at the System Control menu (Figure 30 on page 50) and select:

```
> Shut Down the Voice System
```

The system displays the Wait Time window (Figure 35).

Figure 35. Wait Time Window

2 Enter a time interval between 60 and 600 seconds in the `Seconds:` field or press **F2** (Choices).

3 Press **F3** (Save).

The system waits the amount of time indicated, and then shuts the system down. The system then returns to the System Control menu (Figure 30 on page 50).

Starting the Voice System

This procedure allows you to start or restart the voice system. When this process is invoked, all channels that were deactivated when you stopped the voice system are returned to service in the maintenance state they had when the voice system was last running.

To start the voice system:

1 Start at the System Control menu (Figure 30 on page 50) and select:

```
> Start the Voice System
```

2 Press **ENTER**.

The system displays messages telling you it is starting up the voice system.

Voice Equipment

Voice equipment includes those circuit cards and their associated channels in the system that provide voice system functionality.

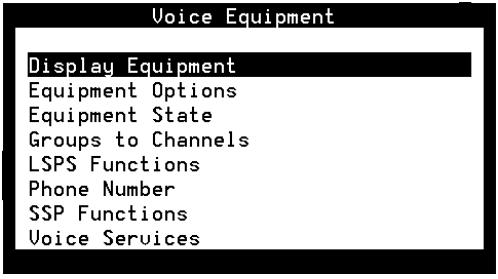
To access the Voice Equipment menu:

1 Start at the Configuration Management menu (Figure 19 on page 29) and select:

```
> Voice Equipment
```

The system displays the Voice Equipment menu (Figure 36).

Figure 36. Voice Equipment Menu



Note: The LSPS Functions and SSP Functions menu items appear only if you have the ASP Driver and LSPSset packages, respectively, installed.

Use the Voice Equipment menu to:

- Assign, display, and unassign voice system equipment options and states
- Change channel maintenance states
- Assign, display, and unassign channel and telephone number services
- Assign, display, and unassign circuit card and channel functions
- Print a report of voice system circuit card and channel options

Displaying the Voice Equipment Window

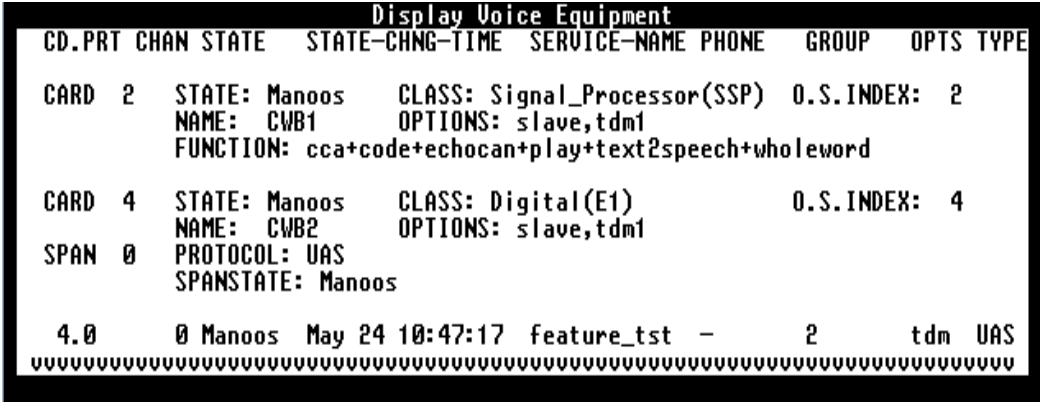
To access the Display Voice Equipment window:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> Display Equipment
```

The system displays the Display Equipment window (Figure 37).

Figure 37. Display Voice Equipment Window



This window, by default, displays all channels currently in the system, including:

- Circuit card, span, or card and port for a channel (`CD.PRT`)
- Circuit card, span, or channel number (`CHAN`)
- Circuit card, span, or channel state (`STATE`)
- Time of last state change (`STATE_CHNG_TIME`)
- Associated service name (`SERVICE_NAME`)

- Telephone number (PHONE)
- Group number (GROUP)
- Options (OPTS)
- Circuit card type (TYPE)

This window can be several pages long, depending on the display parameters for the window, and the equipment installed in the system.

Press **F2** (Prev Page) and **F3** (Next Page) to move up and down through the pages of this window.

Press **F4** (First Page) to view the first page of the window. Press **F5** (Last Page) to view the last page of the window.

Note: If the voice system is not currently running, the data displayed in the Display Voice Equipment window can be invalid.

Note: Cards in the NONEX state (that is, those that have been physically removed from the system, or have been "detached" using the **detach** command) do not show up in the Display Voice Equipment window.

Use the following procedure to modify the default display parameters for the Display Voice Equipment window.

Modifying the Display Voice Equipment Window Parameters

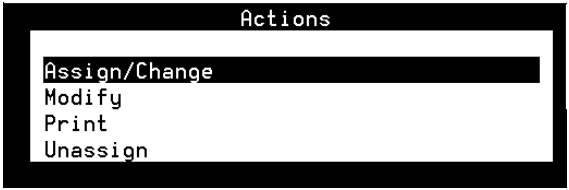
You can tailor the Display Voice Equipment window to show a full range of channels or a subrange. The parameters you specify are saved in a file and remain in effect until you change them.

To change the display parameters:

1 Start at the Display Voice Equipment window (Figure 37 on page 62) and press **F8** (Actions).

The system displays the Actions menu (Figure 38).

Figure 38. Actions Menu

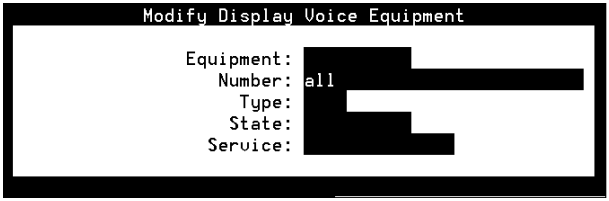


2 Select:

```
> Modify
```

The system displays the Modify Display Voice Equipment window (Figure 39).

Figure 39. Modify Display Voice Equipment Window



3 Enter one of the following in the `Equipment:` field, or press **F2** (Choices) to select from a menu.

~ **card** — This parameter displays the functions or protocol assigned to each circuit card and the options and O.S. Index (slot number) for each of the voice system circuit cards installed. For circuits cards with associated channels, this parameter also shows all channel information.

- LSPS circuit cards: The **card** parameter shows only circuit card information since these types of cards do not have channels associated with them.

- SSP circuit cards: The **card** parameter shows only cirucuit card information since these types of cards do not have channels associated with them.
- E1/T1: The **card** parameter also shows all channel information (in the CD.PRT and CHAN columns), since these types of circuit cards also have channels associated with them.
- Quad: The **card** parameter also shows all channel information for all spans (in the CD.PRT and CHAN columns), since these types of circuit cards also have channels associated with them.

~ **channel** (default) — Information displayed with the channel and card parameters is almost identical. However, the card parameter also displays the version of software that is running on each circuit card (in the FUNCTION: field), circuit card options, and the circuit card O.S. Index (slot number).

~ **group** — In the standard display, with the GROUP column last, only the first seven characters in that field are displayed. For example, a channel may be assigned to groups “1,2,3,4,5,6,7,8,9,10”, but the GROUP column displays only “1,2,3,4”.

~ **span** — This parameter displays the same information as the **card** parameter but displays information for only those circuit cards with spans associated with them.

4 Enter a single number, or a range of numbers separated by commas or spaces, or **all** (default) in the `Number:` field to specify a certain equipment number or number range to be displayed.

5 (Optional) In the `Type:` field, enter **SSP**, **LSPS**, or **T1** to specify an equipment type, or press **F2** (Choices) to select from a menu. If you leave this field blank, all equipment types are displayed.

6 (Optional) In the `State:` field, enter a maintenance state, or press **F2** (Choices) to select from a menu. This field limits the voice equipment display to circuit cards or channels in a particular state. If you leave this field blank, all maintenance states are displayed. See Equipment State on page 70 for a list and description of each maintenance state.

7 (Optional) In the `Service:` field, enter a service name, or press **F2** (Choices) to select from a menu. This field is used to limit the voice equipment display to channels that are associated with a particular service or function. This field is valid only if the `Equipment:` field is **channel**. If you leave this field blank, the system does not restrict the display to any one service.

A special service name of "*DNIS_SVC" is available. If you enter ***DNIS_SVC**, the voice equipment display shows the number service based on the calling party's number.

8 Press **F3** (Save).

The system saves the display settings to a file and returns to the Display Voice Equipment window with the modified parameters.

Equipment Options

The equipment options indicate to the voice system the functionality of the digital circuit cards (also known as *voice circuit cards*).

Note: All the digital E1/T1 (CWB2) circuit cards should be set to **tdm**. It is the only valid setting. Quad circuit cards can be set to either **tdm** or **talk**. The default for Quad circuit cards is talk mode.

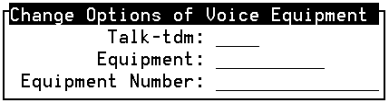
To change voice equipment options for digital circuit cards:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> Equipment Options
```

The system displays the Change Options of Voice Equipment window (Figure 40).

Figure 40. Change Options of Voice Equipment Window



2 Enter **tdm** or **talk** in the `Talk-tdm:` field, or press **F2** (Choices) to select from a menu.

Note: If a system application uses background speech or music, changing the equipment option may affect how the callers hears the background speech or music. When the channel is set to *tdm*, foreground speech plays simultaneously with background speech. Note that background speech plays at a lower volume than foreground speech.

3 Enter **circuit card** or **channel** in the `Equipment:` field, or press **F2** (Choices) to select from a menu. If you specify a circuit card, the option is set for all channels of that circuit card.

4 Enter a single number or range of numbers to select the voice circuit cards or channels to change in the `Equipment Number:` field, or enter **all** (default).

5 Press **F3** (Save).

The system saves the voice equipment options.

Equipment State

The equipment states, listed below, indicate to the voice system whether or not a voice circuit card/channel is ready and able to receive calls, process speech, and so on.

Note: Cards in the NONEX state (that is, those that have been physically removed from the system, or have been "detached" using the **detach** command) do not show up in Display Voice Equipment window.

The Change Equipment State menu option allows you to change the state, or maintenance state, of a card or channel. Some states are valid only for cards and cannot be used for channels. The following is a description of the different maintenance states for voice equipment:

- MANOOS (manual out-of-service) — Indicates that the circuit card or channel has been taken out of service with a command that was issued manually.

Note: Change SSP and/or LSPS circuit cards to the MANOOS state only when there are no active calls on the system. The MANOOS state disrupts voice playback on all speech processing circuit card channels (if only one speech processing circuit card is installed) or negatively affects voice playback performance on all channels (if more than one speech processing circuit card is installed).

- INSERV (in service) — Indicates that the circuit card or channel is in service and able to carry a transaction.
- FOOS (facility out-of-service) — Indicates that the circuit card or channel was been taken out of service by the voice system because the link to the switch is out of service (not physically connected, switch down, and so on).
- BROKEN (broken) — Indicates the circuit card or channel was taken out of service by the system. Reasons include failure to download or initialize, or failure to pass diagnostics.

  Cards or channels are placed in the broken state by the system. An administrator cannot change a channel to the broken state.
- HWOOS (hardware out-of-service) — Indicates the circuit card or channel is out of service due to one or more of its dependencies being out of service, broken, or not physically connected.
- NETOOS (network out-of-service) — For digital circuit cards or channels only: Indicates that the system is ready for the channel to go inserv, but is waiting for the network switch to also be ready for the channel to go inserv. Note that channels can freeze in this state if the switch is not ready for the channel to go inserv.

As indicated in the list, some maintenance states are reserved for the voice system only. A system administrator cannot place the equipment in these states. However, a system administrator can place the equipment into the

MANOOS state, and then into the inserv state. See Table 7 on page 72 for a description of the valid administrator changes.

Table 7. Valid Equipment State Changes

If a Card/Channel is . . .	You May Change It to . . .	For Equipment Type . . .
MANOOS	INSERV	circuit cards, spans, or channels.
INSERV	MANOOS	circuit cards, spans, or channels.
FOOS	MANOOS	circuit cards, spans, or channels.
NETOOS	MANOOS	digital circuit cards, spans, or channels.
HWOOS	MANOOS	circuit cards, spans, or channels.
BROKEN	MANOOS	circuit cards or channels.

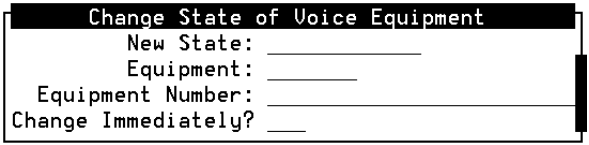
To change the maintenance state of a circuit card or channel:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> Equipment State
```

The system displays the Change State of Voice Equipment window (Figure 41).

Figure 41. Change State of Voice Equipment Window



2 Enter the state to which the designated equipment should be changed in the `New State:` field or press **F2** (Choices) to select from a menu. Valid choices are **inserv** (in service) and **manoos** (manual out–of–service).

3 Enter **channel**, **span**, or **card** for the type of equipment in the `Equipment:` field, or press **F2** (Choices) to select from a menu.

4 Enter the equipment number or numbers for which you want to change the state in the `Equipment Number:` field. Type a single number, a range of numbers separated by commas or spaces, or **all** (default).

5 (Optional) Enter **Yes** or **No** in the `Change Immediately:` field.

If you entered **manoos** in the `New State` field and **Yes** in this field, active calls on the specified equipment are disconnected abruptly. If you entered **No** in this field, the state is changed after all current calls end. The

changes might not be displayed immediately if you use the No value. If you leave this field blank, the No value is used as the default.

6 Press **F3** (Save).

The system changes the maintenance state of the selected voice equipment.

Suggestions for Changing the Maintenance State of Channels

Use the following information to help you determine why a channel may be placed in a given maintenance state.

Manoos E1/T1 Channels Using E&M Protocol

The following suggestions apply only to individual MANOOS E1/T1 channels using the E&M protocol. Other E1/T1 protocols provide the ability to remove individual channels from service.

At times, you may want to limit the number of calls the system handles by removing some of the E1/T1 channels from service. Note that removing E1/T1 channels, however, may negatively impact the system if the switch uses an inappropriate hunting pattern.

The E&M protocol does not allow you to remove individual channels from service. If a switch using the E&M protocol does not recognize that a channel is in a MANOOS state, it continues to route calls to that channel.

The system thus returns a busy signal to the caller if the switch directs the call to a MANOOS channel. For some hunting patterns (for example, those

using a round–robin pattern for new call delivery), this is not desirable. With a round–robin style of delivery, the switch routes a new call to the next channel in the hunt group. When the switch reaches the end of the group, it starts again at the beginning. Consequently, the caller could receive a busy signal even though there might be other idle channels that are in service.

Ideally, the switch should use all inserv channels before attempting to use any MANOOS channels. You can force the switch to use inserv channels before using MANOOS channels by requesting a switch hunting pattern that always scans for idle channels starting at the beginning of the hunt group. On a 4ESS switch, for example, this is achieved by requesting a “trunk hunt without memory.” You can then limit the number of simultaneous incoming calls by placing the least-used channels (channels at the end of the hunt group) into the MANOOS state. A new call is routed to a channel that is in the MANOOS state only if all inserv channels are being used.

Manoos E1/T1 Channels

When all channels on an E1/T1 or Quad span are in the MANOOS state, the a BLUE alarm for each span is generated to the switch. Calls are not routed to any of the channels on that E1/T1 or Quad span.

Groups to Channels

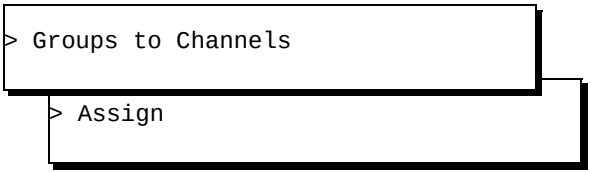
The Groups to Channel menu option allows you to assign and unassign channels to one or more equipment groups. For example, an equipment

group can be dedicated to outbound call bridging so that bridging does not interfere with incoming calls.

Assigning Groups to Channels

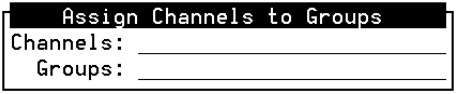
To assign an equipment group to channels:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:



The system displays the Assign Channels to Groups window (Figure 42).

Figure 42. Assign Channels to Groups Window



2 Enter the channel or range of channels that you want to assign to equipment groups in the `Channels:` field. Type a single channel number or a range of channel numbers separated by commas or spaces. To assign all channels to the equipment groups specified in the `Groups:` field, type **all**.

3 Enter the equipment group or groups to which you want to assign the channels in the `Groups:` field. Type a single equipment group number, or a range of equipment group numbers separated by commas or spaces. Valid equipment group numbers are 0 to 30.

Note: Equipment group 31 is a reserved group. It is used to specify channels that the system should ignore when it executes a soft seizure (**soft_szr** command). This allows you to mark certain channels as not being in the channel group specified by a soft seizure request on “any channel, any equipment group.” If a channel is assigned to equipment groups 0 and 31, it is only considered for soft seizures that specifically request equipment group 0.

4 Press **F3** (Save).

The system assigns the specified channels to the selected equipment groups.

Unassigning Groups to Channels

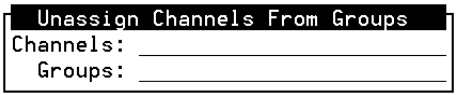
To unassign an equipment group to channels:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> Groups to Channels
      > Unassign
```

The system displays the Unassign Channels From Groups window (Figure 43).

Figure 43. Unassign Channels From Groups Window



2 Enter the channel or range of channels that you want to unassign to equipment groups in the `Channels:` field. Type a single channel number or a range of channel numbers, separated by commas or spaces. To unassign all channels from the equipment groups specified in the `Groups:` field, type **all**.

3 Enter the equipment group or groups to which you want to unassign the channels in the `Groups:` field. Type a single equipment group number, or a range of equipment group numbers separated by commas or spaces. Valid equipment group numbers are 0 to 30, with equipment group 31 used as a reserved group.

4 Press **F3** (Save).

The system unassigns the specified channels from the selected equipment groups.

LSPS Functions

The LSPS Functions menu option allow you to assign functions to the LSPS circuit cards, or to change the currently assigned functions of LSPS circuit cards.

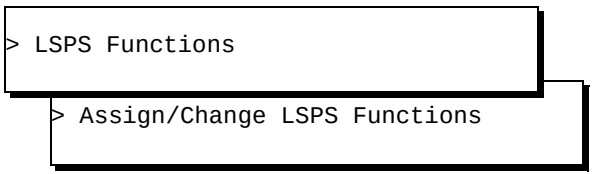
The LSPS card is in the UNASSIGNED state when it is first installed. The card cannot be put into service while in the UNASSIGNED state. You must first put the card in the MANOOS state before assignments can be made. See Equipment State on page 70 for information on changing states.

Assigning LSPS Functions

To assign functions to LSPS circuit cards:

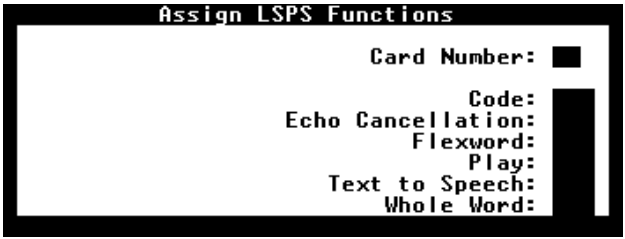
Note: Assign the Text-to-Speech function only to a circuit card that does not have FlexWord or Wholeword assigned to it. Mixing these functions on a circuit card significantly reduces performance. Other combinations of functions can be assigned to the same circuit card without affecting performance.

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:



The system displays the Assign LSPS Functions window (Figure 44 on page 81).

Figure 44. Assign LSPS Functions Window



CAUTION:

Be careful when making assignments and reassignments. Assignments made in the Assign LSPS Functions window overwrite any other assignments that are currently in effect on the specified circuit cards.

2 Enter a single number or press **F2** (Choices) to select from a menu in the `Card Number:` field. After entering the card number, the current settings are displayed.

3 In the remaining fields, enable the function with **Yes** or disable with **No**.

All of these functions can be used in combination with one another. To assign a function, the software package supplying that function must be installed on the voice system.

CAUTION:
You *CANNOT* assign the same function to both an LSPS and an SSP card.

Displaying LSPS Functions

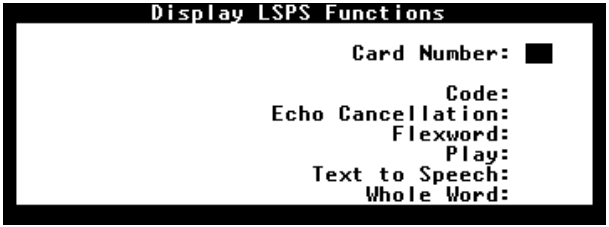
To view the current assignments for the LSPS cards in your system:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> LSPS Functions
    > Display LSPS Functions
```

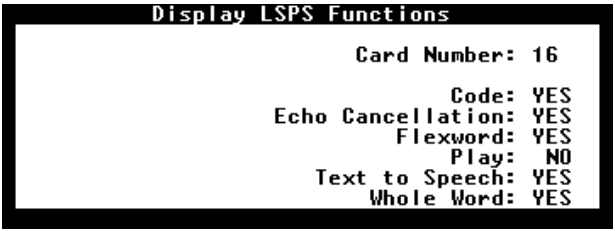
The system displays the Display LSPS Functions window (Figure 45).

Figure 45. Display LSPS Functions Window



2 In the `Card Number:` field, enter a single number or press **F2** (Choices) to select from a menu. After entering the card number, the current settings are displayed (Figure 46).

Figure 46. Example Display LSPS Functions Window



3 Press **F6** (Cancel) twice to return to the Voice Equipment menu (Figure 36 on page 60).

SSP Functions

Using the SSP Functions menu option, you can assign functions to SSP circuit cards or to change the functions that are currently assigned.

The SSP card is in the UNASSIGNED state when it is first installed. The card cannot be put into service while in the UNASSIGNED state. You must first put the card in the MANOOS state before assignments can be made. See Equipment State on page 70 for information on changing states.

Assigning SSP Functions

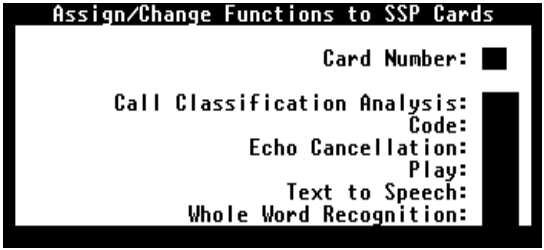
To assign functions to SSP circuit cards:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> SSP Functions
    > Assign/Change SSP Functions
```

The system displays the Assign/Change Functions to SSP Cards window (Figure 47).

Figure 47. Assign/Change Functions to SSP Cards Window



CAUTION:
Be careful when making assignments and reassignments. Assignments made in the Assign Functions to SSP Cards window overwrite any other assignments that are currently in effect on the specified circuit cards.

2 Enter a single number or press **F2** (Choices) to select from a menu in the `Card Number:` field. After entering the card number, the current settings are displayed.

3 In the remaining fields, enable the function with **Yes** or disable with **No**. The optional feature packages shown below may or may not appear in the Assign/Change Functions to SSP Cards window, depending on the software installed on your voice system.

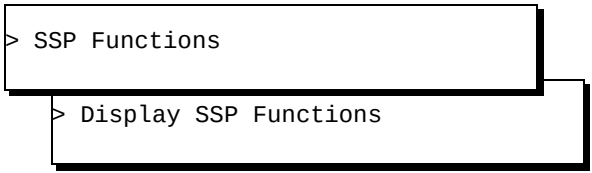
All of these functions can be used in combination with one another. To assign a function, the software package supplying that function must be installed on the voice system.

CAUTION:
You *CANNOT* assign the same function to both an LSPS and an SSP card.

Displaying SSP Functions

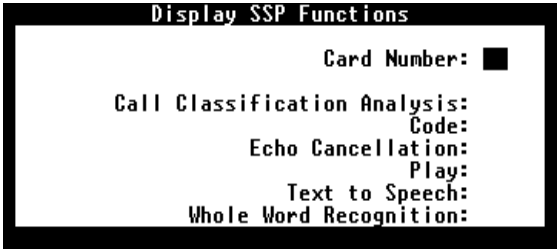
To view the current assignments for the SSP cards in your system:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:



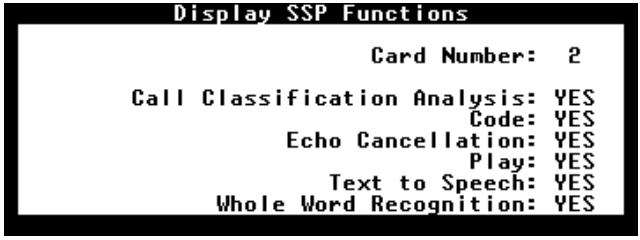
The system displays the Display SSP Functions window (Figure 48).

Figure 48. Display SSP Functions Window



2 In the `Card Number:` field, enter a single number or press **F2** (Choices) to select from a menu. After entering the card number, the current settings are displayed (Figure 49).

Figure 49. Example Display SSP Functions Window



3 Press **F6** (Cancel) twice to return to the Voice Equipment menu (Figure 36 on page 60).

Voice Services

The Voice Services menu option allows you to assign, display, and unassign channel and number services.

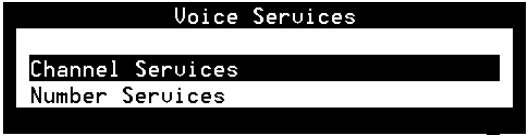
To access the Voice Services menu:

1 Start at the Voice Equipment menu (Figure 36 on page 60) and select:

```
> Voice Services
```

The system displays the Voice Services menu (Figure 50).

Figure 50. Voice Services Menu



Channel Services

The Channel Services menu option allows you to assign, display, and unassign channel services.

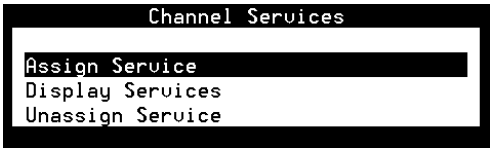
To access the Channel Services menu:

1 Start at the Voice Services menu (Figure 50) and select:

```
> Channel Services
```

The system displays the Channel Services menu (Figure 51).

Figure 51. Channel Services Menu



Assign Service

The Assign Services to Channels window allows you to specify the service or application to use for incoming calls on one or more channels.

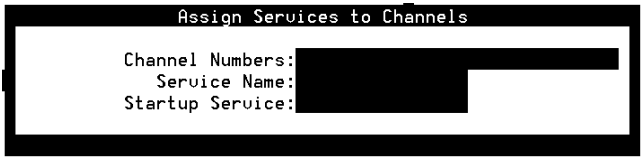
To assign services to channels:

1 Start at the Channel Services menu (Figure 51) and select:

```
> Assign Service
```

The system displays the Assign Services to Channels window (Figure 52).

Figure 52. Assign Services to Channels Window



2 In the `Channel Numbers:` field, enter the channel number or range of numbers.

Valid numbers range from 0 to the maximum number of channels in the system. You can enter multiple channels separated by commas or a range of channels using a dash. For example, an entry of **1, 3–5, 10** specifies channels 1, 3, 4, 5, and 10.

3 Enter the name of the service that will handle the incoming call in the `Service Name:` field. Valid names are a string of 16 characters or less, or press **F2** (Choices) to select from a menu.

A special service name of “*DNIS_SVC” is available. It allows you to select a number service based on the called and calling numbers. It is also used when multiple services are supported by a single trunk or when

special services are required for specific callers. DNIS (called party) is available with E1/T1 (E&M) and PRI.

Another special service name “ANI” (calling party) is available with PRI.

4 Leave the `Startup Service:` field blank.

5 Press **F3** (Save Assign).

The system assigns the indicated services to the selected channel or range of channels.

Display Channel Services

The Display Channel Services window displays all currently assigned channel services.

To display channel services:

1 Start at the Channel Services menu (Figure 51 on page 89) and select:

```
> Display Services
```

The system displays the Display Channel Services window (Figure 53).

Figure 53. Display Channel Services Window

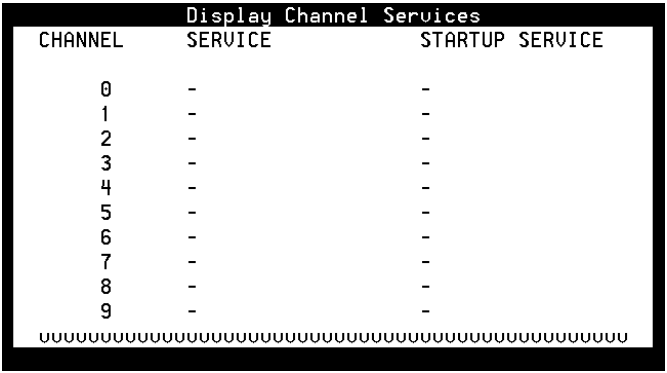


Table 8 describes the columns in this window.

Table 8. Field Descriptions for the Display Channel Services Window

Column Name	Description
CHANNEL	Channel number assigned to the service displayed in the SERVICE column
SERVICE	Name of the service that corresponds to the channel number displayed in the CHANNEL column
STARTUP SERVICE	Name of the service that handles calls requiring special call set up procedures

Unassigning Channel Service

The Unassign Service menu option allows you to unassign services from one or more channels.

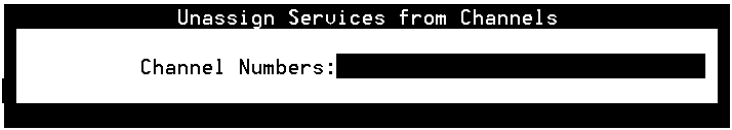
To unassign channel service:

1 Start at the Channel Services menu (Figure 51 on page 89) and select:

```
> Unassign Service
```

The system displays the Unassign Services from Channels window (Figure 54).

Figure 54. Unassign Services from Channels Window



2 Enter the channel number or range of numbers to be unassigned in the `Channel Numbers:` field.

Valid numbers range from 0 to the maximum number of channels in the system. You can enter multiple channels separated by commas or a range of channels using a dash. For example, an entry of **1, 3–5, 10** specifies channels 1, 3, 4, 5, and 10.

3 Press **F3** (Save).

The system unassigns the selected channel or range of channels.

Number Services

The Number Services menu option allows you to assign, display, and unassign numbers services.

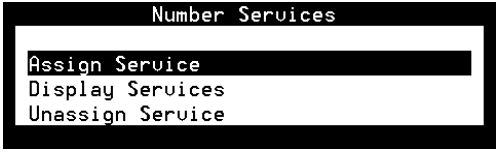
To access the Number Services menu:

1 Start at the Voice Services menu (Figure 50 on page 88) and select:

```
> Number Services
```

The system displays the Number Services menu (Figure 55).

Figure 55. Number Services Menu



Assign Number Service

The Assign Services to Number window allows you to specify a service or application to use for incoming calls on the called number (DNIS) or calling number (ANI). It is only valid for channels assigned to *DNIS_SVC.

To assign number service:

1 Start at the Number Services menu (Figure 36 on page 60) and select:

```
> Assign Service
```

The system displays the Assign Number Service window (Figure 56).

Figure 56. Assign Number Service Window

2 Enter a number, range of numbers, or **any** in the `Called Numbers:` field.

This number or range represents the telephone number or numbers to dial to reach the specified service. The number of digits must match those that the switch provides. You can enter numbers with a comma, a dash, or a space as delimiters. The first column contains a single number, the word *any*, or the first number in the range. The second column contains the last number in the range.

For example, to specify the extension 4876, enter **4876** in column 1 and leave column 2 blank. To specify any number, enter **any** in column 1 and leave column 2 blank. To specify a range 5554876–5555210, enter **555–4876** in column 1 and **555–5210** in column 2.

3 Enter the number, range of numbers, or in the `Calling Numbers:` field.

This number or range represents the caller's (or calling party) number or numbers. The number of digits must match those that the switch provides. You can enter numbers with a comma, a dash, or a space as delimiters. The first column contains a single number, the word *any*, or the first number in the range. The second column contains the last number in the range.

For example, to specify the single number 6145554876, enter **6145554876** in column 1 and leave column 2 blank. To specify any number, enter **any** in column 1 and leave column 2 blank. To specify a range 5554876–5555210, enter **555–4876** in column 1 and **555–5210** in column 2.

4 Enter a string of 16 characters or less in the `Service Name:` field or press **F2** (Choices) to select from a menu. This field represents the name of the service that handles the incoming call on the channel or channels.

5 Press **F3** (Save).

The system assigns a service to the specified number or numbers.

Displaying Number Services

The Display Number Services window displays all currently assigned number services.

Use this procedure to display number services:

1 Start at the Number Services menu (Figure 55 on page 95) and select:

```
> Display Services
```

The system displays the Display Number Services window (Figure 57).

Figure 57. Display Number Services Window

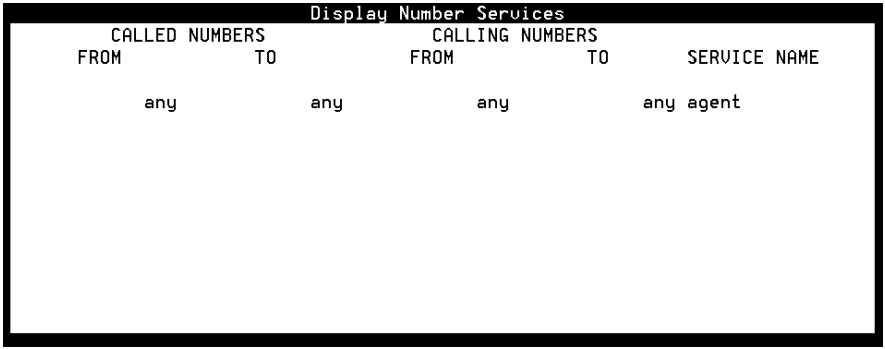


Table 9 describes the columns in this window.

Table 9. Column Description for the Display Number Services Window

Column Name	Description
CALLED NUMBERS	Displays the called number corresponding to the service (E&M and PRI)
CALLING NUMBERS	Displays the calling number corresponding to the service (PRI)
SERVICE NAME	Displays the name of the service that corresponds to the called or calling number

Unassign Number Service

The Unassign Service menu option allows you to unassign services from one or more numbers.

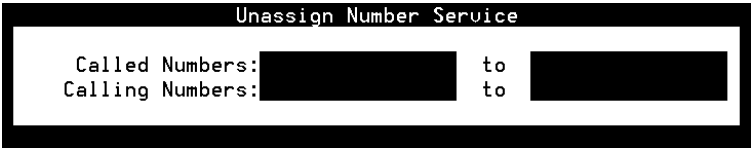
To unassign number service:

1 Start at the Number Services menu (Figure 55 on page 95) and select:

```
> Unassign Service
```

The system displays the Unassign Number Service window (Figure 58).

Figure 58. Unassign Number Service Window



2 Enter a number, range of numbers, or **any** in the `Called Numbers:` field.

This number or range represents the telephone number or numbers to dial to reach the specified service. The number of digits must match those that the switch provides. You can enter numbers with a comma, a dash, or a space as delimiters. The first column contains a single number, the word *any*, or the first number in the range. The second column contains the last number in the range.

For example, specify the single number 6145554876, enter **6145554876** in column 1 and leave column 2 blank. To specify any number, enter **any** in column 1 and leave column 2 blank. To specify a range 5554876–5555210, enter **555–4876** in column 1 and **555–5210** in column 2.

3 Enter the number, range of numbers, or **any** in the `Called Numbers:` field.

This number or range represents the caller's (or calling party) number or numbers. The number of digits must match those that the switch provides. You can enter numbers with a comma, a dash, or a space as delimiters. The first column contains a single number, the word *any*, or the first number in the range. The second column contains the last number in the range.

For example, to specify the single number 6145554876, enter **6145554876** in column 1 and leave column 2 blank. To specify any number, enter **any** in column 1 and leave column 2 blank. To specify a range 5554876–5555210, enter **555–4876** in column 1 and **555–5210** in column 2.

4 Press **F3** (Save).

The system unassigns a service from the specified number or numbers.

Printing a Voice Equipment Report

Use the voice equipment print option to obtain a complete printout of the voice equipment report.

To print a voice equipment report:

1 Start at the Display Voice Equipment window (Figure 37 on page 62) and press **F8** (Actions).

The system displays the Actions menu (Figure 21 on page 32).

2 Select:

```
> Print
```

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

FAX Administration

With the Next Generation FAX feature package, you can send and receive faxes. IRAPI commands are used to control the process.

For information on the IRAPI commands used to control FAX, see *UCS 1000 R4.6 Application Development with Advanced Methods*, 585-313-225:

- Chapter 5, "IRAPI"
- Appendix A, "Application Examples" (contains examples of FAX applications)

Note: At least one SSP (CWB1) circuit card and one E1/T1 or Quad circuit card must be installed and operational. The LSPS II circuit card does not support the FAX feature package.

Log messages FAX001 (FAX print operation filed) and FAX002 (FAX record operation failed) are described in *UCS 1000 R4.6 System Reference*, 585-313-221, along with possible causes for the condition.

4 Switch Interface Administration

Overview

This chapter provides procedural information and reference information for administering the supported digital switch interfaces. The Switch Interfaces menu allows you to define the interaction between the system and the switches connected to it by allowing you to modify switch interface parameters and protocol options for digital interfaces.

Switch Interfaces Hardware

The circuit cards that provide digital interfaces can have one or more connections or *spans*. The E1/T1 (CWB2) circuit card has one connection, and the Quad T1 (CWB10) and Quad E1 (CWB11 and CWB12) circuit cards have from one to four connections. Each digital connection has a unique *span number* that is used in the fields and windows discussed in this chapter.

Span Number Format (*card.span*)

The span number is entered and displayed in the format of ***card.span***. This variable includes the card number and the number of the individual span on that card. The ***card*** portion of the span number corresponds to the card slot

number, such as 1, 2, 3, and so forth. The span portion of the span number refers to the number of the individual span on that card. For the E1/T1 circuit card, the span number is always 0. For Quad circuit cards, the span number is 0, 1, 2, or 3.

For example, a span number for an E1/T1 circuit card might be 2.0, indicating the circuit card in slot two. Because the E1/T1 circuit card has only one span, the ***span*** portion of ***card.span*** will always be 0. The span number for the third span on a Quad circuit card in the slot four is 4.3.

Accessing the Switch Interfaces Menu

To access the Switch Interfaces menu:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

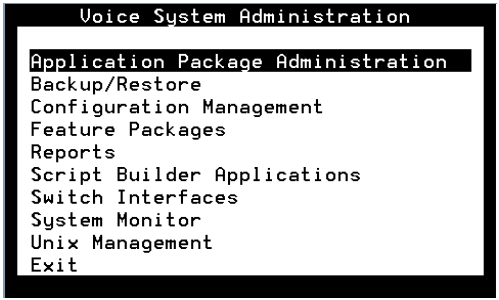
2. Enter your root password.

   The system displays the system prompt #.

3. Enter **cvis_menu**

The system displays the Voice System Administration menu (Figure 59).

Figure 59. Voice System Administration Menu



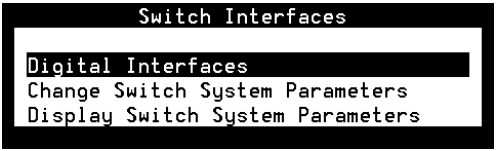
4 Select:

```
> Switch Interfaces
```

5 Press **ENTER**.

The system displays the Switch Interfaces menu (Figure 60).

Figure 60. Switch Interfaces Menu



Digital Interfaces

Digital interfaces are administered on a span-by-span basis; that is, digital parameters apply to individual spans in the digital circuit cards in the system.

Currently, the E1/T1 and Quad circuit cards support the protocols as shown in Table 10.

Table 10. Supported Protocols

E1/T1 Circuit Card	Quad Circuit Card
• T1 A/B Robbed-bit E&M • E1 CAS • ISDN-Primary Rate Interface (PRI)	• ISDN-Primary Rate Interface (PRI)

The process of administering the digital interfaces consists of selecting a protocol based on the circuit card type and either accepting the default values as displayed or changing the default values.

Accessing the Digital Interfaces Menu

The Digital Interfaces menu displays all digital protocols installed on your system.

Note: All selected options must match the corresponding options on the switch PBX or network to avoid service problems.

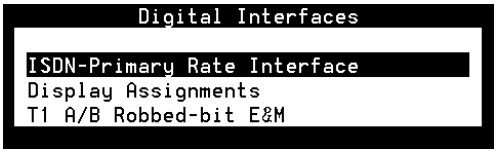
To access the Digital Interfaces menu:

1 Start at the Switch Interfaces menu (Figure 60 on page 108) and select:

```
> Digital Interfaces
```

The system displays the Digital Interfaces menu (Figure 61).

Figure 61. Digital Interfaces Menu



Note: Figure 61 displays the installed digital protocol packages. A package must be installed before it is displayed in this menu.

From this menu, you can either display the current digital assignments or select the protocol that you want to administer. Each item in the menu is described in the sections below.

Displaying Digital Interface Assignments

The Display Digital Interface Assignments window displays the E1/T1 and Quad spans and the function assigned to each span.

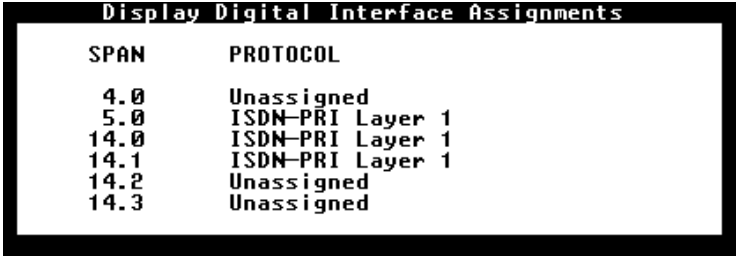
To display the installed E1/T1 and Quad spans and their digital protocol assignments:

1 Start at the Digital Interfaces menu (Figure 61) and select:

```
> Display Assignments
```

The system displays the Display Digital Interface Assignments window (Figure 62).

Figure 62. Display Digital Interface Assignments



By default, a span is marked *unassigned*. A protocol must be installed on the voice system before it can be assigned to a span on an E1/T1 card (CWB2) or a Quad card(CWB10, CWB11, or CWB12).

Table 11 on page 112 shows the valid parameters and default values for the E1/T1 and Quad digital protocols. The procedures in this section detail each protocol and how to set the parameter values for each. Refer to this table as you set the parameters for your protocol.

Note: The E1/T1 circuit card supports all protocols in the table. The Quad circuit cards currently support only the ISDN-PRI protocol.

Table 11. Valid Parameter and Default Values for E1/T1 and Quad Digital Protocols

Field Name	Valid Parameter Values	Protocol Name		
		T1 A/B Robbed-bit E&M	ISDN-PRI Layer 1	E1 CAS
Framing/ Line Coding	T1: D4ZCS, ESFB8ZS E1: CEPTHDB3	D4ZCS	ESFB8ZS	CEPTHDB3
DTMF Muting	Yes, No	Yes	Yes	Yes
CSU Distance	0–666 feet	0–133 feet	0–133 feet	—
Wink Time	10–2550 msec	230 msec	—	—
Post Wink Delay[1]	10–2550 msec	80 msec	—	—
Max. Digits in Called Number[1]	0–16	4	—	4
D-channel on This Span?	Yes, No	—	Yes	—

1 of 2

Table 11. Valid Parameter and Default Values for E1/T1 and Quad Digital Protocols

Field Name	Valid Parameter Values	Protocol Name		
		T1 A/B Robbed-bit E&M	ISDN-PRI Layer 1	E1 CAS
Incoming Speech Volume	0–32000 (-30 to +30 dB)	1414	1414	1414
Outgoing Speech Volume	0–32000 (-30 to +30 dB)	707	707	707
Outgoing Addressing Type	MFC	—	—	MFC
Incoming Addressing Type	MFC	—	—	MFC
Outgoing Text Volume[2]	0–32000 (-30 to +30 dB)	1000	1000	1000
A-LAW or MU-LAW	A-LAW, MU-LAW	—	—	A-LAW
CRC	Yes, No	—	—	Yes

2 of 2

1 Applies only to T1 A/B Robbed-bit E&M protocol.

2 Applies only when Text-to-Speech is installed.

T1 A/B Robbed-bit E&M Protocol

Note: Currently, the T1 A/B robbed-bit E&M protocol is supported on the E1/T1 circuit card only.

Make sure that the switch to which the system is connected is programmed with the following options:

- The T1 interface uses wink start robbed-bit E&M signaling on a link using D4 framing with zero code suppression (ZCS).
- The E1/T1 interface outpulses dual tone multifrequency (DTMF) tones at 7 pulses per second when originating outbound calls and requires DTMF when taking inbound calls.

Accessing T1 A/B Robbed-bit E&M Menu

To access the T1 A/B Robbed-bit E&M menu:

1 Start at the Digital Interfaces menu (Figure 61 on page 110) and select:

```
> T1 A/B Robbed-bit E&M
```

The system displays the T1 A/B Robbed-bit E&M menu (Figure 63).

Figure 63. T1 A/B Robbed-bit E&M Menu

Assigning T1 A/B Robbed-bit E&M to Spans

Note: Before a new protocol can be assigned to a span, any existing protocol must first be *unassigned*. See Unassigning T1 A/B Robbed-bit E&M to Spans on page 125 below for more information.

Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for more information.

If you change digital protocol assignments on the voice system, you must also make the change on the switch.

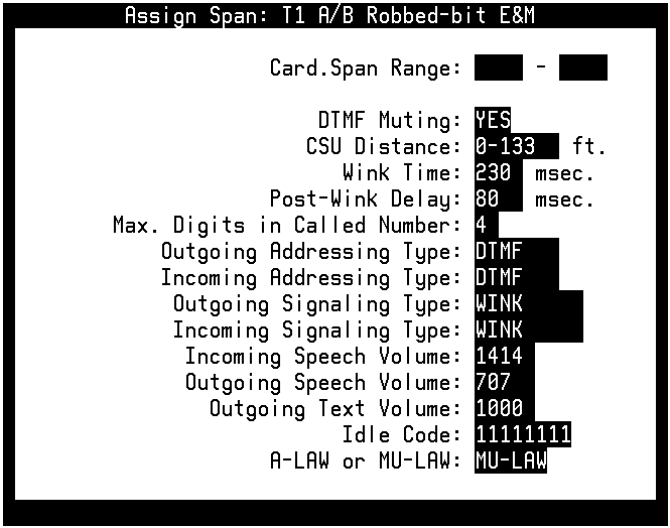
To assign the T1 A/B Robbed-bit E&M protocol to a span:

1 Start at the T1 A/B Robbed-bit E&M menu (Figure 63 on page 115) and select:

```
> Assign Span
```

The system displays the Assign Span: T1 A/B Robbed-bit E&M window (Figure 64 on page 117).

Figure 64. Assign Span: T1 A/B Robbed-bit E&M Window



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable, see Span Number Format (card.span) on page 105.)To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

Or, you can press **F2** (Choices) to select from a menu. Initially, all fields are populated with the default values for the span number entered.

The `Card.Span Range:` field is blank in Figure 64 on page 117. After you enter the span number, certain E1-only fields disappear (`Idle Code:`, `A-LAW or MU-LAW:`, and `CRC:`).

3 Enter **Yes** to enable or **No** to disable in the `DTMF Muting:` field, or press **F2** (Choices) to select from a menu. **Yes** is the default.

Enter **Yes** to use dual-tone multifrequency (DTMF) muting to reduce false DTMF recognitions. Such false recognitions sometimes result from the network echoing back sounds that the voice system falsely recognizes as touchtones.

Enter **No** when the interface is used for bridging; DTMF needs to pass through without muting.

4 Enter the cable distance in feet between the Channel Service Unit (CSU) and the voice system in the `CSU Distance:` field, or press **F2** (Choices) to select from a menu. Valid values are 0–133, 134–266, 267–399, 400–533, and 534–666. The default is **0–133**. If there is no CSU, the value entered in this field should be the cable distance between the voice system and the equipment to which it is connected.

5 Enter the desired wink time in multiples of 10 between 10 and 2550 milliseconds in the `Wink Time:` field. The default is **230**. This specifies the length of the wink returned to the calling end on incoming calls.

6 Enter the desired post-wink delay, in multiples of 10 between 10 and 2550 milliseconds in the `Post-Wink Delay:` field. The default is **80**.

7 Enter the number of digits between 0 and 16 that the interface waits for when receiving an incoming call in the `Max. Digits in Called Number:` field. The default is **4**.

8 Enter the type of addressing to be used with outgoing calls, either **DTMF**, **MF**, or **DECADIC** in the `Outgoing Addressing Type:` field. The default is **DTMF**.

9 Enter the type of addressing to be used with incoming calls, either **DTMF**, **MF**, or **DECADIC** in the `Incoming Addressing Type:` field. The default is **DTMF**.

10 Enter the type of signaling to be used with outgoing calls, either **Wink** or **Immediate** in the `Outgoing Signaling Type:` field. The default is **Wink**.

11 Enter the type of signaling to be used with incoming calls, either **Wink** or **Immediate** in the `Incoming Signaling Type:` field. The default is **Wink**.

12 Enter the volume adjustment for all incoming speech on circuit card spans in the `Incoming Speech Volume:` field. Valid values are 0 to 32000. Note that values less than 100 or greater than 8000 may distort the incoming speech. The default is **1414**.

Any adjustment occurs before the system processes the incoming speech for coding it later for playback. The value in the `Incoming Speech Volume:` field represents a gain applied to the speech input using a logarithmic scale. A value of 1000 equals no gain; that is, the input is coded at the same level as it is received. Multiplying by 1.414 (the square root of 2) approximately doubles the input volume, or increases it by 3 dB. Therefore, a value of 1414 in the field doubles the volume of incoming speech before it is coded, 2000 doubles it a second time, 2828 doubles it a third time, and so on.

To decrease the incoming speech volume, multiply by 0.707 to approximately half the value or decrease it by 3 dB. Therefore, a value of 707 in the field reduces the volume by half, 500 by half a second time, and so on.

See Table 15 on page 156 for the relationship between the volume number and the actual change in volume expressed in decibels.

Note: The incoming speech volume value is set on a per-span basis for digital circuit cards.

13 Enter the volume adjustment for all outgoing speech played on the circuit-card span in the `Outgoing Speech Volume:` field. Valid values range from 0 to 32000. The default is **707**.

The value in this field and its effect are the same as described for the `Incoming Speech Volume:` field. Any adjustment is applied to recorded speech as it is processed for playback.

14 (Optional) Enter the outgoing volume of speech in the `Outgoing Text Volume:` field. Valid values are 0 to 32000 (-30 to +30 dB). The default value is **1000**.

Note: This field is displayed only if the optional SSP Text-to-Speech package is installed. This field only applies to SSP Text-to-Speech output volume. *The LSPS output volume cannot be changed*.

15 Ignore the last two fields: `Idle Code:` and `A-LAW or MU-LAW:`.

16 Press **F3** (Save).

The system assigns the protocol to the selected span.

Change T1 A/B Robbed-bit E&M Parameters

The span must first be assigned to the T1 A/B Robbed-bit E&M protocol to use this procedure. See Assigning T1 A/B Robbed-bit E&M to Spans on page 115 for more information about making the initial assignment.

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information.

If you change digital protocol assignments on the voice system, you must also make the change on the switch.

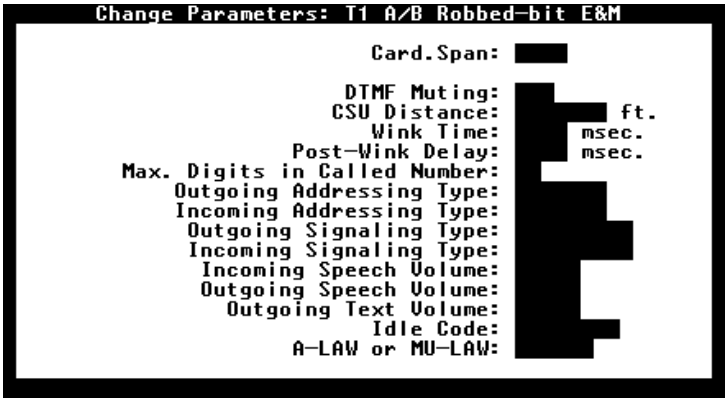
To change the T1 A/B Robbed-bit E&M parameters:

1 Start at the T1 A/B Robbed-bit E&M menu (Figure 63 on page 115) and select:

```
> Change Parameters
```

The system displays the Change Parameters: T1 A/B Robbed-bit E&M window (Figure 65).

Figure 65. Change Parameters: T1 A/B Robbed-bit E&M Window



2 Enter the span number in the `Card.Span:` field, or press **F2** (Choices) to select from a menu. Initially, all fields are populated with the default values for the span number entered.

   The `Card.Span:` field is blank in Figure 65 on page 122. After you enter the span number, certain E1-only fields disappear (`Idle Code:`, `A-LAW or MU-LAW:`, and `CRC:`).

3 Change any of the parameters as described in Assigning T1 A/B Robbed-bit E&M to Spans on page 115.

4 Press **F3** (Save).

   The system changes the protocol parameters on the selected span.

Displaying T1 A/B Robbed-bit E&M Parameters

The span must first be assigned to the T1 A/B Robbed-bit E&M protocol to use this procedure. See Assigning T1 A/B Robbed-bit E&M to Spans on page 115 for more information about making the initial assignment.

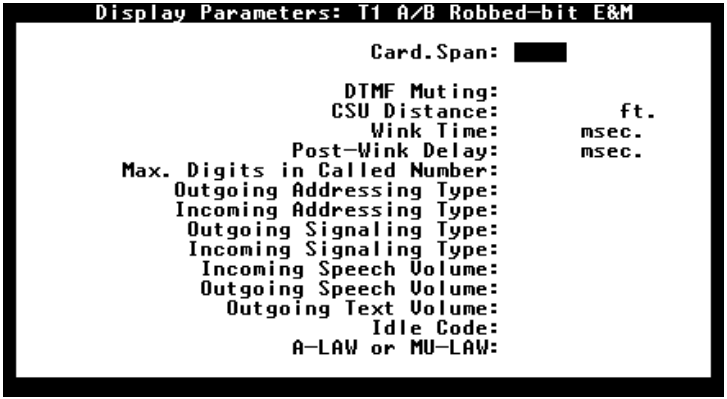
To display the T1 A/B Robbed-bit E&M parameters:

1 Start at the T1 A/B Robbed-bit E&M menu (Figure 63 on page 115) and select:

```
> Display Parameters
```

The system displays the Display Parameters: T1 A/B Robbed-bit E&M window (Figure 66).

Figure 66. Display Parameters: T1 A/B Robbed-bit E&M Window



2 Enter the span number in the `Card.Span:` field, or press **F2** (Choices) to select from a menu. Initially, all fields are populated with the default values for the span number entered.

The `Card.Span:` field is blank in Figure 66. After you enter the span number, certain E1-only fields disappear (`Idle Code:`, `A-LAW or MU-LAW:`, and `CRC:`).

The system displays the parameter values for the selected span.

3 Press **F6** (Cancel) to return to the T1 A/B Robbed-bit E&M menu.

Unassigning T1 A/B Robbed-bit E&M to Spans

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information.

If you also change digital protocol assignments on the voice system, you must make the change on the switch.

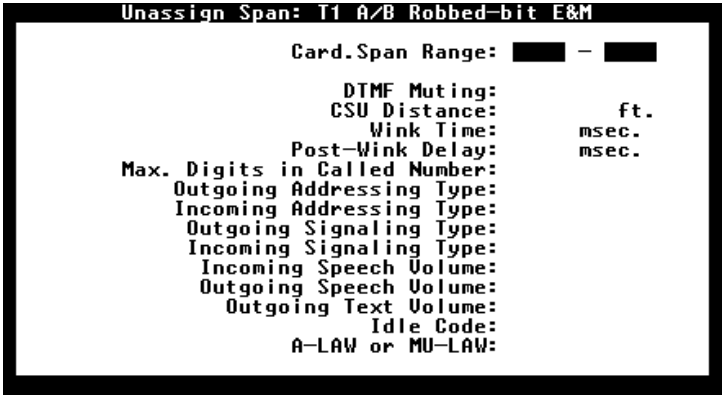
To unassign the T1 A/B Robbed-bit E&M protocol to a span:

1 Start at the T1 A/B Robbed-bit E&M menu (Figure 63 on page 115) and select:

```
> Unassign Span
```

The system displays the Unassign Span: T1 A/B Robbed-bit E&M window (Figure 67).

Figure 67. Unassign Span: T1 A/B Robbed-bit E&M Screen



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable, see Span Number Format (card.span) on page 105.) To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

Or, you can press **F2** (Choices) to select from a menu.

The system displays the current parameter values for the selected span.

3 Press **F3** (Save).

The system removes the T1 A/B Robbed-bit E&M assignment from the selected span.

4 Press **F6** (Cancel) repeatedly to return to the Digital Interfaces menu.

E1 CAS Protocols

The UCS 1000 R4.6 supports the E1 Channel Associated Signaling (CAS) protocol Mexico for use with the DEFINITY switch.

The following CAS protocol is supported with the installation of the corresponding Digital R2 MFC—Mexico switch-integration package.

Note: Currently, the E1 CAS protocol is supported on the E1/T1 circuit card only. This protocol is currently not supported by the Quad circuit cards.

Digital R2 MRC—Mexico Protocol

Accessing Digital R2 MFC—Mexico Menu

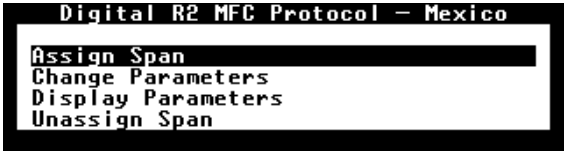
To access the E1 CAS for Mexico protocol menu:

1 Start at the Digital Interfaces menu (Figure 61 on page 110) and select

```
> Digital R2 MFC - Mexico
```

The system displays the Digital R2 MFC Protocol - Mexico menu (Figure 68).

Figure 68. Digital R2 MFC Protocol - Mexico Menu



Use the procedures below to assign or unassign the Digital R2 MFC - Mexico protocol to or from digital spans, and administer the switch interface parameters.

Assigning the Digital R2 MFC - Mexico Protocol to E1 spans

Note: Before a new protocol can be assigned to a span, any existing protocol must first be “unassigned.” See Unassigning the Digital R2 MFC - Mexico Protocol to E1 spans below for more information.

Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information.

If you also change digital protocol assignments on the voice system, you must make the change on the switch.

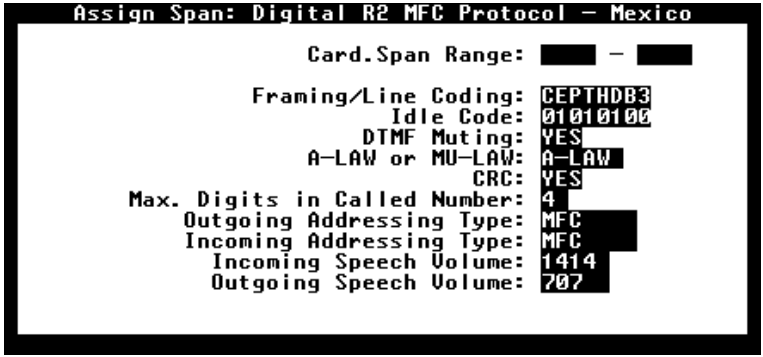
To assign the Mexico protocol to an E1 span:

1 Start at the Digital R2 MFC Protocol - Mexico menu (Figure 68 on page 128) and select:

```
> Assign Span
```

The system displays the Assign Span: Digital R2 MFC Protocol - Mexico window (Figure 69).

Figure 69. Assign Span: Digital R2 MFC Protocol - Mexico Window



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable, see Span Number Format (card.span) on page 105.) To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

Or, you can press **F2** (Choices) to select from a menu.

Initially, all fields are populated with the default values for the span number entered.

3 Enter the values as shown in Table 12 for each of the fields in the window.

Table 12. Parameter Values for Assign Card: Digital R2 MFC - Mexico Window

Field Name	Value
Framing/Line Coding:	**CEPTHDB3**
Idle Code:	**01010100**
DTMF Muting:	**Yes**
A-LAW or MU-LAW:	**A-LAW**
CRC:	**Yes**
Max. Digits in Called Number:	**4**
Outgoing Addressing Type:	**MFC**
Incoming Addressing Type:	**MFC**
Incoming Speech Volume:	**1414**
Outgoing Speech Volume:[1]	**707**

1 This field is displayed only if the optional SSP Text-to-Speech package is installed. This field applies only to SSP Text-to-Speech output volume. *The LSPS output volume cannot be changed.*

4 Press **F3** (Save).

The system saves the parameter information and assigns the Digital R2 MFC - Mexico protocol to the selected E1 span.

Changing Digital R2 MFC - Mexico Parameters

The E1 span must first be assigned to the Digital R2 MFC - Mexico protocol to use this procedure. See Assigning the Digital R2 MFC - Mexico Protocol to E1 spans on page 128 for more information about making the initial assignment.

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information.

If you change digital protocol assignments on the voice system, you must also make the change on the switch.

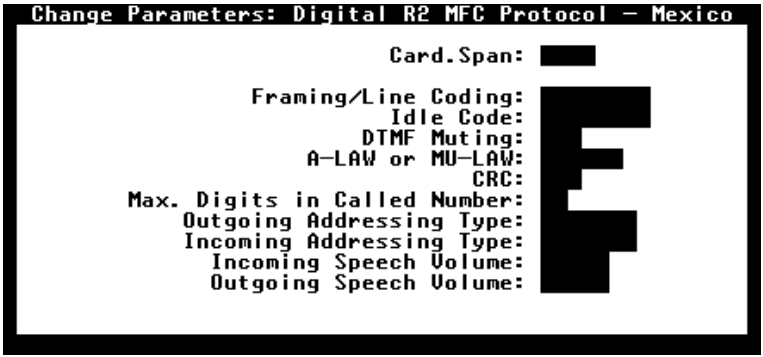
To change the Digital R2 MFC - Mexico parameters:

1 Start at the Digital R2 MFC Protocol - Mexico menu (Figure 68 on page 128) and select:

```
> Change Parameters
```

The system displays the Change Parameters: Digital R2 MFC Protocol - Mexico window (Figure 70).

Figure 70. Change Parameters: Digital R2 MFC Protocol - Mexico Window



2 Enter the span number in the `Card.Span:` field, or press **F2** (Choices) to select from a menu. Initially, all fields are populated with the current values for the span number entered.

3 Change any of the parameters described in Assigning the Digital R2 MFC - Mexico Protocol to E1 spans on page 128.

4 Press **F3** (Save).

The system saves the changed parameters.

Displaying Digital R2 MFC - Mexico Parameters

The E1 span must first be assigned to the Digital R2 MFC - Mexico protocol to use this procedure. See Assigning the Digital R2 MFC - Mexico Protocol to E1 spans on page 128 for more information about making the initial assignment.

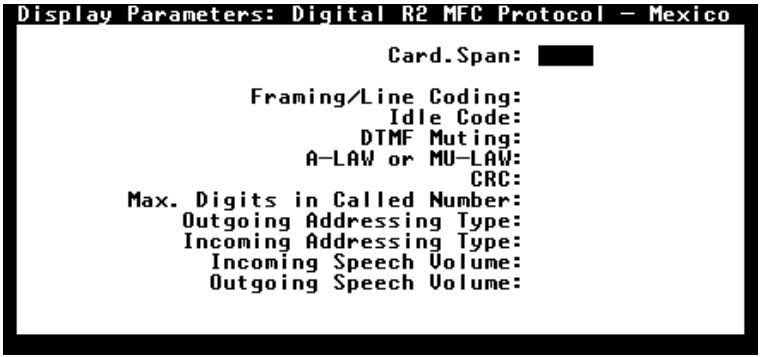
To display the Digital R2 MFC - Mexico parameters of an E1 span:

1 Start at the Digital R2 MFC Protocol - Mexico menu (Figure 68 on page 128) and select:

```
> Display Parameters
```

The system displays the Display Parameters: Digital R2 MFC Protocol - Mexico window (Figure 71 on page 135).

Figure 71. Display Parameters: Digital R2 MFC Protocol - Mexico Window



2 Enter the span number in the `Card Span:` field, or press **F2** (Choices) to select from a menu.

The system displays the parameter values for the selected span.

3 Press **F6** (Cancel) to return to the Digital R2 MFC Protocol - Mexico menu.

Unassigning the Digital R2 MFC - Mexico Protocol to E1 spans

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on

page 70 in Chapter 3, Voice System Administration, for additional information.

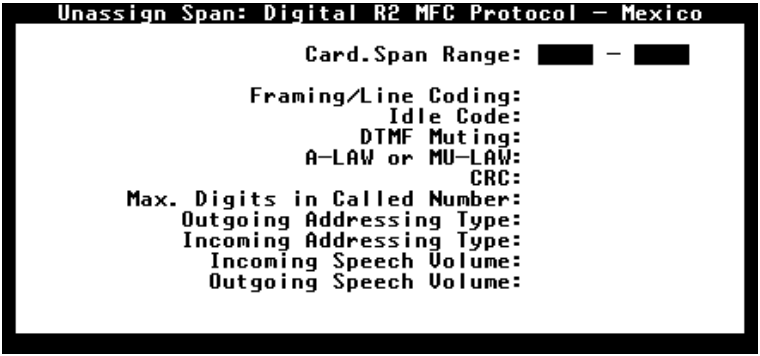
To unassign the Digital R2 MFC - Mexico protocol:

1 Start at the Digital R2 MFC Protocol - Mexico menu (Figure 68 on page 128) and select:

```
> Unassign Span
```

The system displays the Unassign Span: Digital R2 MFC Protocol - Mexico window (Figure 72 on page 137).

Figure 72. Unassign Span: Digital R2 MFC Protocol - Mexico Window



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable, see Span Number Format (card.span) on page 105.) To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

   Or, you can press **F2** (Choices) to select from a menu.

   The system displays the current parameter values for the selected span.

3 Press **F3** (Save).

The system removes the Digital R2 MFC - Mexico protocol assignment from the selected span.

4 Press **F6** (Cancel) repeatedly to return to the Digital Interfaces menu.

ISDN-PRI Layer 1 Protocol

Accessing the ISDN-PRI Layer 1 Menu

Note: All selected options must match the corresponding options on the network switch. If they do not, service problems can occur.

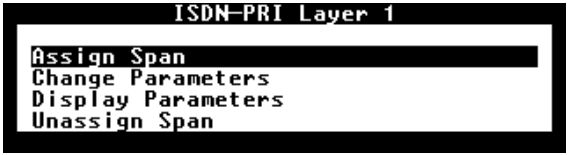
To access the ISDN-Primary Rate Interface (ISDN-PRI) Layer 1 menu:

1 Start at the Digital Interfaces menu (Figure 61 on page 110) and select:

```
> ISDN-Primary Rate Interface
```

The system displays the ISDN-PRI Layer 1 menu (Figure 73 on page 139).

Figure 73. ISDN-PRI Layer 1 Menu



Assigning an ISDN-PRI Layer 1 to Digital Circuit Cards

Note: Before a new protocol can be assigned to a span, any existing protocol must first be *unassigned*. See Unassigning T1 A/B Robbed-bit E&M to Spans on page 125 for more information.

Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information.

If you change digital protocol assignments on the voice system, you must also make the change on the switch.

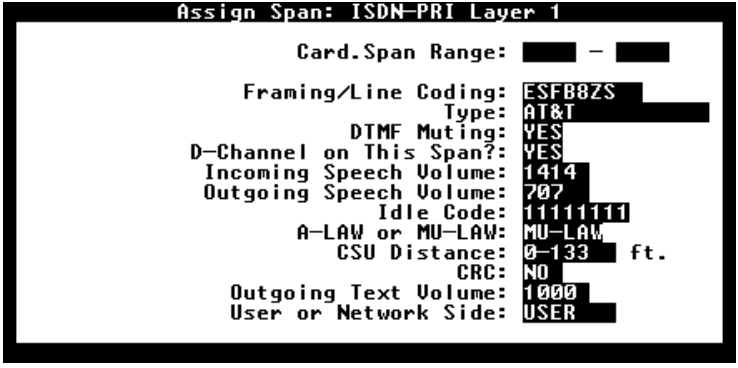
To assign the ISDN-PRI Layer 1 to a digital span:

1 Start at the ISDN-PRI Layer 1 menu (Figure 73 on page 139) and select:

```
> Assign Span
```

The system displays the Assign Span: ISDN-PRI Layer 1 window (Figure 74).

Figure 74. Assign Span: ISDN-PRI Layer 1 Window



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable,

see Span Number Format (card.span) on page 105.) To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

Or, you can press **F2** (Choices) to select from a menu.

Initially, all fields are populated with the default values for the span number entered.

3 Enter the framing/line coding in the `Framing/Line Coding:` field, or press **F2** (Choices) to select from a menu. The valid values for T1 PRI are **D4ZCS** or **ESFB8ZS**. The default is **ESFB8ZS**.

4 Enter the type of PRI in the `Type:` field. The valid values are **AT&T**, **ETSI**, **National**, **National(BCAS)**, and **Nortel**.

5 Enter **Yes** to enable or **No** to disable in the `DTMF Muting:` field, or press **F2** (Choices) to select from a menu. **Yes** is the default.

Enter **Yes** to use dual-tone multifrequency (DTMF) muting to reduce false DTMF recognitions. These false recognitions sometimes result from the network echoing back sounds that the voice system falsely recognizes as touch tones.

Enter **No** when the interface is used for bridging; DTMF needs to pass through without muting.

6 Enter **Yes** or **No** to specify whether the span carries the D-channel in the `D-channel on this Span?:` field, or press **F2** (Choices) to select from a menu.

For E1/T1 circuit cards: Up to 13 PRI T1 circuit cards can have a D-channel. The voice system supports up to 13 23B+D interfaces (each with its own D-channel and each set to **Yes** in this field) or up to 311 B+D (where one card has the D-channel and the other twelve cards are controlled by that D-channel and are set to **No** in this field since they do not have a D-channel). The system also supports configurations with 2 to 12 D-channels. Typically, each E1 PRI interface has its own D-channel and the system supports up to three 30B+D interfaces.

For Quad circuit cards: Up to 56 PRI T1 circuit cards can have a D-channel. The voice system supports up to 56 23B+D interfaces (each with its own D-channel and each set to **Yes** in this field) or up to two groups of 671 B+D (where one card has the D-channel and the other six quad cards are controlled by that D-channel and are set to **No** in this field since they do not have a D-channel). The system also supports configurations with 2 to 56 D-channels. Typically, each E1 PRI interface has its own D-channel and the system supports up to 56 30B+D interfaces.

7 Enter the volume adjustment for all incoming speech on circuit-card spans in the `Incoming Speech Volume:` field. Valid values are 0 to 32000. Note that values less than 100 or greater than 8000 may distort the incoming speech. The default is **1414**.

Any adjustment occurs before the system processes the incoming speech for coding it later for playback. The value in the `Incoming Speech Volume:` field represents a gain applied to the speech input using a logarithmic scale. A value of 1000 equals no gain; that is, the input is coded at the same level as it is received. Multiplying by 1.414 (the square root of 2) approximately doubles the input volume, or increases it by 3 dB. Therefore, a value of 1414 in the field doubles the volume of incoming speech before it is coded, 2000 doubles it a second time, 2828 doubles it a third time, and so on.

To decrease the incoming speech volume, multiply by 0.707 to approximately half the value or decrease it by 3 dB. Therefore, a value of 707 in the field reduces the volume by half, 500 by half a second time, and so on.

See Table 15 on page 156 for the relationship between the volume number and the actual change in volume expressed in decibels.

Note: The incoming speech volume value is set on a per-span basis for digital circuit cards.

8 Enter the volume adjustment for all outgoing speech played on the span in the `Outgoing Speech Volume:` field. Valid values range from 0 to32000. The default is **707**.

The value in this field and its effect are the same as described for the `Incoming Speech Volume:` field. Any adjustment is applied to recorded speech as it is processed for playback.

CAUTION:
The Idle Code:, A-LAW or MU-LAW:, and CRC: field parameters must match the settings on the switch to avoid service complications.

9 (E1 only) Enter the 8-digit code that are generated when the channel is idle in the Idle Code: field.

10 (E1 only) Enter **A-LAW** or **MU-LAW** in the A-LAW or MU-LAW: field.

11 Enter the cable distance, in feet, between the Channel Service Unit (CSU) and the voice system in the CSU Distance: field, or press **F2** (Choices) to select from a menu. Valid values are 0–133, 134–266, 267–399, 400–533, and 534–666. The default is **0–133**. If there is no CSU, the value entered in this field should be the cable distance between the voice system and the equipment to which it is connected.

12 (E1 only) Enter **Yes** to enable the cyclical redundancy check error checking or **No** to disable the error checking in the CRC: field.

13 (Optional) Enter the outgoing volume of speech in the Outgoing Text Volume: field. Valid values are 0 to 32000 (-30 to +30 dB). The default is **1000**.

Note: This field is displayed only if the optional SSP Text-to-Speech package is installed. This field only applies to SSP Text-to-Speech output volume. The LSPS output volume can not be changed.

14 Press **F3** (Save).

The system saves the parameter information and assigns the ISDN-PRI Layer 1 protocol to the selected E1/T1 or Quad span.

PRI Layer 2 and Layer 3 Parameters

Your PRI service provider may need to know some Layer 2 and Layer 3 parameters used by the voice system. Table 13 and Table 14 on page 146 provide a list of the most commonly requested parameters. Incoming calls to the voice system should be provisioned so that the channel number is exclusive and not preferred.

If the switch is configured to deliver ANI on a subscription basis, it is not possible for the voice system to request a different type of ANI on a call-by-call basis.

While it is not recommended to change timer values from their defaults, the **/vs/man/cat4/pri.rc.4** manual page describes how PRI timer values and a few other parameters can be changed if that becomes necessary.

Table 13. PRI Layer 2 Parameters

Layer 2 Parameter	Value
Retry Count N200	3
Timer T200	1 seconds
Timer T203	30 seconds

Table 14. PRI Layer 3 Parameters

Layer 3 Parameter	Value (seconds)
Timer T302	15
Timer T303	4
Timer T305	4
Timer T308	4
Timer T310	10
Timer T313	4
Timer T316	120
Timer T3M1	120
Timer T309	30

Changing ISDN-PRI Layer 1 Card Parameters

The span must first be assigned to the ISDN-PRI Layer 1 protocol to use this procedure. See Assigning an ISDN-PRI Layer 1 to Digital Circuit Cards on page 139 for more information about making the initial assignment.

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information. If you change digital protocol assignments on the voice system, you must also make the change on the switch.

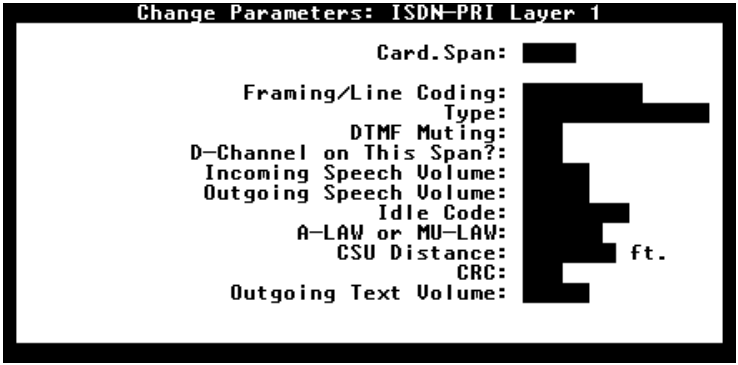
To change the ISDN-PRI Layer 1 parameters:

1 Start at the ISDN-PRI Layer 1 menu (Figure 73 on page 139) and select:

```
> Change Parameters
```

The system displays the Change Parameters: ISDN-PRI Layer 1 window (Figure 75).

Figure 75. Change Parameters: ISDN-PRI Layer 1 Window



2 Enter the span number in the `Card.Span:` field, or press **F2** (Choices) to select from a menu. Initially, all fields are populated with the default values for the span number entered.

3 Change any of the parameters as described in Assigning an ISDN-PRI Layer 1 to Digital Circuit Cards on page 139.

4 Press **F3** (Save).

The system changes the specified parameters for the selected span.

Displaying ISDN-PRI Layer 1 Parameters

The span must first be assigned to the ISDN-PRI Layer 1 protocol to use this procedure. See Assigning an ISDN-PRI Layer 1 to Digital Circuit Cards on page 139 for more information about making the initial assignment.

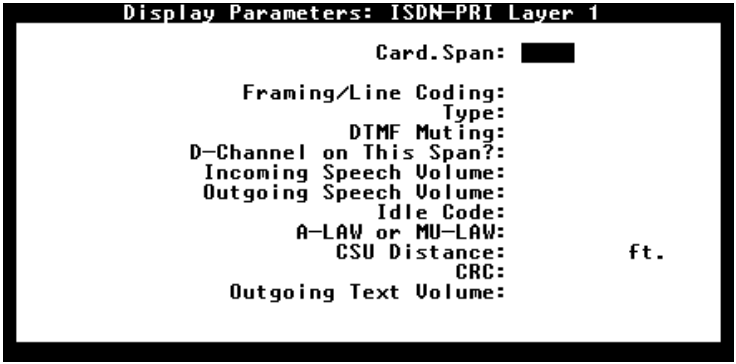
To display the ISDN-PRI Layer 1 parameters:

1 Start at the ISDN-PRI Layer 1 menu (Figure 73 on page 139) and select:

```
> Display Parameters
```

The system displays the Display Parameters: ISDN-PRI Layer 1 window (Figure 76).

Figure 76. Display Parameters: ISDN-PRI Layer 1 Window



2 Enter the span number in the `Card.Span:` field, or press **F2** (Choices) to select from a menu. Initially, all fields are populated with the default values for the span number entered.

The system displays the parameter values for the selected span.

3 Press **F6** (Cancel) to return to the ISDN-PRI Layer 1 menu.

Unassigning ISDN-PRI Layer 1 Card

Note: Before attempting to make any assignment changes to spans, they must be in the MANOOS state. See Equipment State on page 70 in Chapter 3, Voice System Administration, for additional information. If you change digital protocol assignments on the voice system, you must also make the change on the switch.

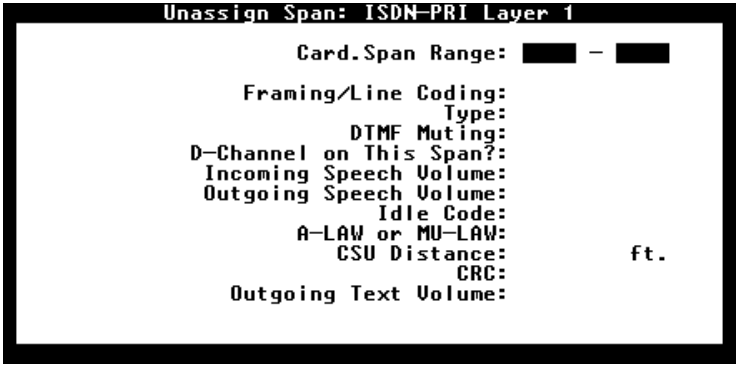
To unassign the ISDN-PRI Layer 1 protocol to a digital span:

1 Start at the ISDN-PRI Layer 1 menu (Figure 73 on page 139) and select:

```
> Unassign Span
```

The system displays the Unassign Span: ISDN-PRI Layer 1 window (Figure 77 on page 151).

Figure 77. Unassign Span: ISDN-PRI Layer 1 Window



2 Enter the beginning span number in the first field of the `Card.Span Range:` field, and enter the ending span number in the second field of the `Card.Span Range:` field. (For an explanation of the ***card.span*** variable, see Span Number Format (card.span) on page 105.) To display only one span, you can either leave blank the field for the ending span number or enter the same number as the beginning span number.

Or, you can press **F2** (Choices) to select from a menu.

The system displays the current parameter values for the selected span.

3 Press **F3** (Save).

The system removes the ISDN-PRI Layer 1 assignment from the selected span.

4 Press **F6** (Cancel) repeatedly to return to the Digital Interfaces menu.

T1 for 4ESS Applications

The following options should be used when connecting a the system to a 4ESS switch via an E1/T1 line when using the E&M protocol.

Note: Some parameters on the switch side may require that you stop and restart the voice system once you have made changes. For example, when changing the frame format from D4ZCS to ESF, your PRI link to the switch may not come up if you have not stopped and started the voice system. See Stopping the Voice System on page 56 and Starting the Voice System on page 59 in Chapter 3, Voice System Administration, for the procedures.

- T1 E&M Options

  The following options should be set on the E1/T1 circuit card when it is connected to an AT&T 4ESS switch:

  ~ Wink Timing: 230 msec

  ~ Maximum Digits in Called Number: 4 is typical

- ~ Post-wink Delay: 80 msec
- E1/T1 E&M Fixed Parameters:
  - ~ Framing/Line Coding: D4/ZCS
    - Signaling: A or AB Robbed-bit E&M protocol
    - Incoming/Outgoing Start Dialing: wink/wink
    - Incoming/Outgoing Addressing: DTMF/DTMF
  - ~ Timing Source: Looped Timed
- 4ESS Options

  The following information is requested by AT&T when provisioning the 4ESS switch for an E1/T1 connection:

  - ~ TYPE CPE: DIGITAL PBX/ACD (WITH DS1 INTERFACE)
    - 4E NETWORK SWITCHED BASED SERVICES: MEG (Megacom), MEG8 (Megacom 800), or MULTIQUEST* as desired
    - ACCESS TYPE: T1
    - TRUNK OPERATION: The voice system always allows two-way traffic. If you expect only incoming calls, it is recommended that you select 1W/IN TOWARDS CPE. If you expect only outgoing calls, it is recommended that you select 1W/OUT FROM CPE. If you expect two-way traffic, select 2WAY.

- SUPERVISION: EM
- ADDRESS SIGNALING (TYPE OF PULSING) TO CPE: DTMF(TT)
- ADDRESS SIGNALING TT DELAY: 70MS
- ADDRESS SIGNALING from CPE: DTMF(TT)
- START DIAL SIGNALING PROVIDED BY CPE: WK
- START DIAL SIGNALING PROVIDED TO CPE: WK (senderized operation)
- CPE DOES NOT SUPPORT DIFFERENT SIGNALING BIDIRECTIONALLY
- NUMBER OF DIGITS OUTPULSED TO CPE: This number should match the number selected in the “Maximum Digits in Called Number” E1/T1 option
- THE CPE CAN ACCEPT “O” AS THE FIRST DIGIT
- GLARE CONTROL: CPE WILL YIELD (WILL RELEASE)
- DIRECT INWARD DIAL (DID): N
- PBX ANSWER SUPERVISION WITHHELD: N
- NETWORK AUTHORIZATION CODES: N
- FRAME FORMAT: D4

- IS PBX SENDERIZED: YES
- CPE TIMING CAPABILITY: loop timed
- SOURCE OF SYNCHRONIZATION PROVIDED BY CPE: NONE
- SOURCE OF AUDIBLE RINGING ON CALLS TO CPE: PBX (CPE)

Changing Switch System Parameters

To change the switch system parameters:

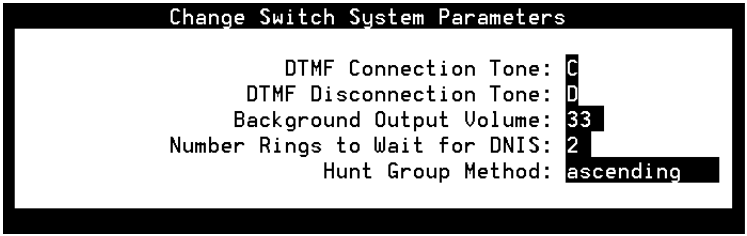
Note: You must stop the voice system before changing the switch system parameters.

1 Start at the Switch Interfaces menu (Figure 60 on page 108)and select:

```
> Change Switch System Parameters
```

The system displays the Change Switch System Parameters window (Figure 78 on page 156).

Figure 78. Change Switch System Parameters



2 Change the field values using the information in Table 15 and Table 16 on page 157.

Table 15. DTMF Tone Table

Keys on the Telephone Keypad			Corresponding DTMF Tone
1	2	3	A
4	5	6	B
7	8	9	C
*	0	#	D

Table 16. Switch System Parameters

Field Name	Description	Valid Values
`Background Output Volume:`	This parameter specifies the adjustment to the output volume level in percent for the speech being played in the background.	A numeric entry for the percentage
`Hunt Group Method:`	This parameter specifies the order of hunting for idle channels.	Ascending (default), descending, or random Press **F2** (Choices) to select from a menu.

3 Press **F3** (Save).

The system displays the message that the switch system parameters have been changed.

4 Press **F1** to acknowledge the message.

5 Press **F6** (Cancel) to return to the Switch Interfaces menu.

6 Starting the Voice System on page 59 as described in Chapter 3, Voice System Administration.

Displaying Switch System Parameters

The Display Switch System Parameters window allows you to view the current setting for the switch system parameters.

To display the switch system parameters:

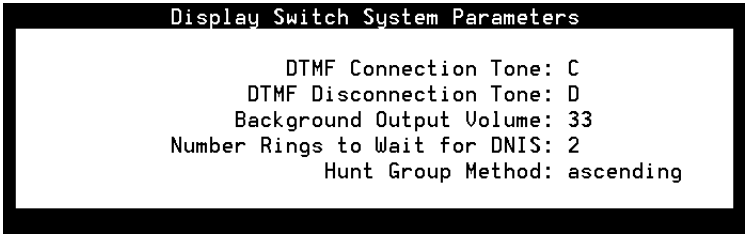
Note: You must stop the voice system before changing the switch system parameters.

1 Start at the Switch Interfaces menu (Figure 60 on page 108)and select:

```
> Display Switch System Parameters
```

The system displays the Display Switch System Parameters window (Figure 79 on page 159).

Figure 79. Display Switch System Parameters Window



2 Press **F6** (Cancel) to return to the Switch Interfaces menu.

5 Database Administration

Overview

This chapter provides information and procedures on how to administer ORACLE databases for use with the voice system. The information in this chapter is applicable *only* if you have the ORACLE 8i software installed on your system.

This chapter includes procedures for determining database space requirements, sizing the databases, and administering database tables. This chapter also reviews the SQL*PLUS software program, a tool used to access the ORACLE database.

Databases and the Voice System

Databases are used by the voice system to access various types of data, depending on the application. However, the information in this chapter focuses on ORACLE databases used to store and retrieve call data.

The information in databases is arranged into *tables*. The following section describes the database tables associated with call data.

Call Data Tables

The base ORACLE software package creates the following database tables to store call data (Table 17).

Note: All these tables are created and owned by the sqlplus user *sti/sti*.

Table 17. ORACLE Call Data Tables

Table Name	Table Description
CCA	Call classification analysis data (contains one record for each attempted transfer or outdial).
CCASUM	Summary data for the CCA table (contains one record per hour, telephone number, and result code).
CALL[1]	Basic call information (contains one record per call).
SERVICE	Basic service information (contains one or more service records per call).
CDHSUM	Summary data for the CALL and SERVICE tables (contains one record per hour and service).

1 of 2

Table 17. ORACLE Call Data Tables

Table Name	Table Description
EVENTS	Event data defined for a service (contains one record per event). There can be more than one EVENTS records per SERVICE record.
EVSUM	Summary data for the EVENTS table (contains one record per hour and event number).
TRASUM	Overall traffic summary data (contains one record per hour and channel).

2 of 2

1 The CALL and SERVICE tables replace the CDH table. Since more than one service (application) may be running during a call, there may be multiple entries in the SERVICE table related to a single entry in the CALL table. A database view named OLDCDH, consisting of fields from the CALL and SERVICE tables, has been created to represent the old CDH table.

The voice system provides four reports that use the data accumulated in these tables. See Chapter 7, Common Administration, for procedures showing how to display, modify, print, and update the available reports.

CCA Table

The CCA table contains the following information:

- START_TIME is a date field that specifies the starting time of each attempted transfer or outdialed call.
- PHONE_NUM is a variable-length character field that specifies the telephone number of an attempted transfer or outdialed call. This field can be up to 16 characters in length.
- RESULT_CODE is a variable-length character field that indicates the disposition of the call. This field can be 1 or more characters in length.

CCASUM Table

The CCASUM table contains the following information:

- PHONE_NUM is a variable-length character field that specifies the telephone number of an attempted transfer or outdialed call. This field can be up to 16 characters in length.
- START_TIME is a date field that specifies the starting time of the call summary period.
- END_TIME is a date field that specifies the ending time of the call summary period.

- SUM_TOT is a numeric field that indicates the number of calls transferred or outdialed in this period with this disposition and associated telephone number.
- RESULT_CODE is a variable-length character field that indicates the disposition of the call. This field can be 1 or more characters in length.

Note: Records are generated on a per-hour, per-telephone number, and per-result_code basis.

CALL Table

The CALL table contains the following information:

- CID is a numeric field that specifies a unique identification number that joins one CALL.CID to multiple SERVICE.CID.
- CHANNEL is a positive numeric field that specifies the channel number on which the call was running. This field can be up to 4 digits in length.
- START_TIME is a date field that specifies the starting time of each call.
- END_TIME is a date field that specifies the ending time of each call.

SERVICE Table

The SERVICE table contains the following information:

- CID is a numeric field that specifies a non-unique identification number that joins multiple SERVICE.CID to one CALL.CID.

  Each call creates one or more SERVICE records, depending on the number of services used to handle the call. All SERVICE records associated with a call have the same SERVICE.CID as the CALL.CID in the CALL record. See Relationship Between the CALL, SERVICE, and EVENT Tables on page 168.

- SID is a numeric field that specifies a unique identification that joins one SERVICE.SID to multiple EVENTS.SID.
- SERVICE is a variable length character field that specifies the service (application) name. This field can be up to 16 characters in length.
- START_TIME is a date field that specifies the starting time of each service.
- END_TIME is a date field that specifies the ending time of each service.

CDHSUM Table

The CDHSUM table contains the following information:

- SUMID is a numeric field that specifies a unique identification number that joins CDHSUM.SUMID to EVSUM.SUMID.
- SERVICE is a variable-length character field that specifies the service (application) name. This field can be up to 16 characters in length.
- START_TIME is a date field that specifies the start of the hour (for example, 10:00:00).
- DURATION is a numeric field that specifies the sum of service run times during this hour in seconds.
- USAGE is a numeric field that indicates the total number of times the service was run for calls during a 1-hour period.

Note: Records are generated on a per-hour and a per-service basis.

EVENTS Table

The EVENTS table contains the following information:

- SID is a numeric field that specifies a nonunique identification number.

Note: Each service run during a call creates a certain number of event records, depending on the number of events defined. All events

records associated with this call have the same SID number as the SID field of the corresponding SERVICE record.
See Relationship Between the CALL, SERVICE, and EVENT Tables on page 168 for more information.

EVSUM Table

The EVSUM table contains the following information:

- SUMID is a numeric field that specifies a unique identification number.

Note: The values in this field are related to the SUMID values in the CDHSUM table.

- EVENT_NUMBER is a numeric field that specifies the internal mapping between the event and an internal number.
- SUM_TOT is a numeric field that indicates the total number of occurrences for this event.

Note: If the event type is a numeric, the value in SUM_TOT is the sum of the values of this event field for all the calls. For example, if an event field, NUM_TRANS, keeps track of the number of transactions for each call, SUM_TOT contains the sum of NUM_TRANS for all calls during this time period. On the other hand, if the event type is not a number, each call increments SUM_TOT by one.

TRASUM Table

The TRASUM table contains the following information:

- START_TIME is a date field that specifies the start of hour (for example, 10:00:00).
- CHANNEL is a numeric field that indicates the channel number. This field can be up to 4 digits in length.
- CALL_TOT is a numeric field that specifies the total number of calls.
- DUR_TOT is a numeric field that specifies the total duration in seconds.

Note: Records are generated on a per-hour and a per-channel basis. No calls during this hour on this channel result in no record.

OLDCDH View

The OLDCDH view is an ORACLE database view provided to be compatible with the CDH table that is not supported in newer releases.

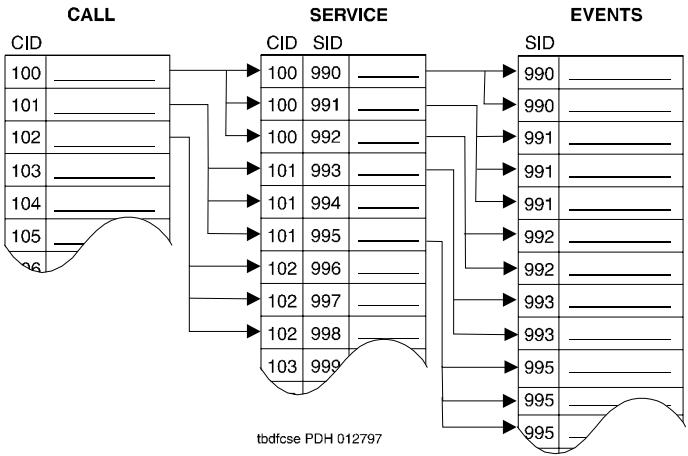
Relationship Between the CALL, SERVICE, and EVENT Tables

The relationship between these three call data handling tables is summarized by the following statements and in Figure 80 on page 169:

- Each telephone call creates one record in the CALL table.

- Each record in the CALL table is linked to one or more records in the SERVICE table.
- Each record in the SERVICE table is linked to zero or more records in the EVENTS table.

Figure 80. Relationship Between the CALL, SERVICE and EVENTS Tables



Resizing Call Data Tables

The sizes of the call data handling tables are defined in the **/oracle/dist/cdh/sql** file. Although the sizes are carefully engineered, it is possible that one or more of the tables should be increased to accommodate the heavier traffic on your system or the greater number of events defined in your applications. The most likely candidates for resizing are the EVENTS, SERVICE, and CALL tables, and their index tables.

To increase the size of a call data table:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter **cd /oracle/dist**

   The system changes to the **oracle/dist** directory.

4. Enter **cp cdh.sql o.cdh.sql**

   The system saves the original copy of the **cdh.sql** file to a file named **o.cdh.sql**.

5. Enter **dbused**

   The system displays the number of megabytes used by the table.

6 Write down this number.

7 Use the UNIX editor *vi* to modify the **cdh.sql** file as follows:

a Find the `create table xxx` statement block, where *xxx* is the table name (for example, CALL, SERVICE or EVENTS).

b Modify the statement `storage (initial 999k)` to a bigger number, where *999* is the current initial size for the table and *k* stands for kilobytes (1024 bytes).

Note: The new values specified should be at least twice as large as the current table size you wrote down in step 6. You may use the megabyte format, *99m*, where *m* is mbytes (1,000,000 bytes = mbyte). For example, to make the table have an initial size of 3 mbytes, modify the storage statement to read:

storage (initial 3m)

8 Enter **stop_vs**

The systems stops the voice system. See stop_vs in Appendix A, Summary of Commands for more information about the **stop_vs** command.

Note: If you do not want to preserve existing call data, skip step 9 through step 11.

9 Enter **systblsav *file***

The system saves the table storage information, where *file* is a UNIX file or a device name where the data will be saved, such as, **/dev/rmt/c0s0**.

10 Enter **sqlplus \@ /oracle/dist/cdh.sql**

The system reinitializes the table or tables.

11 Enter **systblres *file***

The system restores the table storage information from the UNIX file or device name where it was saved in step 9, such as, **/dev/rmt/c0s0**.

12 Enter **start_vs**

The system restarts the voice system. See start_vs in Appendix A, Summary of Commands for more information about the **start_vs** command.

Verify Call Data Tables

Periodically, the field definitions of a table need to be reviewed for accuracy, or to assist with troubleshooting.

To verify the field definitions of a table (such as, the CCA table):

1 At the `Console Login:` prompt, enter **root**

The system prompts you for a password.

2 Enter your root password.

The system displays the system prompt #.

3 Enter **sqlplus sti/sti**

The system starts a sqlplus session.

4 Enter **describe CCA**

Note: If the table name is lowercase, do not use the **describe** command. Instead, use **desc** as described below:

desc *table_name*

The system displays the current definition of the CCA table, similar to the following:

```
Name            Null?     Type
----------      -----     -----
START_TIME      DATE
PHONE_NUM       VARCHAR2(16)
RESULT_CODE     VARCHAR2(1)
```

5 Enter **quit**

The system exits the sqlplus session.

Table Searches

Think of a database table as a book. If you want to find information on a subject, you must search the book to find it. However, checking the index first helps you to locate the information in the book much more quickly than paging through the book. The same is true for finding data in a database table.

Indexes and Key Fields

For large databases, you can use indexes on key fields to greatly reduce the time necessary to search the tables.

Indexed fields can be especially important in applications that require a “lookup” from a large table based on user input. This input generates a SQL statement for accessing the database that has the following form:

*SELECT * from “table_name” where “FIELD1” = ‘data’;*

If FIELD1 has an index created for it in the database, all records that match the criteria specified in the select statement are located much faster than if there is no index.

FIELD1 is a key field in this example because it is the field used to specify selection criteria. Indexes only decrease read time when they are created on key fields.

A SQL statement may have more than one key field, as in the following example:

*SELECT * from “table_name” where “FIELD1” = ‘data1’ AND “FIELD2” = ‘data2’;*

In this example, FIELD1 and FIELD2 are key fields. Create an index for each of these fields to enhance system performance.

Unique Indexes

Unique indexes on fields enforce uniqueness of the data in that field across the entire table of records. For example, a field for which you might create a unique index is one that contains a social security number (SSN). A unique index on an SSN field ensures that only one record with a given SSN can exist in the table. Attempts to add records with that SSN will fail.

Use the following procedure to create a unique index on a field called *FIELD1* in a table called *“table_name”*:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter **sqlplus sti/sti**

   The system starts a sqlplus session.

4 Enter
create unique index *index_name* on *table_name* (“FIELD1”);

The system creates a unique index for FIELD1 in the table.

Non-Unique Indexes

Non-unique indexes do not prevent the same data from appearing in that field in several records in the same table. For example, if a field contains the area code of a telephone number and an index is created for that field, it must be a non-unique index since other records may require the same number in their area code field.

Use the following procedure to create non-unique indexes on fields called *FIELD1* and *FIELD2* in a table called *table_name*:

1 At the `Console Login:` prompt, enter **root**

The system prompts you for a password.

2 Enter your root password.

The system displays the system prompt #.

3 Enter **sqlplus sti/sti**

The system starts a sqlplus session.

4 Enter **create index *index_name* on *table_name* (“FIELD1”);**

The system creates a non-unique index for FIELD1 in the table.

5 Enter **create index *index_name* on *table_name* (“FIELD2”);**

The system creates a non-unique index for FIELD2 in the table.

Flat File Structure

If ORACLE is not installed, the **filecdh** process handles all the IPC messages for call, service and event data from IRAPI.

The data files location is specified in the **/vs/data/filecdh.rc** file. This file contains a entry called **DATA_PATH=/oracle/add-on/calldata**. If the directory does not exists, the DATA_PATH directory is created by **filecdh** process. The filecdh process defaults to **/oracle/add-on/calldata** directory i if the **filecdh.rc** file is missing or corrupted, or the value for DATA_PATH cannot be extracted.

The **filecdh** process creates 3 new files every day in ***<DATA_PATH>/<YYYYMMDD>*** directory. One such directory is created for each day. New files are created every night and these file creations are done based on Unix alarm event, which is set to every 60 seconds or 12:00 a.m. which ever is first. The <YYYYMMDD> represent the 4 digit year, month and the date.

The following is the list of flat files that are created:

- call.csv — This file has all the fields of the CALL table in ORACLE. One record per call is created in this file. The format of the record is

<Call ID>, <Channel Number>, <Start Time>, <End Time>

The Start Time and End Time are in the format *YYYY/MM/DD-HH:MI:SS.*

- service.csv — This file has all the fields of the SERVICE table in ORACLE. One record per service is created in this file. The format of the record is

  <Call ID>, <Service ID>, <Service Name>, <Start Time>, <End Time>

  The Start Time and End Time are in the format *YYYY/MM/DD-HH:MI:SS.*

- events.csv — This file has all the fields of the EVENTS table in ORACLE. One record per event is created in this file. The format of the record is

  <Service ID>, <Event Number>, <Count Event>, <Time Event>, <String Event>

  If the string event contains a field which has commas in it, the string event will be enclosed in double quotes ("").

Storage Period

The data files are stored for a period of 7 days. Files older than 7 days are deleted by the **croncdh** utility. This utility will be run by CRON every day and checks if ORACLE is used for call data repository. Then, **croncdh** executes appropriate utilities to remove old files.

Changing the Call Data Storage

The call data repository can be changed from ORACLE to flat files and flat files to ORACLE using the **changerep** utility when ORACLE is installed.

Note: If ORACLE is not installed, call data repository must remain as flat files. It cannot be changed.

If ORACLE is Installed

1. Login as root.
2. Enter **changerep**

   The system displays the following message:

   ```
   Currently the reports repository is ORACLE.

   Do you want to change the repository to FILES? \(Y/y/N/n\)
   [N]:
   ```

3. Enter **y**

   The system displays the following message:

   ```
   Please enter the repository directory [/oracle/add-
   on/calldata]:
   ```

4. Enter the repository directory, or press **ENTER** to select the default directory **/oracle/add-on/calldata**.

   The system displays the following message:

```
Confirm repository location as /oracle/add-on/calldata
(Y,y/N,n) [Y]:
```

5 Enter **y**

The system displays the following message:

```
Disabling reports menus in CVIS_MENU
Please stop and start the voice system for the changes to
take effect.
```

6 Stop and start the voice system. See "Common Maintenance Procedures," in *CONVERSANT System Version 8.0 System Reference*, 585-313-215.

If ORACLE is Not Installed

1 Login as root.

2 Enter **changerep**

The system displays the following message:

```
Notice: ORACLE is not installed.

This utility is used to change reports repository from FILES
to ORACLE and ORACLE to FILES. This can be done only if ORACLE
is installed.

Making sure that reports repository is FILES
```

Tablespace and Log File Structure

Table 18 on page 183 and Table 19 on page 185 provide the ORACLE tablespace and log file structure on CONVERSANT Version 8.0 systems.

Note: Initial size is the size of the tablespace at the time of installation. Tablespace sizes grow automatically using the AUTOEXTEND feature as long as space exists in the /oracle has available free space.

Enabling and Disabling Automatic Extension for a Datafile

You can create tablespaces or alter existing tablespaces so that they automatically increase in size when more space is needed in the database. The files increase in specified increments up to a specified maximum.

Setting your datafiles to extend automatically results in the following:

- Reduces the need for immediate intervention when a tablespace runs out of space
- Ensures applications will not halt because of failures to allocate extents

To find out if a datafile is auto-extensible, query the DBA_DATA_FILES view and examine the AUTOEXTENSIBLE column.

Automatic file extension is specified during installation. You can enable or disable automatic file extension for existing datafiles, or manually resize a datafile using the SQL statement ALTER DATABASE.

The following example enables automatic extension for a datafile, FILENAME2, added to the USERS tablespace:

```
ALTER TABLESPACE users
   ADD DATAFILE 'filename2' SIZE 10M
      AUTOEXTEND ON
      NEXT 512K
      MAXSIZE 250M;
```

The value of NEXT is the minimum size of the increments added to the file when it extends. The value of MAXSIZE is the maximum size to which the file can automatically extend.

The next example disables automatic extension for the datafile FILENAME2:

```
ALTER DATABASE DATAFILE 'filename2'
   AUTOEXTEND OFF;
```

For more information about the SQL statements for creating or altering datafiles, see the *Oracle8i SQL Reference* in *ORACLE 8i On-Line Gernice Documentation CD-ROM*.

Table 18. Tablespace Description

Tablespace	Description	Initial Size (MB)
SYSTEM	The SYSTEM tablespace contains data dictionary views for the creation of the database. The SYSTEM tablespace requires 175 MB for storage as it needs to create the Data Dictionary views and tables for all the products that are installed to function properly. The system database file is **$ORACLE_HOME/oradata/A/System01A.dbf**.This tablespace has the AUTOEXTEND feature ON.	175
USERS	This tablespace contains all the objects, tables, views, and stored procedures for the "sti" ORACLE user. This data file is **$ORACLE_HOME/oradata/A/users01A.dbf.** This tablespace has the AUTOEXTEND feature ON.	100
RBS	This tablespace contains four rollback segments: r1, r2, r3, and r4. The data file is **$ORACLE_HOME/oradata/A/rbs01A.dbf.** This tablespace has the AUTOEXTEND feature ON.	10

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Table 18. Tablespace Description

Tablespace	Description	Initial Size (MB)
INDX	This tablespace is used for creation of indexes on tables and to improve the performance of the database. The data file is **$ORACLE_HOME/oradata/A/oemrep01A.d.** This tablespace has the AUTOEXTEND feature ON.	25
TEMP	This is a temporary tablespace.The data file is **&ORACLE_HOME/oradata/A/temp01Adb.** This tablespace has the AUTOEXTEND feature ON.	25
OEM_REPOSITORY	This tablespace is a repository for Oracle Enterprise Manager. The data file is **$ORACLE_HOME/oradata/A/oemrep01A.d.** The tablespace has AUTOEXTEND on next 25 MB and Maxsize is 80 MB.	5

2 of 2

Table 19. Log File Description

Log File Group	Log File Name	Initial Size (MB)
GROUP 1	**$ORACLE_HOME/oradata/A/redo01a.log** **$ORACLE_HOME/oradata/A/redo01b.log**	5
GROUP 2	**$ORACLE_HOME/oradata/A/redo02a.log** **$ORACLE_HOME/oradata/A/redo02b.log**	5

Database Interface Process

A voice system application accesses the database tables through a single database interface process (DIP). A DIP is a software program that connects to the database and provides the only interface between the application and the database.

Database DIP Timeout

The voice system and remote database ORACLE connection is established when the voice system starts. After the connection is established, the voice system does not keep track of status changes on the remote machine. The

connection between it and the voice system is dropped if the remote machine is turned off or rebooted. If the remote machine is shut down and rebooted while the voice system is still active, the voice system detects this status change only when calls come in to the system that involve remote database access for call processing. The voice system attempts to reestablish the remote connection and is not able to process calls during this time.

In certain cases, the database DIP (**oraldb**) may not receive a timely response from the machine. This may be due to a variety of factors, such as the machine not operating, the machine operating slowly, an application query of a large non-indexed table, network congestion, and so on.

While the DIP is waiting for a response from the machine, the message queue of the DIP may back up. A full message queue (the current maximum is 255) may result in performance problems for the voice system.

To prevent this, the DIP is equipped with a timeout mechanism. By default, the DIP times out every 45 seconds while waiting for a response. After the timeout, the DIP deletes the messages currently queued and continues to wait for a response from the database. The DIP continues to time out every 45 seconds and to empty the message queue. After the default of 300 seconds, the DIP automatically respawns and reinitializes.

The 45-second and 300-second timeout values can be altered in **/vs/data/ldbdip.rc** *file*. This file is included with the generic package and contains the following default values:

```
FIRST_TMOUT=45
SECOND_TMOUT=300
```

You can change these default values to any number that is appropriate for your database and applications. If the **ldbdip.rc** file is missing, the DIP uses the default timeout values of 45 seconds and 300 seconds.

CAUTION:
Always stop the voice system before shutting down the remote database machine to avoid an unexpected interruption of service.

Database Cursors

An internal data structure called a *database cursor* is used to monitor the point from which the DIP is reading in a specific database table. One cursor is allocated for each read of each database table by each channel running a service that requires access to that database. The cursor remains assigned to that table until the service ends on the channel for which the cursor was allocated.

The number of cursors is tunable in the **/oracle/dbs/initA.ora** file (*open_cursors* is a tunable parameter). At least 500 cursors are supported. Once the limit of cursors is reached, database transactions do not complete successfully. That is, table reads may fail and inserts or updates may not occur.

Database Cursor Calculations

To ensure the integrity and consistency of the data in the database, you must keep this limiting factor in mind when you design your applications. Use the following formula to determine the number of database tables that may be accessed by an application with the voice system:

channel X read X cursor < 500

where:

- channel = the number of channels running applications with database access
- read = the number of read table operations performed on different tables by applications (per channel)
- cursor = the number of cursors involved in the read table

Note: Multiple reads of the same table use only one cursor.

The following are sample calculations using various configurations and numbers of read table operations.

- If you have a 24-channel system running an application that performs four read table operations on four different tables per channel, the calculation is:

  $24 \times 4 \times 1 = 96$

  Since 96 is less than 500, the database operations proceed properly.

- If you have a 36-channel system running an application that performs four read table operations on a single table per channel, the calculation is:

  $36 \times 1 \times 1 = 36$

  Since 36 is less than 500, the database operations proceed properly.

- If you have a 48-channel system running an application with five read table operations on five different tables per channel, the calculation is:

  $48 \times 5 \times 1 = 240$

  In this case, if all 48 channels are performing five read table operations, some database operations may fail because of the multiple read table operations on the same channels.

- An application developer wants to develop an application that executes six read table operations on six different tables per channel:

  $500 / (6 \times 1) = 83.33$

  Therefore, the application can run on as many as 80 channels before it encounters database access problems.

- An application developer wants to develop an application to run on 72 channels simultaneously:

  $500 / (72 \times 1) = 6.94$

Therefore, the application can perform up to six read table operations on up to six different tables per channel before it encounters database access problems.

Increasing Database Storage Size

The amount of storage space needed for the database should be decided at the initial installation because the size of the database can affect the disk partition sizes (the database is stored in the **/oracle** file system).

To increase the database size:

Note: It is not necessary to stop the voice system while you are resizing the database.

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter **/vs/bin/util/dbfrag**

   The system displays the number of free database blocks.

4. Multiply the number of free database blocks by 4 to get the actual number of free 512-byte blocks.

5 Enter **df /oracle**

The system displays the number of free blocks available in the **/oracle** file system.

6 Determine the number of bytes to add to the database by subtracting the current database size (in blocks) from the optimum size.

7 Enter **/oracle/bin/svrmgrl**

The system enters the system manager mode.

8 Enter **connect internal**

9 Enter **alter tablespace system**

10 Enter **add datafile '/oracle/oradata/A/dbs**.dbf'**

11 Enter **size *number***

where *number* is the number of bytes calculated in step 6 that you want to add to the database.

12 Enter **exit**

Note: We recommend that you use the above commands as written. However, if you are concerned about the **/oracle** file system size, substitute the **add datafile '/home2/dbs**.dbf'** command for **add datafile '/oracle/oradata/A/dbs**.dbf'** above.

13 Enter **/vs/bin/util/dbfrag**

The system displays the number of free database blocks.

14 Check that the database size has been increased as desired.

15 Enter **exit**

The system exits the system manager mode.

16 Enter **exit**

Decreasing the Database Storage Size

To minimize database storage and access problems, the voice system provides two ways to minimize the storage space required for call data:

- Reduce the amount of call data stored.
- Reduce the number of days for which data is stored.

Reducing the Amount of Call Data Stored

You can decrease the amount of database space needed by reducing the number of stored call data events. This reduction must be accomplished at the application design level. Unlike the technique to reduce the number of days data is stored, there are no system variables to modify. This

minimization technique involves modifying every application that stores call data events to store fewer of them.

Reducing the Number of Days Data is Stored

Another way to minimize the amount of storage required for call classification and call data detail information is to store fewer than 7 days worth of data. The voice system knows how many days worth of data to archive by reading the contents of the **croncdh** file in the **/vs/bin/util** directory.

The following is a sample **croncdh** file:

```
# Start the ORACLE DBMS

VSUTIL=/vs/bin/util
ORACLE_SID=A;export ORACLE_SID
ORACLE_HOME='/usr/lbin/dbhome $ORACLE_SID'
PATH=$PATH:$ORACLE_HOME/bin;export PATH
ulimit 2113674
if /usr/lbin/orastat -s >/dev/null

then
:

else
 ulimit 2113674; ior w
fi

# perform the cron jobs
```

```
$VSUTIL/cdhsum
$VSUTIL/cdhdel
$VSUTIL/ccasum
$VSUTIL/ccadel

# cleanout the unwanted ORACLE log files

$VSUTIL/logdel
```

Changing the Data Storage Number of Days

Currently, the only report produced for the call classification data is the Call Classification Summary report. Therefore, saving zero days worth of call classification data saves database space without affecting the reports produced by the voice system. Storing zero days worth of data means that only the call classification data for the current day is available until the clean-up and summary programs run each night after midnight. The voice system always maintains the current day's data.

To change the number of data days, modify the following commands in the **croncdh** file, where *x* is the number of days of data to store:

$VSUTIL/cdhdel -*x*
$VSUTIL/ccadel -*x*

Note: If **cdhdel** and **ccadel** do not have any arguments, the default of 7 days is used, as illustrated in the sample **croncdh** file above.

To store 2 days worth of call detail data information, and 4 days of call classification data, modify the **croncdh** file as follows:

```
# Start the ORACLE DBMS

VSUTIL=/vs/bin/util
ORACLE_SID=A;export ORACLE_SID
ORACLE_HOME='/usr/lbin/dbhome $ORACLE_SID';export
ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin;export PATH
if /usr/lbin/orastat -s >/dev/null
then
:

else
 ulimit 2113674; ior w
fi

# perform the cron jobs

$VSUTIL/cdhsum
$VSUTIL/cdhdel -2
$VSUTIL/ccasum
$VSUTIL/ccadel -4

# cleanout the unwanted ORACLE files
$VSUTIL/logdel
/vs/bin/util/dbcheck -w 15,20
```

Increasing the Shared Pool Size

Perform this procedure to allocate additional memory resources for ORACLE. You may need to do this if the system is trying to write to several database tables at once and you receive the ORACLE error message number ORA-04031 in the message log.

Note: This procedure increases the amount of main memory that ORACLE uses.

1. Check the message log for ORA-04031. The text portion of this message indicates there is not enough shared memory space.
2. Access the **/oracle/dbs/initA.ora** file.
3. Place a pound sign (#) in front of the value `shared_pool_size=3500000`.
4. Remove the pound sign (#) from the front of the value `shared_pool_size=6000000`.
5. Save and exit the file.
6. Enter **/oracle/bin/ior c** to stop the database system.
7. Enter **/oracle/bin/ior w** to start the database system.

Rollback Segment

A rollback segment is a storage buffer that records actions that can be undone under certain circumstances. The rollback segment grows as needed as long as there is available space in the database. However, in UCS 1000 R4.6 the rollback segment will automatically shrink back to 6 MB each.

Rollback Segment Tablespace Structure

Table 20 on page 197 provides information on the tablespace structure for the rollback segment.

Table 20. Rollback Segment Tablespace

Rollback Segment	Tablespace
SYSTEM	Default rollback segment for SYSTEM tablespace
R1	Rollback segment for USER tablespace. This rollback segment is used to provide read consistency and to rollback transactions when it is necessary to recover the database

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Table 20. Rollback Segment Tablespace

Rollback Segment	Tablespace
r01, r02, r03, r04	Rollback segments for RBS tablespace These rollback segments is used to provide read consistency and to rollback transactions when it is necessary to recover the database

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Verifying or Recreating the Size of the Rollback Segment

Note: In previous releases, this procedure was used to reduce the size of the rollback segments. With this release, this is no longer necessary as the rollback segment grows as needed as long as there is available space in the database and will automatically shrink back to 6 MB each.

The procedure to recreate the rollback segment requires that the voice system and database system be stopped. The procedure to verify the size of the rollback segment does not require that the voice system and the database system be stopped. Consequently, you may verify the size of the rollback segment at any time.

To verify or recreate the size of the rollback segment:

1 At the `Console Login:` prompt, enter **root**

The system prompts you for a password.

2 Enter your root password.

The system displays the system prompt `#`.

3 Enter **/vs/bin/util/rb_init** to display the total current size of all rollback segments.

The system displays a message similar to the following:

```
Rollback segments are currently <#> bytes in size, would you
like to reduce the size of these rollback segments? (y/n)
```

~ To terminate this procedure, go to step 4.

~ To continue with this procedure and recreate the rollback segment, go to step 5.

4 To terminate the **rb_init** command without recreating the rollback segment, enter **n**

The system returns to the system prompt `#`. You have completed this procedure.

5 Enter **y** to recreate the rollback segment.

The system executes the **rb_init** command. The system displays the following message If the voice system is running:

```
The voice system is running. Is it OK to stop the voice
system? (y/n)
```

6 Enter **y** to shut down the voice system and continue with the procedure to recreate the rollback segment.

The system displays the following message if the database system is running:

```
The database system is running. Is it OK to shutdown the
database? (y/n)
```

7 Enter **y**

The system stops the database system and executes the **rb_init** command.

When the **rb_init** command is finished, the system displays the following message:

```
Would you like to restart the voice system? (y/n)
```

8 Enter **y** to restart the voice system, or enter **n** to wait to start the voice system.

If you do not want to restart the voice system and the database at this point, you may do so manually at a later time.

Voice System Database Administration

To access the Database Administration window:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

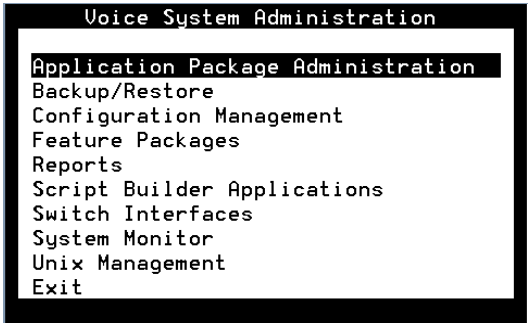
2. Enter your root password.

   The system displays the system prompt #.

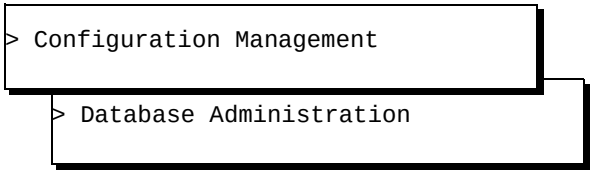
3. Enter **cvis_menu**

   The system displays the Voice System Administration menu (Figure 81 on page 202).

Figure 81. Voice System Administration Menu

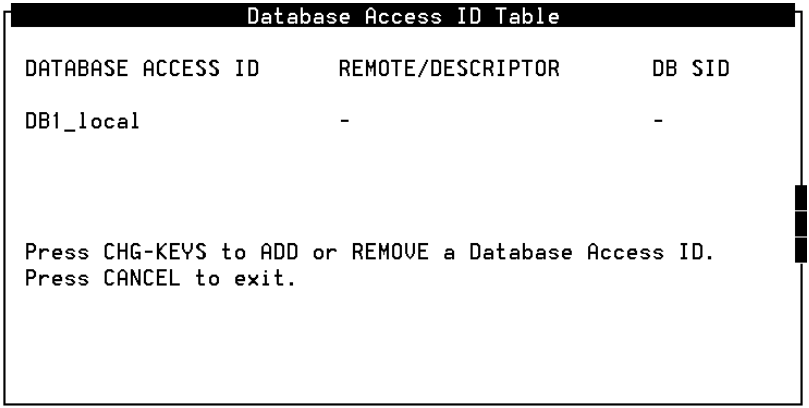


4 Select:



The system displays the Database Access ID Table window (Figure 82 on page 203).

Figure 82. Database Access ID Table Window



Database Access ID Table Window

The Database Access ID Table window displays currently recognized database IDs. Use the Database Access ID Table window to perform the following tasks:

- Add a local or remote database access ID
- Remove a local or remote database access ID

Table 21 describes each field in the Database Access ID Table window.

Table 21. Field Descriptions for the Database Access ID Table Window

Field Name	Description
`Database Access ID`	List of database access IDs, each representing an established ORACLE database connection to the system. See Database Access IDs on page 204 for more information.
`Remote Machine`[1]	Remote machine name.
`DB SID`[1]	Database instance, ORACLE_SID or database name (dbname) on ORACLE systems. There could be multiple instances on a remote machine.

1 If these fields are blank, the connection is to a local ORACLE database. If these fields are populated, the connection is to an ORACLE database on the system or to an ORACLE database on the machine specified in the `Remote Machine` field.

Database Access IDs

Each ID listed in the Database Access ID Table window represents an established local or remote connection to an ORACLE database. This connection is used by the voice system's applications to access a customer's database tables. The database ID, then, represents each local or remote database to the voice system.

An application can access multiple database tables in a local database (that is, a database that resides on the voice system's hard disk). However, you

can improve the access performance by adding multiple database access IDs to that local database to split the access evenly between the multiple database access IDs.

Adding a Local Database Access ID

To add a *local* database access ID:

1. Start at Database Access ID Table window (Figure 82 on page 203).
2. Press **F8** (Chg–Keys).

   The system displays the alternate set of function keys.
3. Press **F1** (Add).

   The system displays the Add A Database Access ID menu (Figure 83).

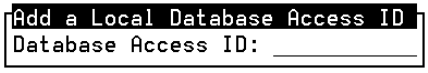
Figure 83. Add A Database Access ID Menu

4. Select:

```
> Add a Local Database Access ID
```

The system displays the Add a Local Database Access ID window (Figure 84).

Figure 84. Add a Local Database Access ID Window



5 Enter the local database access ID in the `Database Access ID:` field, or press **F2** (Choices) to select from a menu. Valid values are DB2_local, DB3_local, DB4_local, and DB5_local.

DB1_local is the standard connection to a local ORACLE database. The CHOICES menu lists only those local database access IDs that have not yet been added.

6 Press **F3** (Save) to save the database access ID and exit the window. The Add a Database Access ID menu remains active, allowing you to add other database access IDs, if desired.

7 If you are finished adding database access IDs, press **F6** (Cancel) twice to return to the Configuration Management menu.

8 Stop and start the voice system. See Stopping the Voice System on page 56 and Starting the Voice System on page 59 in Chapter 3, Voice System Administration, for the procedures.

The system establishes the local database connections.

Adding a Remote Database Access ID Using SQL*NET V2

You must have the SQL*NET TCP/IP installed on your system to use SQL*NET V2 for remote database access.

See “Installing the Oracle SQL*NET TCP/IP Package,” in Chapter 7, “Installing the Optional Feature Software,” in *UCS 1000 R4.6 Maintenance*, 585-313-154, for information on installing the SQL*NET V2 software.

Before you establish an SQL*NET V2 connection, verify that the following are true:

- The SQL*Net V2 listener for TCP/IP is running on the remote database server.
- The **$ORACLE_HOME/network/admin/tnsnames.ora** configuration file on the UCS 1000 R4.6 has been updated to provide system information for the system. The system software automatically attempts to update the existing **tnsnames.ora** file (or to create a new file if none exists), but manual alterations are sometimes necessary. For assistance with this requirement, see the database administrator.

See “Configuring the TNS Listener: LISTENER.ORA” and “Identifying the Servers: TNSNAMES.ORA” in the *ORACLE Server Administrator’s Guide Release 7.3*, for more information on these configuration files.

To add a remote database access ID using SQL*NET V2:

1. Start at Database Access ID Table window (Figure 82 on page 203).
2. Press **F8** (Chg–Keys).

   The system displays the alternate set of function keys.
3. Press **F1** (Add).

   The system displays the Add a Database Access ID menu (Figure 85).

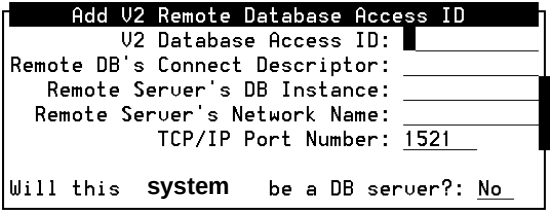
Figure 85. Add a Database Access ID Menu

4 Select:

```
> Add a SQL*Net V2 Remote Database Access ID
```

The system displays the Add V2 Remote Database ID window (Figure 86).

Figure 86. Add V2 Remote Database Access ID Window



5 Complete the fields in this window using the information in Table 22.

Table 22. Field Descriptions for the Add V2 Remote Database Access ID Window

Field Name	Description	Valid Values
V2 Database Access ID:	This field specifies the name by which you want to refer to this connection.	—
Remote DB's Connect Descriptor:	This field specifies the database instance on the remote database server to which you want to connect. This connect descriptor is put into the **/oracle/network/admin/tnsnames.ora** file if it is not already in that file.	—
Remote Server's DB Instance:	This field specifies the name of the ORACLE database instance on the remote database server. This field is also known as the ORACLE SID.	This name must match the corresponding ORACLE SID on the server system. Contact the server's database administrator for this name.

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Table 22. Field Descriptions for the Add V2 Remote Database Access ID Window

Field Name	Description	Valid Values
Remote Server's Network Name:	This field specifies the network name or TCP/IP address of the remote database server. If the network name is entered, it must already exist in the local **/etc/hosts** file.	Contact the network administrator for this name or TCP/IP address.
TCP/IP Port Number:	This field contains the TCP/IP port number.	This port number must match the one on the remote database server. Contact the server's database administrator for this port number.

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Table 22. Field Descriptions for the Add V2 Remote Database Access ID Window

Field Name	Description	Valid Values
`Will this system be a DB server?`	This field indicates whether this is a database server. **Note:** It is strongly recommended that the local system not be used as a database server due to performance considerations.	Yes or No If No, the system can only be a client to a remote database server. If Yes, the system can be both a client and a database server. Also, if Yes, the system sets up a listener process and a connect descriptor entry is created in the **tnsnames.ora** file for this system.

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6 Press **F3** (Save).

The system saves the information and redisplays the Database Access ID Window.

7 Press **F6** (Cancel) twice.

The system closes the Database Access ID Table.

8 Stop and start the voice system. See Stopping the Voice System on page 56 and Starting the Voice System on page 59 in Chapter 3, Voice System Administration, for the procedures.

Completing ORACLE Environment Setup if Server Is Not a UCS 1000 R4.6

If the database server is a UNIX-based system running ORACLE V7 but not a UCS 1000 R4.6 system, you must perform the following procedures to complete the ORACLE environment setup:

Note: This procedure assumes the following:

- The network is a TCP/IP local area network and consists of a single server and any number of clients (UCS 1000 R4.6 systems).
- The server runs a single listener process to permit access to the server's database.
- The ora7sql package is installed on all of the clients
- The entries for the server and for all of the clients are in the **/etc/hosts** file on the server and all of the clients.
- All remote database files are created and/or updated on the server.
- Files can be remotely copied from the server to all clients.

1 Administer the SQL*NET V2 product so that the listener process can be launched.

2 Start the listener process.

3 Provide the server's network name and database instance name (ORACLE_SID) to each UCS 1000 R4.6 client system.

Accessing a Remote Database Using PRO*C or SQL*PLUS

The following are application development issues related to accessing a remote database using PRO*C or SQL*PLUS programs.

Setting the Connect Descriptor

If you are using PRO*C or SQL*PLUS with an IRAPI application, you must change or verify the correct form of the connect string. The database interface assigns the node name of the system with the remote database as the connect string. The connect string should be in the form "*remote_system*" with the name of the system contained in quotes. For example, if the remote system name is cop3, the connect string must be "cop3".

Setting Environment Variables

If you are using PRO*C, you must set the environment variables ORACLE_HOME and ORACLE_SID. Two methods are available:

- Shell wrapper approach
- putenv function call

Shell Wrapper Approach

Perform the following:

1. Compile the original source file that communicates with the database along with all the other source files.
2. Rename the executable file using the move command, but keep it in the same directory.
3. Using your favorite editor, edit a file with the same name as the original executable file.
4. Enter the following on the first line:

   ORACLE_SID=*ORACLE_SID_name*;export ORACLE_SID

   where *ORACLE_SID_name* is the name of the instance of the ORACLE database on the server.
5. Enter the following on the second and third lines:

   ORACLE_HOME='/usr/lbin/dbhome $ORACLE_SID';export ORACLE_HOME
   exec *new_executable_file_name*

   where *new_executable_file_name* is the full path name of the newly-renamed executable file.
6. Save the file and exit the editor.

7 Change the mode of shell file with the original name to *rwxr_xr_x*.

8 Add the original executable file name along with all the other executable files to **/etc/inittab** file as before using the same tools as before.

The following example is used to illustrate these steps. The executable file that communicates with the database is called **get_pin_uac**. The name of the instance of the ORACLE database is “A”.

1 Compile the **get_pin_uac** executable file along with all the other executable files as before.

2 Enter **mv get_pin_uac getPinUac** in the **/home/gar/irapi** directory.

3 In the **/home/gar/irapi** directory, enter **vi get_pin_uac**

4 Enter the following first line to the file:

ORACLE_SID=A;export ORACLE_SID

5 Add the following second and third line to the file:

ORACLE_HOME=‘/usr/lbin/dbhome $ORACLE_SID‘;export ORACLE_HOME
exec /home/gar/irapi/getPinUac

6 Save the file and exit the editor.

7 Enter **chmod 755 get_pin_uac**

8 Place the **/home/gar/irapi/get_pin_uac** entry along with all the other executable files in the **/etc/inittab** file as before using the same tools as before.

putenv Approach

The following describes the putenv approach. The putenv function call permits the developer to directly place the ORACLE_SID and the ORACLE_HOME environmental shell variables into a Pro*C program. Perform the following:

1 Using an editor, open the Pro*C source file for editing.

2 Add the following line at the top of the source file:

#include <stdlib.h>

3 Near the beginning of main, add the following two lines of code:

putenv ("ORACLE_SID=<*ORACLE_SID_name*>");

putenv ("ORACLE_HOME=<*ORACLE_HOME_name*>");

where *ORACLE_SID_name* is the name of the database instance on the server and *ORACLE_HOME_name* is the ORACLE_HOME directory on the server.

4 Recompile this source code file along with all the source files that make up the custom software.

The following example is used to illustrate these steps. The name of the instance of the ORACLE database is “A”. The name of the ORACLE_HOME directory is **/oracle**.

```
/* start of header files */
...
#include <stdlib.h>
...
/* end of header files */
...
...
main (argc,argv)
int argc;
char *argv[];
{
    /* start of local variables */
    ...
    /* end of local variables */
    /* start of executable code */
    /* start of putenv changes */
    putenv ( "ORACLE_SID=A" );
    putenv ( "ORACLE_HOME=/oracle" );
    /* end of putenv changes */
    ...
    ...
}
```

Removing a Database Access ID

The Remove a Database Access ID window allows you to remove one or more existing database access IDs, thereby dropping the connection to the associated ORACLE database.

CAUTION:
When you remove a remote database access ID, make sure that no applications use that database access ID. If an application uses an ID that has been removed, the application fails when it tries to access data stored in that database.

1. Start at Database Access ID Table window (Figure 82 on page 203).
2. Press **F8** (Chg–Keys).

   The system displays the alternate set of function keys.
3. Press **F2** (Remove).

   The system displays the Remove a Database Access ID window (Figure 87 on page 220).

Note: DB1_local represents the standard connection to the local ORACLE database and cannot be removed. There must always be at least one connection to the local database.

Figure 87. Remove a Database Access ID Window

4 Enter the access ID of the database you want to remove in the `Database Access ID:` field, or press **F2** (Choices) to select from a menu.

5 Press **F3** (Save).

The system saves the ID of the remote database connection to be deleted.

6 Stop and start the voice system. See Stopping the Voice System on page 56 and Starting the Voice System on page 59 in Chapter 3, Voice System Administration, for the procedures.

The system removes the database connection.

SQL*PLUS Database Administration

The SQL*PLUS software program is a tool used to access the ORACLE RDBMS. It is included in the Base ORACLE software package. This tool can be used to review database information without having to access the voice system directly.

CAUTION:
Do not alter any data, schema, logins, or passwords using SQL*PLUS. Doing so may corrupt the voice system and result in the need for maintenance. The ORACLE right-to-use license is restricted solely to UCS 1000 R4.6 applications, that is, not covered under the warranty.

If you use SQL*PLUS to drop a table or change a table schema, you must reverify and reinstall the application that refers to the table. The applications might not be able to communicate with the database correctly if you fail to reverify and reinstall them.

Monitoring the Database

See the *ORACLE Server Administrator's Guide* for information on commands and procedures used to monitor the database.

Database Commands

The following commands may be used to monitor database space utilization. See the information under the command name in Appendix A, Summary of Commands.

The dbcheck Command

The **dbcheck** command checks space usage and rollback segment growth.

dbcheck Command Options

The **dbcheck** command has three different options:

- **-i** installs **cron** entries and error messages. The **cron** job can be placed in either the **root cron** file or added to the end of **/vs/bin/util/croncdh** job that runs once a day. The *-i* option also asks if you want new error messages added to the **att** errors file along with explanations used with the **explain** command. This installation only needs to be run if you want the warnings to show up in the system message log or you want to schedule automatic checking at regular intervals.
- **-r** removes any cron entry set up by the *-i* option
- **[-w n[,m]][-s][-e][-m user[~user...]]** checks database space against user-set thresholds. The following occurs:
  - ~ Free space is checked against the user set threshold *n*, 15% default
  - ~ Rollback segment growth is checked against the user set threshold *m*, 20% default

  When executed, the **dbcheck** command generates the appropriate warnings (see below) if the database falls below *n* percent free or if the rollback segments grow to be more than *m* percent of the total database size.

The command, by default, sends warning messages to the error log indicating a threshold was exceeded (the *-i* option must be run first). The *-e* option disables entries from going into the log file. The *-s* option prints the warning messages to standard output. The *-m* user option allows for the messages to be mailed to *user*. Multiple users can be sent the mail by separating the user names with a tilde (~). Following are sample outputs:

(Output to error log when less than 13% available or more than 23% used by rollback)

```
# dbcheck -w13,23
```

dbcheck Command Output

The **dbcheck** program returns the following values:

- 0 — Success (no limits exceeded)
- 1 — Threshold exceeded
- 2 — Processing error
- 3 — Database is not running

The dbfree Command

The **dbfree** command is a shell script that lists the amount of free space in the database by free contiguous blocks. The result will be a detailed listing of each free memory area followed by the sum of each tablespace. The free blocks listed are in 2048 bytes per block (ORACLE blocks). There is also a column that lists the same information in megabytes.

dbfree Command Options

The **-h** option removes the column headers.

The dbfree Command Output

The **dbfree** program returns the following values:

- 0 — Success
- 1 — Processing error

The dbfrag Command

The **dbfrag** command is a shell script that reports on database allocation, usage, and fragmentation. The block size reported is in ORACLE blocks (2048 bytes). This command is useful to get a quick check on database usage and provides a shell interface into some key ORACLE statistics. This command only reports on information in the SYSTEM tablespace.

The dbfrag Command Options

The dbfrag command has two options:

- **-b** reports the information in megabytes.

  Example: # **dbfrag -b**

- **-h** prints the listing without a header. This option is useful if you want to parse the output to select a specific field.

The dbfrag Command Output

The **dbfrag** program returns the following values:

- 0 - Success
- 1 - Processing error

The dbused Command

The **dbused** command is a shell script that displays the amount of space used by each object for a given user. Objects are tables, indexes, clusters, rollback, and cache. The default user is sti/sti.

dbused Command Options

The **dbused** command has three options:

- **-h** prints the listing without a header. This option is useful if you want to parse the output to select a specific field.
- **-s** produces only summary information grouped by objects.
- **-u *uid/passwd*** specifies the ORACLE user id and password (sti/sti is default) for all users.

dbused Command Output

The **dbused** program returns the following values:

- 0 - Success
- 1 - Processing error

Database Trace Files

ORACLE creates a trace file in the **/oracle/rdbms/log** directory each time the system is rebooted. These trace files are not automatically removed by ORACLE and must be removed by the user or administrator if the files are no longer wanted. In addition, ORACLE creates a log file **/oracle/tcp/log/orasrv.log** that contains all of the remote login information that is automatically created and appended by ORACLE. This log file is not automatically removed by ORACLE and may be removed or truncated by the user or administrator.

6 Peripheral Administration

Overview

This chapter provides the information and procedures needed to configure and administer the peripheral equipment connected to your voice system, namely modems, printers, and remote terminals.

Accessing the Unix Management Menu

To access the Unix Management menu:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

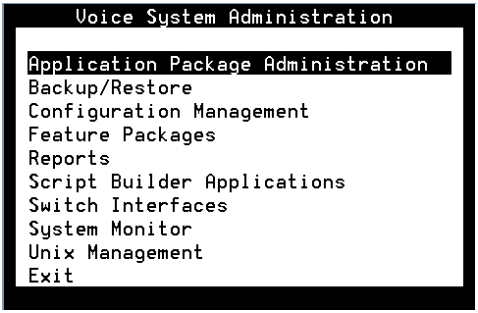
2. Enter your root password.

   The system displays the system prompt #.

3 Enter **cvis_menu**

The system displays the Voice System Administration menu (Figure 88).

Figure 88. Voice System Administration Menu

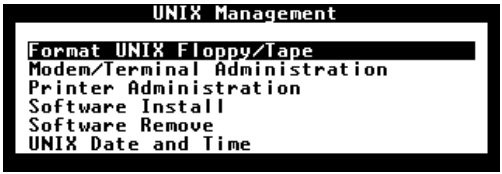


4 Select:

```
> Unix Management
```

The system displays the Unix Management menu (Figure 89).

Figure 89. Unix Management Menu



The procedures in this chapter detail administration for modems, terminals, and printers.

The other menu options in the UNIX Management menu are discussed in Chapter 7, Common Administration.

Modem Administration

This section describes the procedures to configure and administer a 3820 or 3920 Plus modem for use with your voice system.

Installing the Modem

For the procedure to physically connect the modem, see “Connecting the 3820 Modem to the Platform,” in Chapter 4, “Completing System Installation," in *UCS 1000 R4.6 New System Installation*, 585-313-153.

Configuring the Modem

In order for the 3820 or 3920 plus modem to work properly with the voice system, you must configure the modem using one of the two following methods:

- Configure the modem via its control panel after connecting it to the COM port on the hardware platform. See Configuring the Modem Using the Modem Control Panel on page 230 for more information.
- Connect the modem to a terminal that acts as a DTE and configure the modem via the terminal. See Configuring the Modem Using a Terminal on page 237 for more information.

Configuring the Modem Using the Modem Control Panel

The 3820 and 3920 Plus modems have a Diagnostic Control Panel (DCP) that is the user interface to the modem. Use the procedures below to configure the 3820 modem via its control panel:

Activate the Unix Dial Default Factory Configuration

To activate the UNIX Dial default factory setting:

1. Turn the modem off and then back on.
2. Press ◄ or ► on the modem to display `Configure`.
3. Press the function key under `Configure` (**F1** or **F2**).

   Modem response:

   ```
   Ld EditArea frm.
   ```
4. Press ◄ or ► to display `Factory`.
5. Press **F1** to display the factory preset configuration.

   Modem response:

   ```
   LD Fact Preset:
   ```
6. Press ◄ or ► to display `Unix Dial`.
7. Press **F2** (Select).

   Modem response:

   ```
   Choose Function
   Edit and Save.
   ```
8. Press **F3** (Save).

Modem response:

```
Sav EditArea to
Active.
```

9 Press **F1** (Save).

~ 3820 modem response:

```
Command Complete
```

~ 3920 Plus modem response after a power reset.

```
Idle: 288
```

10 Press ▲ to return to the top-level menu.

Setting the Async DTE Rate

To set the Async DTE rate to the required speed:

1 Press ◄ or ► on the modem to display `Configure`.

2 Press the function key under `Configure` (**F1** or **F2**).

Modem response:

```
Ld EditArea frm.
```

3 Press ◄ or ► to display `Active`.

4 Press **F1** (Save).

Modem response:

```
Choose Function
Edit and Save
```

5 Press **F1** (Edit).

Modem response:

```
Edit StrapGroup
DTE Interface
```

6 Press **F1** (Edit).

Modem response:

```
Async/Sync Mode
```

7 Press **F1** (Next) to display `Async DTE Rate`.

8 Press ◄ or ► to display the baud.

9 Press **F2** (Select).

The LCD displays the baud.

10 Continue with the next procedure, Setting the DTR Action and DSR Control to Standard RS-232 on the Modem on page 234. Do *not* return to the top-level menu.

Setting the DTR Action and DSR Control to Standard RS-232 on the Modem

To set the DTR action to standard RS-232 on the modem:

1. Press **F1** (Next), more than once if necessary, to display `DTR Action`.
2. Press ◄ or ► to display `Stndrd_RS-232`.
3. Press **F2** (Select).
4. Press **F1** (Next) to display `DSR Control`.
5. Press ◄ or ► to display `Stndrd_RS-232`.
6. Press **F2** (Select).
7. Press the single ▲.

   Modem response:

   `Edit StrapGroup`
8. Press ◄ or ► to display `DTE Dialer`.
9. Press **F1** (Edit).

   Modem response:

   `DTE Dialer Type`
10. Press **F1** (Next) to display `AT Escape Char`.
11. Use ◄ or ► and **F2** (Select) to adjust the number to 128 ASCII.

12 Press ▲.

Modem response:

```
Edit StrapGroup
```

13 Press ◄ or ► to display `Dial Line`.

14 Press **F1** (Edit).

Modem response:

```
Dial Line Rate
```

15 Press ◄ or ► to display baud.

16 Press **F2** (Select).

The LCD displays the baud.

17 Press the single ▲.

Modem response:

```
Edit StrapGroup
```

18 Continue with the next procedure, Setting the Error Control Mode to Buffer Mode on the 3820 Modem on page 236. Do *not* return to the top-level menu.

Setting the Error Control Mode to Buffer Mode on the 3820 Modem

To set the error control mode to buffer mode:

1. Press ◄ or ► to display `V42/MNP/Buffer`.
2. Press **F1** (Edit).

   Modem response:

   `Err Control Mode`
3. Press ◄ or ► to display `BufferMode`.
4. Press **F2** (Select).
5. Press **F1** (Next) to display `Flw Cntl of DTE`.
6. Press ◄ or ► to display `CTS_to_DTE`.
7. Press **F2** (Select).
8. Press ▲.

   Modem response:

   `Edit StrapGroup`
9. Press ▲.

   Modem response:

   `Choose Function`

```
Edit and Save
```

10 Press **F3** (Save).

Modem response:

```
Sav EditArea to
Active
```

11 Press **F1**.

Modem response:

```
Command Complete
```

12 Press ⏫ to return to the top-level menu.

Configuring the Modem Using a Terminal

To configure the modem terminal:

1 Connect a terminal to the 3820 modem.

Note: See the documentation provided with the terminal for connection instructions.

2 Verify that the terminal is acting as a DTE.

3 Set the terminal line to 8 bits, no parity, and 1 stop bit.

4 Set the baud of the terminal line to the required modem speed.

5 Enter **AT** from the terminal.

Modem response:

OK

Note: If the modem does not display OK, the modem is unable to accept AT commands from the terminal. Check the connection and the terminal setup.

6 Enter

AT&F3L0&D2&S1\N0\Q3S41=*dial line rate*S2=128&W0

where *dial line rate* is one of the following bauds:

- 3 = 9600
- 5 = 4800
- 6 = 2400
- 7 = 200, V.22
- 8 =1200, 212A
- 20 = 19200

For example, to set the 3820 modem to use COM1, where the baud is 19200, enter **20** as the *dial line rate* as shown below:

AT&TF3L0&D2&S1\N0\Q3S41=20S2=128&W0

Modem response:

OK

7 Disconnect the terminal.

8 Connect the modem to COM port 1.

Note: COM port 2 (COM2) is reserved for the TAM.

The system activates the RTS, CTS, and LSD indicators.

Administering the Modem

For the 3820 or 3920 plus modem to work properly with the voice system, you must administer the voice system to recognize the modem port.

To administer the voice system to recognize the modem:

1 At the `Console Login:` prompt, enter **root**

The system prompts you for a password.

2 Enter your root password.

The system displays the system prompt #.

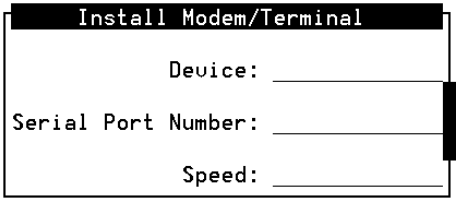
3 Enter **cvis_menu**

4 Select

```
> UNIX Management
    > Modem/Terminal Administration
        > Install Modem/Terminal Software
```

The system displays the Install Modem/Terminal window (Figure 90).

Figure 90. Install Modem/Terminal Window



5 Enter **modem** in the `Device:` field.

6 Press **F2** (Choices) to display a list of valid port numbers for the `Serial Port Number:` field.

a Select COM port 1, **/dev/tty00**

Note: COM port 2 (COM2) is reserved for the TAM.

7 Enter **19200** in the `Speed:` field.

8 Press **F3** (Save).

The system displays a confirmation window.

9 Press **F6** (Cancel) to finish and return to the Modem/Terminal Installation menu.

Setting Up UnixWare to Use a Modem

For information on how to set up UnixWare to use a modem, see the UnixWare documentation at http://www.sco.com/documentation.

Printer Administration

This section describes how to configure and administer the printer for use with the voice system.

Installing the Printer

See “Connecting the Printer,” in Chapter 4, “Connecting Peripherals and Powering Up," in *UCS 1000 R4.6 New System Installation*, 585-313-153, for the procedure to physically connect the printer.

Configuring the Printer on the Voice System

Lucent Technologies supports the standard parallel printers that have the UnixWare 2.1.7 driver. Contact your field support personnel if you want to connect a serial printer to the system.

For information on how configure a local parallel printer, see the UnixWare documentation at http://www.sco.com/documentation.

Administering the Printer on the Voice System

To administer the voice system to recognize the printer:

1. At the `Console Login:` prompt, enter **root**

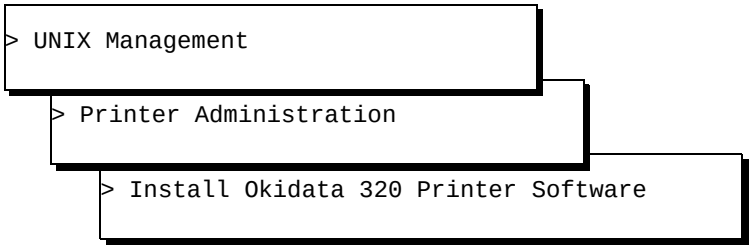
   The system prompts you for a password.

2. Enter your root password.

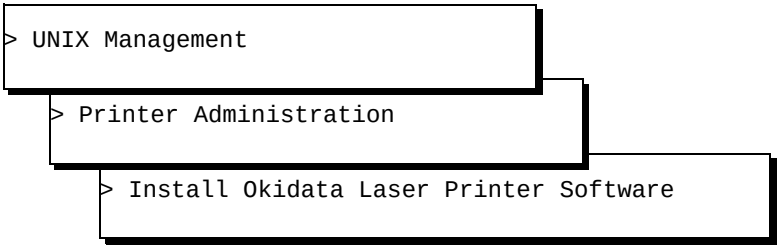
   The system displays the system prompt #.

3. Enter **cvis_menu**

4. Select one of the following sequences:



OR



The system installs the printer software.

5 Press **F6** (Cancel) to finish and return to the Printer Administration menu.

Setting Up the Printer

To set up a parallel printer for use with the system:

1. Log on to the system as root.
2. Enter **cd /etc/uucp**
3. Edit the Systems file to add an entry for the printer. This entry must include the hex representation for the printer IP address and port.

   hp4si Any hplaser - \x002*<hex value for port><hex value for IP address>*

   For example, **hp4si Any hplaser - \x0002238cc776928** uses 238c as the hex representation for port 9100 and c7769828 as the hex representation for IP address 199.118.152.40.
4. Edit the Devices file with the following line:

   hp4si tcp - - TLI \D
5. Save and exit the Devices file.
6. Enter
   lpsystem -tbsd -Tnever -R0 -y"*printer_name IP_address*" hp4si

   where *printer_name* and *IP_address* are appropriate for the printer you are adding.
7. Enter **lpadmin -php4si -Uhp4si -lpcl -Thplaserjet**

8 Do one of the following:

- ~ If you want a banner page to print, skip the following steps a through c and continue with step 9.
- ~ If you do not want a banner page to print, complete the following steps a through c.

a Enter **/usr/lib/lp/model**

b Enter **cp standard LANHP**

c Edit the **LANHP** file and change `nobanner="no"` to `nobanner="yes"`.

9 Enter **lpstat -t**

The output should indicate the lpstat spooler is running and the printer you added should be displayed.

10 To make this printer the default, enter **lpadmin -dhp4si**

Remote Terminal Administration

This section describes the procedures to configure and administer a remote terminal for use with the voice system.

Configuring the Remote Terminal

For information on how to configure the remote terminal, see the UnixWare documentation at http:/www.sco.com/documentation.

Administering the Remote Terminal

To administer the voice system to recognize the modem:

1. At the `Console Login:` prompt, enter **root**

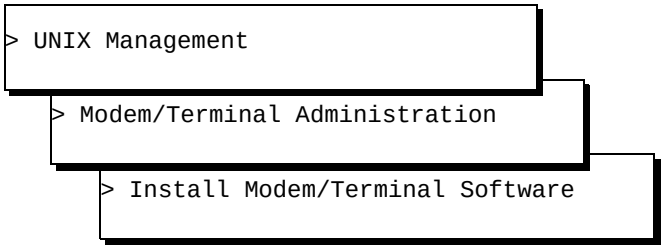
   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

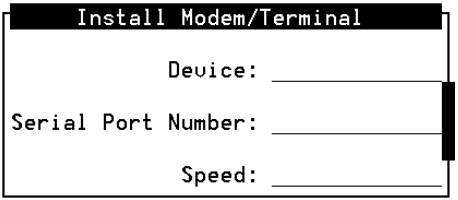
3. Enter **cvis_menu**

4. Select:



The system displays the Install Modem/Terminal window (Figure 91).

Figure 91. Install Modem/Terminal Window



5 Enter **terminal** in the `Device:` field.

6 Enter a serial port number or press **F2** (Choices) to display a list of valid port numbers for the `Serial Port Number:` field.

7 Enter **19200** in the `Speed:` field.

8 Press **F3** (Save).

The system displays a confirmation window.

9 Press **F6** (Cancel) to finish and return to the Modem/Terminal Installation menu.

7 Common Administration

Overview

The procedures in this chapter are organized together to facilitate quick reference for some of the more common, or daily, administrative tasks. Common administration includes running system reports, and performing procedures such as system monitoring, media formatting, backups, and administering the date and time.

Command Menu

The Command Menu enables you to quickly access the System Monitor and Trace services, and exit the voice system. The Command Menu key appears as **F7** on almost every administration menu or window.

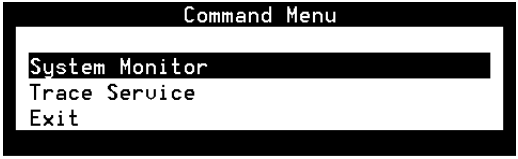
Accessing the Command Menu

To access the Command Menu:

1 Once you have accessed the Voice System Administration menus (as described in Chapter 3, Voice System Administration, from almost any menu or window, press **F7** (Cmd-Menu).

The system displays the Command Menu (Figure 92).

Figure 92. Command Menu



System Monitor

System administrators frequently use System Monitor first when troubleshooting a voice channel problem because the System Monitor window displays several important pieces of data in one location.

CAUTION:
Do not execute more than *one* instance of System Monitor at a time.

Accessing the System Monitor

To access the System Monitor window from the Command Menu:

1 Start at the Command Menu (Figure 92 on page 250) and select:

```
> System Monitor
```

The system displays System Monitor-Voice Channels window (Figure 93).

Figure 93. System Monitor-Voice Channels Window

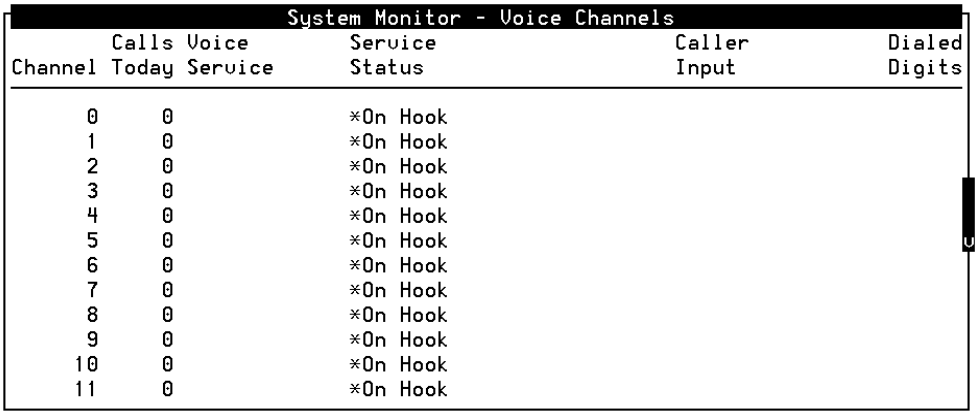


Table 23 describes the columns in the System Monitor-Voice Channels window.

Table 23. Columns in the System Monitor Window

Column	Description
`Channel`	Lists the existing channels on the voice system. Virtual channels have the letter *v* appended to the channel number. These channels are not voice channels but are instead used for "data-only" applications. The number of virtual channels in the system depends on the software applications installed. In most systems, there is a single virtual channel for the playing of background speech.
`Calls Today`	Lists the number of calls made to a particular channel within the system. This column reflects the number of calls received during the day for the particular channel since the last stop and start of the voice system. When the end of the day occurs or the voice system is stopped and then restarted, the number of calls in the `Calls Today` column starts at zero. Calls are monitored for a 24-hour period, on any day beginning at midnight (12 a.m.). For virtual channels, this value is the number of times the service was used to run a data-only service.
`Voice Service`	Provides the name of the service that is associated with the corresponding voice or virtual channel.

1 of 2

Table 23. Columns in the System Monitor Window

Column	Description
Service Status	Indicates the state of each channel in the voice system. All hardware states (for example, On Hook, Foos, Manoos, Broken) are marked with an asterisk (*). This field is blank for virtual channels except when a transaction with a DIP is running. See Table 24 for a description of the status entries.
Caller Input	Indicates the last set of digits entered by the caller. For example, when a caller enters an account number in response to a transaction prompt, a series of touchtone digits is registered in the voice system from the caller. This information is collected by the voice system and displayed in this column by the System Monitor. This field always is blank for virtual channels.
Dialed Digits	Indicates the last set of digits dialed by the voice system during this transfer process. In many cases, the application transfers the caller to an attendant. The numbers used in this transfer process are collected by the voice system and displayed in this column. This field always is blank for virtual channels.

2 of 2

Service Status Column

Table 24 describes the possible entries in the `Service Status` column and their meanings.

Note: All hardware states are marked with an asterisk (*).

Table 24. Entries for the Service Status Column

Service Status Entry	Description
*BROKEN	The channel is broken.
CCA	The channel is in process of call classification.
Coding	The channel is performing voice coding.
Collect	The channel is waiting for caller input.
dbdip1	The channel is used by a local database DIP.
*DIAGNOSE	The channel is on a circuit card that is being diagnosed.
Dialing	The channel is dialing digits.
*D-BROKEN	(PRI feature only) The D-channel is broken.
*D-HWOOS	(PRI feature only) The D-channel hardware is out-of-service.
*D-INSERV	(PRI feature only) The D-channel is in service.

1 of 3

Table 24. Entries for the Service Status Column

Service Status Entry	Description
*D-MANOOS	(PRI feature only) The D-channel is manually out-of-service.
D-NETOOS	(PRI feature only) The D-channel network is out-of-service.
D-NONEX	(PRI feature only) The D-channel is nonexistent.
DIP <0 34>	The channel is processing a request from a data interface process.
*FOOS	The channel is facility out of service.
Host	The channel is currently accessing a host.
*HWOOS	(PRI feature only) The channel hardware is out of service.
*INITING	The channel is on a circuit card that is being initialized.
*MANOOS	The channel is manually out of service.

2 of 3

Table 24. Entries for the Service Status Column

Service Status Entry	Description
*NETOOS	(PRI feature only) The channel is in a network that is out of service.
Offhook	The channel is in service and has answered a call.
*ON HOOK	The channel is in service and is waiting for a call.
Pending	The channel is going into or leaving an operational state.
Talking	The channel is playing speech.
Transfer	The channel is transferring a call,
*UNKNOWN	The channel is experiencing a breakdown in communications or an internal voice system error has occurred.

3 of 3

Changing the System Monitor Refresh Rate

By default, the system updates the voice channel status every 5 seconds.

To change the refresh rate to a specified amount of time:

1. Start at the System Monitor-Voice Channels window (Figure 93 on page 251) and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F1** (Chg-Rate).

   The system displays the Change Refresh Rate window (Figure 94).

Figure 94. Change Refresh Rate Window

3. Enter the refresh rate in seconds in the `Refresh Rate:` field. Valid values are 1 to 30. The shorter the refresh rate, the more system resources are used to update the window.

Note: Changing the refresh rate for the System Monitor window also changes the refresh rate for the Host Session Monitor window and vice versa.

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

   The system closes the Change Refresh Rate window and saves the new rate. The new refresh rate is automatically activated in the system.

Printing the System Monitor-Voice Channel Report

To print a System Monitor-Voice Channel report:

1. Start at the System Monitor-Voice Channels window (Figure 93 on page 251) and press **F8** (Chg-Keys).

   The system displays the alternate set of function keys.

2. Press **F6** (Print).

   The system prints the System Monitor-Voice Channel Report.

Trace Service

A *trace* is a record of the events that occur on a voice channel, the voice system, or a host system.

See trace on page 546 in Appendix A, Summary of Commands, for more information on the **trace** command-line format.

Performing a Trace

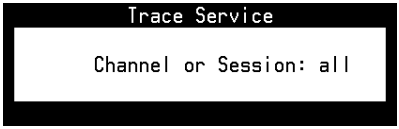
To trace a channel or session or both:

1. Start at the Command Menu (Figure 92 on page 250) and select:

```
> Trace Service
```

The system displays the Trace Service window (Figure 95).

Figure 95. Trace Service Window



2 Enter a single channel or session number, or **all** in the `Channel or Session:` field.

3 Press **F3** (Save).

The system scrolls the output of the trace.

To stop the trace, you can press **DELETE**

Reports Administration

The Reports Administration window gives you access to some system reports, including call classification reports, call data detail reports, call data summary reports, message log, and traffic reports. The voice system allows you to tailor each report to meet your needs and requirements.

Accessing the Reports Administration Menu

To access the Reports Administration menu:

1. At the `Console Login:` prompt, enter **root**

   The system prompts you for a password.

2. Enter your root password.

   The system displays the system prompt #.

3. Enter **cvis_menu**

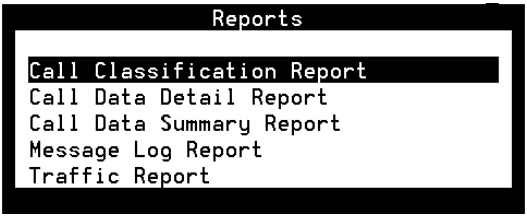
   The system displays the Voice System Administration menu (Figure 18 on page 25).

4. Select:

```
> Reports
```

The system displays the Reports menu (Figure 96).

Figure 96. Reports Menu



Use the procedures in this section to access and run the various reports in this menu.

Call Classification Report

The Call Classification Report provides the following information for each extension or number dialed:

- The total number of calls
- The total number of failed calls
- The number of blind or intelligent transfer attempts that:
  - Were answered
  - Were busy

- ~ Rang with no answer
- ~ Experienced network problems

- Summary statistics

Displaying the Call Classification Report

To display the Call Classification Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Call Classification Report
```

The system displays the Call Classification Report window (Figure 97).

Figure 97. Call Classification Report Window

Call Classification Report

Date: 04/13/1999

Dialed Number	Attempts Total	Failed	Unclass	Class	Answer	Busy	Ring	Other
0111220	1	0	0	1	0	0	0	1
6111220	26	0	0	26	26	0	0	0
Total	27	0	0	27	26	0	0	1

Table 25 defines the columns in this window.

Table 25. Column Description for the Call Classification Report

Column Name	Description
`Dialed Number`	Specifies the telephone number from the transfer attempt. Telephone numbers have a 16-digit maximum, however only 12 digits are displayed in the report. Longer numbers are truncated and displayed with an asterisk (*).
`Total`	Specifies the total transfer attempts to connect to the `Dialed Number`. This number is the sum of `Failed`, `Unclass`, and `Class` attempts.
`Failed`	Specifies the number of transfer attempts that failed because no dial tone or no energy was detected. This number corresponds to call dispositions equal to *1*, *2*, *3*, *4*, *E*, or *p*.
`Unclass`	Specifies the number of blind transfer attempts. This number corresponds to call dispositions equal to *X*.
`Class`	Specifies the number of intelligent transfer attempts. These are either Full CCA or Intelligent attempts. This number corresponds to call dispositions not equal to *1*, *2*, *3*, *4*, *E*, *p*, or *X*.
`Answer`	Specifies the number of transfer attempts that were answered. This number corresponds to call dispositions equal to *A*.

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Table 25. Column Description for the Call Classification Report

Column Name	Description
`Busy`	Specifies the number of transfer attempts that were busy. This number corresponds to call dispositions equal to *B*.
`Ring`	Specifies the number of transfer attempts that rang with no answer. This number corresponds to call dispositions equal to *N*.
`Other`	Specifies the number of times the network is busy and cannot complete a call (fast busy). This number corresponds to call dispositions *F*, *H*, *T*, or a recognized SIT.
`Total`	Specifies the sums of each column.
`Percent`	Specifies the percentage of the `Total`.

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Modifying the Call Classification Report

You can specify the beginning and ending dates for the Call Classification Report.

To modify the Call Classification Report:

1 Start at the Call Classification Report window (Figure 97 on page 262) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98).

Figure 98. Actions Menu

2 Select:

The system displays the Modify Call Classification Report window (Figure 99).

Figure 99. Modify Call Classification Report Window

3 Enter the beginning and ending dates for the report in the `Start Date:` and `End Date:` fields using the format of *mm/dd/yyyy* for month, day, and year to limit the report to a certain date range. If you do not specify the year, the report uses the current year.

A start date of 04/01/2000 and an end date of 04/30/2000 means that the voice system displays call classification information on calls made in the month of April 2000. You can specify a range of up to 365 days, including the current date. If you specify only the start date or the end date, you receive a report for that day only. The end date must be greater than or equal to the start date. Future start dates and end dates are invalid.

4 Press **F3** (Save).

The system displays the previous Call Classification Report window.

5 (Optional) Press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

6 (Optional) Select:

```
> Update
```

The system redisplays the Call Classification Report reflecting the new dates.

Printing the Call Classification Report

The print option provides a complete printout of the Call Classification report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Call Classification Report:

1. Start at the Call Classification Report window (Figure 97 on page 262) and press **F8** (Actions).

   The system displays the Actions Menu (Figure 98 on page 265).

2. Select:

   ```
   > Print
   ```

   The system prints the Call Classification Report using the last set of options saved to the voice system.

Updating the Call Classification Report

Use the Update function to redisplay the report. The report reflects the values last saved to the voice system.

To update the Call Classification Report:

1. Start at the Call Classification Report window (Figure 97 on page 262) and press **F8** (Actions).

   The system displays the Actions Menu (Figure 98 on page 265).

2. Select:

   ```
   > Update
   ```

   The system updates the report and displays the values last saved.

Call Data Detail Report

The Call Data Detail Report keeps data on the following:

- Date, time, and duration of the call
- Service run on the call
- Channel receiving the call
- Assigned database record number

Displaying the Call Data Detail Report

To display the Call Data Detail Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Call Data Detail Report
```

The system displays the Call Data Detail Report window (Figure 100).

Figure 100. Call Data Detail Report Window

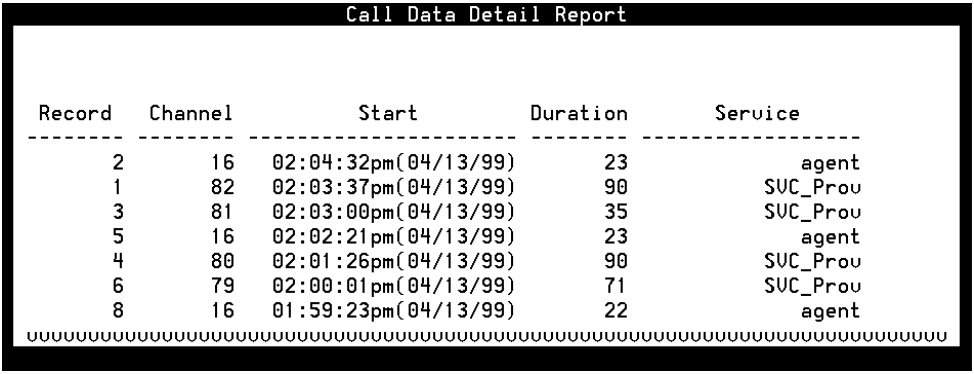


Table 26 defines the columns on this window. If multiple applications are invoked during a call, the report displays a line of summary data for the call, followed by a line of data for each application in the call.

Table 26. Column Description for the Call Data Detail Report

Column Name	Description
Record	Specifies the database record number of each call made to the voice system.
Channel	Specifies the channel on which the call was made.
Start	Specifies the time and date the call began. If multiple applications were invoked during the call, the first line of the display shows the time and date the call began. Subsequent lines for the call show the time and date that each application began.
Duration	Specifies the length of the call in seconds. If multiple applications were invoked during the call, the first line of the display for the call shows the total length of all applications in the call. Subsequent lines for the call show the length of each application invoked in the call.
Service	Specifies the script that was associated with the call. If multiple applications were invoked during the call, the first line of the display for the call (the summary line) is blank. Subsequent lines for the call show the script associated with each application invoked in the call.

Modifying the Call Data Detail Report

You can tailor the Call Data Detail Report to limit the display by changing one or more of the following parameters:

- Number of most recent call records you want to include
- Date of the data to include in the report
- Service associated with the call data

To modify the Call Data Detail Report:

1. Start at the Call Data Detail Report window (Figure 100 on page 269) and press **F8** (Actions).

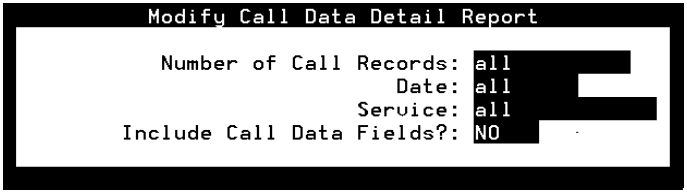
   The system displays the Actions Menu (Figure 98 on page 265).

2. Select:

```
> Modify
```

The system displays the Modify Call Data Detail Report window (Figure 101).

Figure 101. Modify Call Data Detail Window



3 Enter a number, range of numbers, or **all** in the `Number of Call Records:` field to specify the number of most recent records to include in the report. The default is **all**.

4 Enter the date to which you want to limit the report information, or **all**, in the `Date:` field. Use the format of *mm/dd/yyyy* for month, day, and year. If you do not specify a year, the system uses the current year. The default is **all**, meaning that the report displays all dates.

Note: The `Number of Call Records:` field and the `Date:` field work independently of each other. That is, if you search for a specific number of records, the Call Data Detail Report displays only the most recent call records up to that limit. From that set of records, it displays those that match the specified date and service.

For example, if the system contains 10 records for yesterday and 10 records for today and you enter **6** in the `Number of Call Records:` field and enter yesterday's date in the `Date:` field, the Call Data Detail Report displays no records. This is because the last six records were created for the current day, not for yesterday's date.

However, if you enter **all** in the `Number of Call Records:` field and yesterday's date in the `Date:` field, the Call Data Detail Report displays only the records from yesterday.

5 Enter a service name in the `Service:` field to limit the report to a particular service, or **all**, or press **F2** (Choice) to select from the menu. The default is **all**, meaning that the report includes every service recognized by the voice system.

6 In the `Include Call Data Fields?:` field, to specify if call event data should be included in the report, enter **Yes** or **No**, or press **F2** (Choice) to select from a menu, The default is **No**. If call event data does exist for a particular record, the information appears immediately after the record entry on the Call Data Detail Report window (Figure 100 on page 269).

7 Press **F3** (Save).

The system displays the previous Call Data Detail Report window.

8 (Optional) Press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

9 (Optional) Select:

```
> Update
```

The system redisplays the Call Data Detail Report window with the new parameters.

Printing the Call Data Detail Report

The print option provides a complete printout of the Call Data Detail report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Call Data Detail report:

1 Start at the Call Data Detail Report window (Figure 100 on page 269) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Print
```

The system prints the Call Data Detail Report using the last set of options that was saved to the voice system.

Updating the Call Data Detail Report

Use the Update function to redisplay the report. The report reflects the values that were last saved to the voice system. See Modifying the Call Data Detail Report on page 271 for how to modify this output.

To update the Call Data Detail Report:

1 Start at the Call Data Detail Report window (Figure 100 on page 269) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Update
```

The system updates the report and displays the values last saved.

Call Data Summary Report

The Call Data Summary Report provides an hourly summary of the calls made to the voice system. This report is similar to the Call Data Detail Report, except that the Call Data Summary Report shows the calls on an *hourly* basis by service. The system maintains approximately 7 days worth of data.

Note: Call data summary information is prepared at midnight for the entire day. Therefore, call data summary information for the current day is not available until after midnight.

Displaying the Call Data Summary Report

To display the Call Data Summary Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Call Data Summary Report
```

The system displays the Call Data Summary Report window (Figure 102).

Figure 102. Call Data Summary Report Window

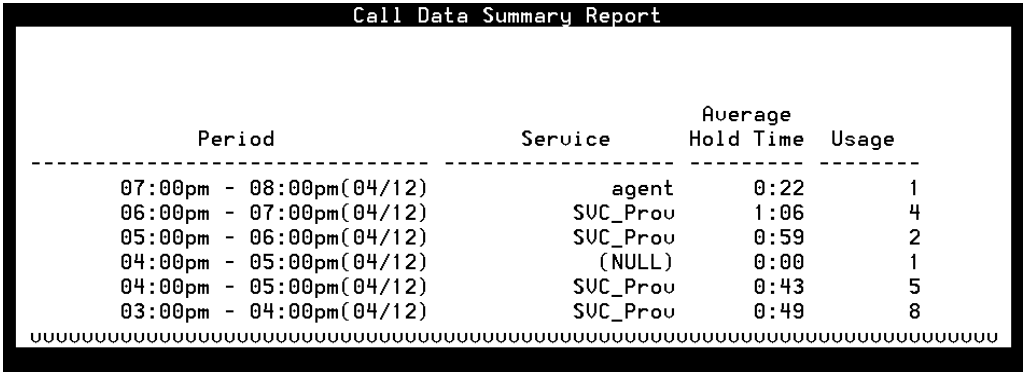


Table 27 describes the columns on this window.

Table 27. Column Description for the Call Data Summary Report

Column Name	Description	Comment
Period	Time, in hourly increments, when calls were made to the voice system.	
Service	Script associated with a group of calls made during the specified time.	
Average Hold Time	Average duration of a call for the specified time in minutes and seconds.	
Calls	Total number of calls for the specified time.	
Event Description	Name of the call data field.	Appears only when the Include Call Data Fields?: field is set to **Yes**. See Modifying the Call Data Summary Report on page 279.

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Table 27. Column Description for the Call Data Summary Report

Column Name	Description	Comment
`Event No`	Identifying number for each call data message.	Appears only when the `Include Call Data Fields?:` field is set to **Yes**. See Modifying the Call Data Summary Report.
`Count`	Either the total value of all calls for this event during the period if the event is a numeric field or the total number of all calls during the period if the event is a non-numeric field.	Appears only when the `Include Call Data Fields?:` field is set to **Yes**. See Modifying the Call Data Summary Report.

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Modifying the Call Data Summary Report

You can tailor the Call Data Summary Report to limit the display by changing one or more of the following parameters:

- Day of the week and hours to perform data collection
- Service to include
- Whether to show call data fields

To modify the Call Data Summary Report:

1 Start at the Call Data Detail Report window (Figure 100 on page 269) and press **F8** (Actions).

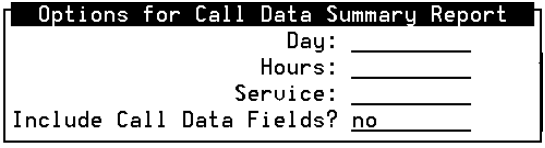
The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Modify
```

The system displays the Options for Call Data Summary Report window (Figure 103).

Figure 103. Options for Call Data Summary Report Window



3 Enter the day of the week, Monday through Sunday, for which you want to obtain report information in the `Day:` field, or press **F2** (Choices) to select from a menu.

4 Enter the hours for which you want report information, or **all**, in the `Hours:` field. A valid range between 0 and 23 can be specified in this field, with 0 representing midnight and 23 representing 11 p.m.

If you enter a range between 9 and 16, the system displays call data for calls made between 9 a.m. and 5 p.m. The default is **all**, meaning that the system displays call data for the entire 24 hour period for the day.

Note: Hourly Call Data Summary Reports are not processed until midnight of each day. If you make a request for information on Tuesday, the information will not be displayed until the following day, Wednesday.

5 Enter a service name, or **all**, or press **F2** (Choices) to select from a menu in the `Service:` field to limit the report to a particular service. The default is **all**, meaning that the report displays call data for all services.

6 Enter **Yes** or **No**, or press **F2** (Choices) to select from a menu in the `Include Call Data Fields?:` field to specify if event data should be included on the report. The default is **No**. If call event data exists for a particular record, this information appears immediately after the record entry on the Call Data Summary Report window.

7 Press **F3** (Save).

The system displays the previous Call Data Summary Report window.

8 (Optional) Press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

9 (Optional) Select:

```
> Update
```

The system redisplays the Call Data Summary Report window with the new parameters.

Printing the Call Data Summary Report

The print option provides a complete printout of the Call Data Summary report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Call Data Summary Report:

1 Start at the Call Data Summary Report window (Figure 102 on page 277) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Print
```

The system prints the Call Data Summary Report using the last set of options saved to the voice system.

Updating the Call Data Summary Report

Use the Update function to redisplay the report. The report reflects the values last saved to the voice system. See Table 27 on page 278 for how to modify this report.

To update the Call Data Summary Report:

1 Start at the Call Data Summary Report window (Figure 100 on page 269) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Update
```

The system updates the report and displays the values last saved.

Message Log Report

The Message Log Report allows you to access voice system error messages including the:

- Priority level of the error
- Date and time the error occurred
- Source of the message
- Type of circuit card associated with the message, as well as the circuit card number and channel number
- Descriptive text

Displaying the Message Log Report

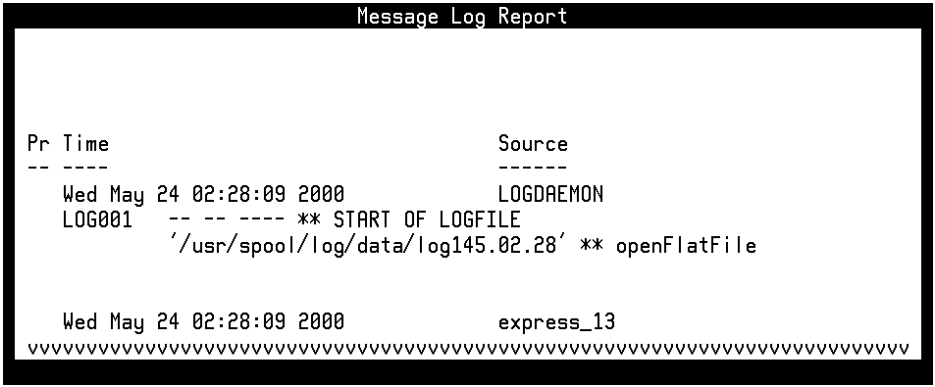
To display the Message Log Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Message Log Report
```

The system displays the Message Log Report window (Figure 104).

Figure 104. Message Log Report Window



Use **F2** (Prev Page) and **F3** (Next Page) to scroll through the report.

Table 28 defines the information in the Message Log Report.

Table 28. Entry Description for the Message Log Report

Entry	Description
Pr	Priority classification of error messages. The priority is identified by one of the following codes: ~ *C (critical) — the problem is interrupting service and immediate action is needed. ~ ** (major) — a potentially serious problem exists that should be fixed soon. ~ * (minor) — no immediate action is necessary, but the system condition should be monitored. ~ – (none) — no error; informational purposes only.
Time	Date and time when error message was generated.

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Table 28. Entry Description for the Message Log Report

Entry	Description
Source	Originating software process; messages are divided into subgroups according to the software process that outputs the messages. The following is a sample of possible sources: • The call data handler (CDH) process accumulates generic call statistics and application messages. • The data interface process (DIP). • The maintenance (MTC) process runs temporary diagnostics. • The transaction state machine (TSM) process controls transactions via script execution and commands. • The voice response output process (VROP) manages speech data base and downloads speech data to VRU. • The DIO processes are the disk input/output for VROP. • The T1 interface process (TWIP). • The speech processing interface process (SPIP). • The integrity checking (iCk) process.

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Explaining a Message in the Message Log Report

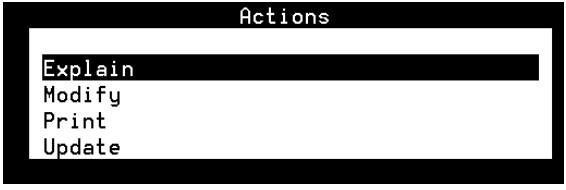
The Explain option on the Actions Menu allows you to display more information about a specific message.

To get additional information about a particular message in the Message Log Report window:

1 Start at the Message Log Report window (Figure 104 on page 285) and press **F8** (Actions).

The system displays the Actions Menu (Figure 105).

Figure 105. Message Log Report Actions Menu



2 Press **F3** (Explain).

The system displays the Explain Message ID window (Figure 106).

Figure 106. Explain Message ID Window

3 Enter the ID of the message for which you want more information in the `Message ID:` field.

4 Press **F3** (Save).

The system displays additional information about the specified message.

Modifying the Message Log Report

You can tailor the Message Log Report to limit the display by changing one or more of the following parameters:

- Message priority
- Message source
- Circuit card
- Start and stop time for the report

- Message ID
- Number of most recent messages to be displayed

By default, the Message Log Report is configured to display every message.

To limit what is displayed in the Message Log Report window:

1 Start at the Message Log Report window (Figure 104 on page 285) and press **F8** (Actions).

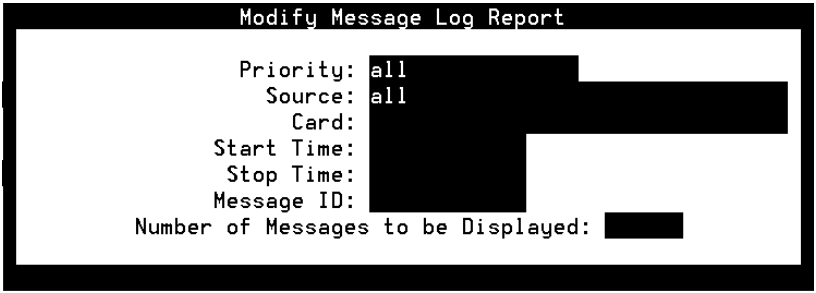
The system displays the Actions Menu (Figure 105 on page 288).

2 Select:

```
> Modify
```

The system displays the Modify Message Log Report window (Figure 107).

Figure 107. Modify Message Log Report Window



3 Enter *****C (critical), ****** (major), ***** (minor), **alarms**, **all**, or **events** in the `Priority:` field to limit the type of messages you want to see based on priority, or press **F2** (Choices) to select from a menu. The default is **all**.

4 Enter a single message source or multiple message sources separated by commas (for example, **TSM,MTC**) in the `Source:` field to limit the report to specific software processes, or press **F2** (Choices) to select from a menu. The default is **all**, meaning that all message sources are included.

5 Enter a single circuit card number or multiple circuit card numbers separated by commas in the `Card:` field to limit the display to specific circuit cards. There is no default value and the Choices menu is not available. If you specify **all** in the `Card:` field, the display is limited to messages about voice system circuit cards only.

6 Enter the start time for the message search in the `Start Time:` field, that is, the time of the first message to be displayed. For example, entering **02/05 10:00** indicates that you want to search messages that occurred on February 5 after 10 a.m.

Use the format of *MM/DD HH:MM* for month, day, hour, and minute. If the `Start Time` field is left blank, the beginning of the message log is used. If you enter **today**, all entries since the beginning of the current day are searched.

7 Enter the stop time for the message search in the `Stop Time:` field, that is, the time of the last message to be displayed.

Use the format of *MM/DD HH:MM* for month, day, hour, and minute. If the `Stop Time:` field is left blank, the end of the message log is used. If you enter **today**, all messages logged up to (but not including) the current day are displayed.

Note: If nothing is entered in the `Start Time:` and `Stop Time:` fields, these fields default to 00:00 of the current date. As a result, no records are displayed in the Message Log Report.

8 Enter the ID of the messages to be displayed in the `Message ID:` field. Enter a single ID, multiple IDs separated by commas (for example, **TSM001**,**TWIP003**), or **all**.

9 Enter a single number from 1 to 999, or **all** in the `Number of Messages to be Displayed:` field to specify the number of most recent messages to be displayed. If you enter **all**, the report displays all messages maintained by the log. If you enter a single number, the voice system searches all records and displays only that number of the most recent records that match the specified start and stop time, priority, circuit card, and source. For example, if you enter **5**, the system displays only the **5** most recent matching records.

10 Press **F3** (Save).

The system displays the previously displayed Message Log report.

Use **F2** (Prev Page) and **F3** (Next Page) to scroll through the report.

11 (Optional) Press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

12 (Optional) Select:

```
> Update
```

The system updates the report and displays the values last saved.

Printing the Message Log Report

The print option provides a complete printout of the Message Log Report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Message Log Report:

1. Start at the Message Log Report window (Figure 104 on page 285) and press **F8** (Actions).

   The system displays the Actions Menu (Figure 105 on page 288).

2. Select:

```
> Print
```

   The system prints the Message Log Report using the last set of options saved to the voice system.

Updating the Message Log Report

Use the Update function to redisplay the report. The report reflects the values last saved to the voice system. See Modifying the Message Log Report on page 289 for how to modify this output.

To update the Message Log Report:

1 Start at the Message Log Report window (Figure 104 on page 285) and press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

2 Select:

```
> Update
```

The system updates the report and displays the values last saved.

Administrative Commands Log Report

The Administrative Commands Log report makes it possible to log the use of critical administrative commands and activities such as voice system stops and starts. The Administrative Commands Log report identifies when the command was successfully executed and whether it was done manually or by the voice system.

Commands and Activities Included in the Report

This report includes all commands that are typed while the system is running. For the following administrative commands and activities, the report includes the output:

- Digital switch interface changes
- Voice equipment commands: **spfunc**, **t1prot**, **eqprot**, **hconfig**
- System control commands: **start_vs**, **stop_vs**, **disable**, **autoreboot**, **delete**, **remove**, **restore**, **hdelete**, **trace**, **erase**, **diagnose**, **vs_enable**
- Talkfile (speech files) commands: **add phrase**, **copy phrase**

Content of the Administrative Commands Log Report

The Administrative Commands Log shows results for the above listed commands or activites with either the first or both of the following types of entries. (Some commands and activities log only a Start message entry.)

- Start message entries — indicate the execution of the administrative command or activity
- End message entries — indicate the result of the command or activity if the information would be critical for troubleshooting purposes

Displaying the Administrative Commands Log Report

Display the Administrative Commands Log report through the Message Log Report.

To display the Administrative Commands Log Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Message Log Report
```

The system displays the Message Log Report window (Figure 104 on page 285).

2 Press **F8** (Actions).

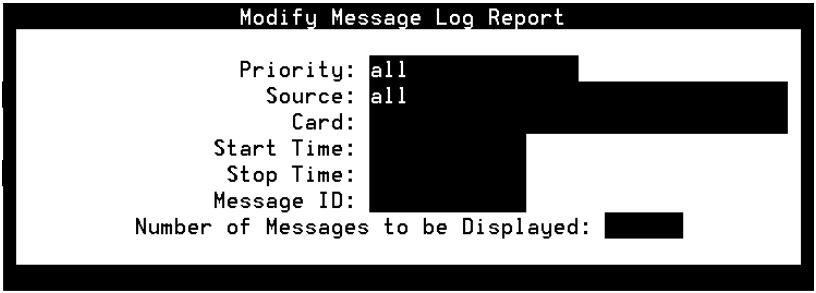
The system displays the Actions Menu (Figure 105 on page 288).

3 Select:

```
> Modify
```

The system displays the Modify Message Log Report window (Figure 108).

Figure 108. Modify Message Log Report Window



4 Enter **admin** in the `Priority:` field.

5 Enter a software process source in the `Source:` field, or enter **all** to include all software process sources.

6 Leave the `Card:` field blank.

7 Enter the start time for the message search in the `Start Time:` field, that is, enter the time of the first entry to be displayed. For example, entering **02/05 10:00** indicates that you want to search entries that occurred on February 5 after 10 a.m.

Use the format of *MM/DD HH:MM* for month, day, hour, and minute. If the `Start Time:` field is left blank, the beginning of the administrative command log is used.

8 Enter the stop time for the message search in the `Stop Time:` field, that is, the time of the last message to be displayed.

Use the format of *MM/DD HH:MM* for month, day, hour, and minute. If the `Stop Time:` field is left blank, the end of the administrative command log is used.

Note: If nothing is entered in the `Start Time:` and `Stop Time:` fields, the entire administrative command log is displayed.

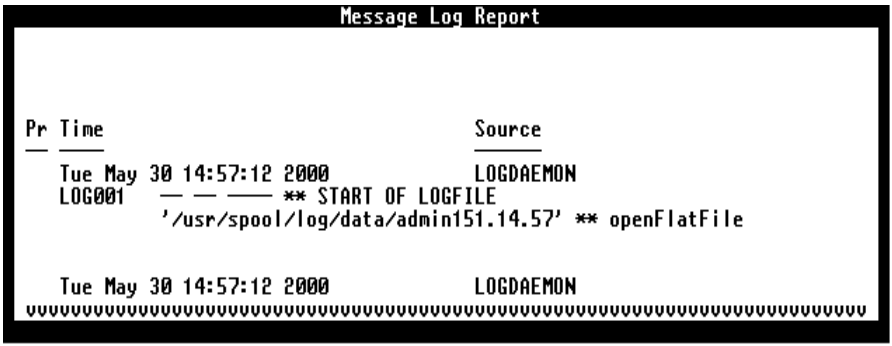
9 Leave the `Message ID:` field blank.

10 Enter a single number from 1 to 999, or **all** in the `Number of Messages to be Displayed:` field to specify the number of most recent entries to be displayed. If you enter **all**, the report displays all entries maintained by the log. If you enter a single number, the voice system searches all records and displays only that number of the most recent entries that match the specified start and stop time, and source. For example, if you enter **5**, the system displays only the 5 most recent matching records.

11 Press **F3** (Save).

The system displays the Message Log Report window, now with the Administrative Commands Log Report data (Figure 109).

Figure 109. Administrative Commands Log Report Window (Displayed under the Message Log Report Window)



Use **F2** (Prev Page) and **F3** (Next Page) to scroll through the report.

The list below describes the entries in the Administrative Commands Log window:

- ~ `Time` — Date and time when the command or activity was executed
- ~ `Source` — Name of the originating software process that executed the command or activity
- ~ `Login ID` — Login ID that executed the command or activity (if applicable). A common login ID listed is **root**
- ~ `Administrative command text` — Full text of the command or activity executed with all applicable parameters
- ~ `Disposition` — Full text of the result of the command or activity

12 (Optional) Press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

13 (Optional) Select:

```
> Update
```

The system updates the report and displays the values last saved.

Printing the Administrative Commands Log Report

The print option provides a complete printout of the Administrative Commands Log Report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in

Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Administrative Commands Log Report:

1 Start at the Administrative Commands Log Report window (Figure 109 on page 300) displayed under the Message Log Report window and press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

2 Select:

```
> Print
```

The system prints the Administrative Commands Log Report using the last set of options that were saved to the voice system.

Updating the Administrative Commands Log Report

Use the Update function to redisplay the report. The report reflects the values that were last saved to the voice system. See Modifying the Message Log Report on page 289 for how to modify this output.

To update the Message Log Report:

1 Start at the Administrative Commands Log Report window (Figure 109 on page 300) displayed under the Message Log Report window and press **F8** (Actions).

The system displays the Actions Menu (Figure 105 on page 288).

2 Select:

```
> Update
```

The system updates the report and displays the values last saved.

Traffic Report

The Traffic Report provides call volume information for approximately the last 7 days, including the:

- Number of calls coming in to the system during a specific time period
- Average holding time
- Percentage of time that a channel was occupied for a specific hour

Note: Traffic summary information is prepared at midnight for the entire day. Therefore, traffic summary information for the current day is not available until after midnight.

Displaying the Traffic Report

To display the Traffic Report:

1 Start at the Reports menu (Figure 96 on page 261) and select:

```
> Traffic Report
```

The system displays the Traffic Report window (Figure 110).

Figure 110. Traffic Report Window

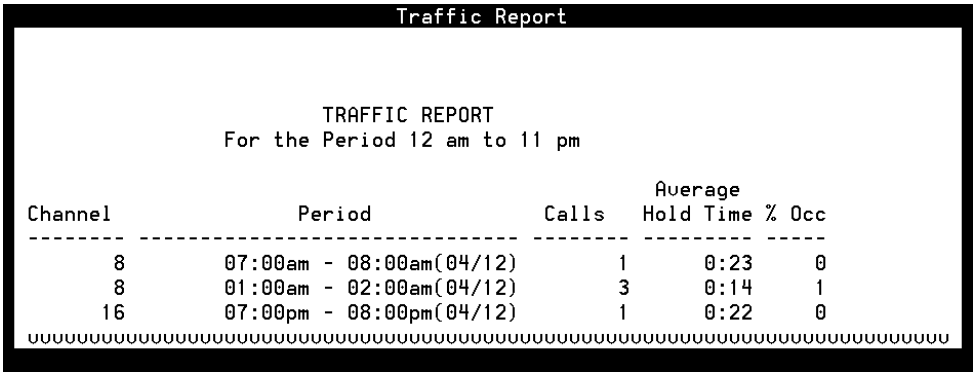


Table 29 describes the information in this report.

Table 29. Entry Description for the Traffic Report

Entry	Description
Channel	Channel that handled the call
Period	Time period when system traffic is monitored
Calls	Number of calls made during the indicated time period
Average Hold Time	Average duration of a call for the specified time in minutes and seconds
%Occ	Percentage of occupancy (that is, the proportion of the hour that the channel was in use)

Modifying the Traffic Report

To change the Traffic Report, use the Modify function on the Actions Menu (Figure 98 on page 265). You can specify the date and time when you want the system to monitor call traffic, and whether you want a summary of the data.

To modify the Traffic Report:

1 Start at the Traffic Report menu (Figure 110 on page 304) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Modify
```

The system displays the Modify Traffic Report window (Figure 111).

Figure 111. Modify Traffic Report Window

3 Enter a day of the week, Monday through Sunday, or **Yesterday** in the `Day:` field, or press **F2** (Choices) to select from a menu. The default is **Yesterday**.

4 Enter the hours for which you want the voice system to obtain report information in the `Hours:` field using 0 to represent midnight and 23 to represent 11 p.m. The default is **all**, meaning that the system collects traffic data for the entire 24-hour period of the day specified in the `Day:` field.

5 Enter **Yes** or **No** in the `Summarize?:` field to specify whether you want to see a Traffic Summary Report. The default is **No**, meaning that the system displays the Traffic Report instead of the Traffic Summary Report. The two reports are described below:

- ~ The Traffic Summary report provides information on the total traffic volume for each channel for the range of hours specified in the Traffic Report window.
- ~ The Traffic Report provides traffic volume for each channel in 1-hour increments starting and ending with the hours specified in the Traffic Report window.

6 Press **F3** (Save)

The system displays the previously displayed call traffic report.

7 (Optional) Select:

```
> Update
```

The system updates the report and displays the values that were saved last.

Printing the Traffic Report

The print option provides a complete printout of the Traffic Report.

Note: You cannot print this report if a printer is not configured for use with the voice system. See Printer Administration on page 241 in Chapter 6, Peripheral Administration, for more information about printer administration.

To print the Traffic Report:

1. Start at the Traffic Report window (Figure 110 on page 304) and press **F8** (Actions).

   The system displays the Actions Menu (Figure 98 on page 265).

2. Select:

   ```
   > Print
   ```

   The system prints the Traffic Report using the last set of options that were saved to the voice system.

Updating the Traffic Report

Use the Update function to redisplay the report. The report reflects the values that were last saved to the voice system. See Modifying the Traffic Report on page 305 for how to modify this output.

To update the Traffic Report:

1 Start at the Traffic Report window (Figure 110 on page 304) and press **F8** (Actions).

The system displays the Actions Menu (Figure 98 on page 265).

2 Select:

```
> Update
```

The system updates the report and displays the values last saved.

Signal Processing Activity Report

The Signal Processing Activity report is not part of the Reports Administration menu. It is generated through the use of commands.

The Signal Processing Activity report displays information about the voice system signal processing resources. These resources include:

- Signal processing algorithms
- Speech processing (LSPS II and SSP) circuit cards
- Feature licensing

The data in the Signal Processing Activity report is collected by the **spadc** command. The **spar** command then summarizes and displays the data in an ASCII file.

Data Collection for the Signal Processing Activity Report

The **spadc** command collects data for the day of the week on which the command is executed, and outputs the data to an ASCII file named **mm-dd-yyyy** (for example, 09-12-2000).

The **mm-dd-yyyy** file contains one line of data for each 5-minute period during which the voice system is running. Each line consists of 10 fields:

- Field 1 — Date and time using the *mm/dd/yyyy:HH:MM* format.
- Field 2 — Feature licensing usage information. This field contains 10 entries representing average and peak values for the Text-to-Speech, Dial Pulse Recognition, and WholeWord Speech Recognition feature package use of the signal processing resources.
- Fields 3–8 — One field for each of the speech and signal processing circuit cards in the system. Each field contains entries representing average and peak values for circuit card occupancy, followed by average and peak values for use by each of the following processes/features:
  - WholeWord Speech Recognition
  - FlexWord Speech Recognition
  - Echo cancellation
  - Call Classification Analysis

- FAX
- Text-to-Speech
- Dial Pulse Recognition
- Play
- Code
- CELP

See spadc on page 527 and spar on page 529 in Appendix A, Summary of Commands, for more information about creating a Signal Processing Activity report.

Custom Database Reports

To write a **cron** job that generates your own ORACLE database reports, include the following ORACLE environment variables in the shell application:

```
# beginning of ORACLE environment variable definition
ORACLE_SID=A;export ORACLE_SID
ORACLE_HOME=/oracle;export ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin;export PATH
ulimit 2113674
# end of ORACLE environment variable definition
```

Common Administrative Procedures

See “Common System Procedures," in *UCS 1000 R4.6 System Reference*, 585-313-221, for information and procedures to perform the following common administrative tasks:

- Format diskettes and cartridge tapes
- Create a system backup
- Restore the system from backup
- Change the system date or time

A Summary of Commands

Overview

This appendix provides an alphabetical list and brief description of all commands. Table 30 lists all the commands.

Table 30. Command Synopsis

Command	Function
add	Adds a phrase to a UNIX talkfile (SSP only).
addhdr	Adds a voice or code header to a speech file (SSP only).
alarm_cutoff	Turns off a buzzer on the TAM unit.
annotate	Annotates a TSM trace stream with a message.
assign card/channel	Assigns a group number to a card or channel.
assign_permissions	Assigns voice system security permissions to the user.
assign service/startup	Assigns an installed service to DNIS and ANI numbers or directly to a channel.

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Table 30. Command Synopsis

Command	Function
attach	Attaches a card after like-for-like replacement of the card, or a channel.
autoreboot	Changes or displays the parameters associated with the autoreboot feature.
bbs	Reports the status of the voice system Bulletin Board.
ccarpt	Generates a call classification data summary report.
cddrpt	Generates a call data detail report.
cdsrpt	Generates a call data summary report for a specific date.
codetype	Identifies the type of coding header in a speech file (SSP only).
configure_tam	Downloads the configuration data to the TAM unit.
copy	Copies a phrase from one UNIX file to another UNIX file (SSP only).
cvis_mainmenu	Accesses the administrative menu.
cvis_menu	Accesses the Voice System Administration menu.
dbcheck	Checks the resources available in the database.

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Table 30. Command Synopsis

Command	Function
dbfrag	Lists fragmentation information on the database.
dbfree	Checks the space available in the database by partition.
dbused	Provides database use by **oracle** user.
decode	Converts adpcm16 or adpcm32 files to pcm64 files (SSP only).
defservice	Defines an IRAPI service.
delete card/channel	Removes a card or channel from a service or an equipment group.
delete eqpgrp	Removes an equipment group.
delete service/startup	Removes the assignment of a service to DNIS and ANI numbers or of a service assigned directly to a channel.
detach	Places a channel or card in the nonexistent state. Used to prepare cards for like-for-like replacement.
diagnose bus 1	Tests a bus while it is in service.
diagnose card	Tests a card.
dip_int	Sends a DIP interrupt to a script on a channel or a range or channels.

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Table 30. Command Synopsis

Command	Function
display assignments	Displays the services assigned to channels.
display card	Displays information about specified cards.
display channel	Displays channel information.
display dnis	Displays the services assigned to DNIS and ANI numbers.
display eqpgrp/group	Displays an equipment group report.
display_equipment	Displays the serial number for various circuit cards, as well as vintage and suffix for the E1/T1 and SSP circuit cards
display messages	Displays system messages.
display_permissions	Displays voice system security permission information for the user.
display services	Lists all valid services to scripts.
display_span	Displays information about the spans on a digital network-interface circuit card
display_tam	Checks the resources monitored by the TAM unit.
dspActAlarms	Displays the active alarms.
dspRetAlarms	Display the retired alarms.

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Table 30. Command Synopsis

Command	Function
edExplain	Edits the explanation text for one or more message tags.
encode	Converts ADPCM16 or ADPCM32 files to PCM64 files (SSP only).
erase	Deletes a phrase from a UNIX talkfile (SSP only).
explain	Displays online error message explanations.
findHomes	Populates a user's home directory with files saved as part of an assisted upgrade.
fixLogFile	Upgrades existing logging files.
iCk, iCkAdmin	Performs various integrity checks based on the rules in a script file.
lComp	Combines message files to produce compressed and expanded format files.
list	Lists the directory entries for specific phrases (SSP only).
logCat	Reads compressed logging files and outputs human-readable messages.
logDstPri	Creates the shared memory containing the dynamic destinations and priorities of logging messages using **logMsg**.

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Table 30. Command Synopsis

Command	Function
logEvent/logMsg	Allows shell scripts to log a specific message.
logFmt	Displays and changes the parameters used to display messages and explanation texts.
mkAlerter	Reads an alerter description and generates the code that implements the description.
mkheader	Allocates user memory for script variables.
mkimage	Performs a complete system backup.
newscript	Updates the changes to all currently assigned scripts.
pkgadd	Transfers the contents of a software package from the distribution medium or directory to the voice system.
pkginfo	Displays information about software packages that are installed on the system, or that reside on a particular device or directory.
pkgrm	Removes a software package from the system.
raidconf	Reports the configuration of the RAID subsystem.
raidok	Reports the state of the RAID subsystem.

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Table 30. Command Synopsis

Command	Function
raidstat	Reports the status of the entire RAID subsystem.
reinitLog	Used when adding custom error messages.
remove	Places a unit in the manual-out-of-service (MANOOS) state.
restore	Restores a unit to the in-service (INSERV) state.
retireAlarms	Turns off minor, major, and critical alarms on the TAM unit.
rmdb	Displays the state of the resource manager and modify debug levels.
shmview	Displays the contents of various shared memory segments.
show_sys	Allows you to retrieve configuration and administration information from customer sites.
soft_disc	Sends a disconnect to a script on a channel or channels.
soft_szr	Starts a script on a channel.
spadc	Collects data on the signal processing resources. Use the **spar** command to generate reports on the data (SSP only).

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Table 30. Command Synopsis

Command	Function
spar	Generates reports on the signal processing data activity collected by the **spadc** command.
spsav	Backs up speech (SSP only).
start_vs	Brings the voice system up to a fully operational state.
stop_vs	Stops the voice system software gracefully.
striphdr	Strips voice or code headers from a speech file (SSP only).
sysmon	Executes a program that monitors incoming telephone lines and the associated cards to see that they are functional.
tam_attach	Attaches the TAM unit.
tam_detach	Detaches the TAM unit.
tas	Executes the transaction assembler program to assemble script instructions.
trace	Outputs trace messages for the specified processes and channels.
trarpt	Generates the call traffic report file systems.
unassign_permissions	Removes voice system security permissions for the user.

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Table 30. Command Synopsis

Command	Function
vfyLogMsg	Verifies the information associated with a specific logging message format.
vsdisable	Disables the automatic restarting of the voice system.
vsenable	Enables the automatic starting of the voice system at system reboot.
vusage	Displays the current load on the voice system (SSP only).
wl_copy	Copies FlexWord™ vocabularies to disk (SSP only).
wl_edit	Edits FlexWord wordlists (SSP only).
wl_gen	Creates data files for a FlexWord vocabulary.
wl_init	Generates an initial wordlist from a set of words.
wl_install	Reads FlexWord vocabularies from floppy disk (SSP only).

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add

The **add** command adds a phrase to a Unix talkfile (SSP only).

Synopsis

add phrase <*phrase number*> to talkfile <talkfile number> from <*file_name*>

Description

The **add** command adds phrases to the specified talkfile that were previously extracted from another talkfile using the **copy** command. The path name for the file may be the full pathname or the relative pathname. If no path is specified, the file is created in the current working directory. If you are not in the directory in which the phrase to be added is stored, give the full path name for the talkfile and the source file. If the phrase already exists, the system displays the following message:

> Phrase <*phrase_number*> already exists in talkfile
> <*talk file number*>
> Do you want to overwrite existing phrase? (y/n)

If an error occurs, system messages are printed on the controller screen. The source file may be a full path name or a relative path name. See Chapter 4, “Alarm and Log Messages,” in *UCS 1000 R4.6 System Reference*, 585-313-221, for how to respond to a system message.

Note: The add command adds a phrase to the SPEECHDIR default directory, which is **/home2/vfs/talkfiles**. To add a phrase, the conventional naming scheme must be followed.

Files

/speech/talk/*.pl

Examples

The following example adds phrase number 275 to talkfile 25 from the phrase stored in the UNIX file phr275 in the directory **/tmp/junk**.

add phrase 275 to talkfile 25 from /tmp/junk/phr275

The following example adds phrase 104 to talkfile 18 from the phrase stored in the UNIX file phr104 in the directory **/speech/talk**.

add phrase 104 to talkfile 18 from /speech/talk/phr104

See Also

copy
erase
list

addhdr

The **addhdr** command adds a voice or code header to a speech file (SSP only).

Synopsis

addhdr [voice/pcm64/adpcm32/adpcm16/sbc24/sbc16/celp16] [tag]

Description

The **addhdr** command is a filter that adds a header to a speech file. Two mutually exclusive types of headers are supported: voice and code. A voice header identifies a file as being editable, and includes an optional identifying tag. A code header (which can be PCM64, ADPCM32, ADPCM16, or CELP16) identifies the way in which the file is encoded. Code headers are required on any file that is to be played on the voice system.

Before converting between voice and code headers, you must strip off any existing headers.

See Also

codetype, **striphdr**

alarm_cutoff

The **alarm_cutoff** command disables the buzzer on the TAM unit.

Synopsis

alarm_cutoff

There are no arguments for this command.

Description

The **alarm_cutoff** command disables the buzzer on the TAM unit.

annotate

The **annotate** command annotates the transaction state machine (TSM) trace stream with a message.

Synopsis

annotate [channel] <*“message”*>

Description

The **annotate** command sends a message to TSM requesting that the given message be put into TSM's trace stream. This command is useful for testing and debugging scripts.

If a channel is specified, the message is associated with the channel's trace stream. The message must be fewer than 160 characters.

The **annotate** trace message is displayed in the trace output if a trace is running when the **annotate** command is executed. If no **trace** command is running, the annotate trace message is discarded.

Files

/vs/bin/tools

Example

The following example sends a message to TSM to put the message "This is test 1 for channel 1" in channel one's trace stream.

annotate 1 "This is a test 1 for channel 1"

assign card/channel

The **assign card** command assigns a group number to a card.
The **assign channel** command assigns a group number to a channel.

Synopsis

assign card <*card* [.port]> to [eqpgrp] <*group number*> [grpname]

assign channel <*number*> to [eqpgrp] <*group number*> [grpname]

Description

The **assign card/channel** command is used when a system is installed, the number of channels or cards changes, scripts are added or deleted, telephone numbers change, or the user wants to reconfigure the system. The system uses the card and channel assignments to route an incoming call to the group.

The parameters that can be used with the **assign card/channel** command are:

- ***number*** — The channel number (a single card or channel number, a range of card or channel numbers specified m–n, or the word “all’ for all card or channel numbers)
- **eqpgrp** — The “eqpgrp” when assigning to an equipment group
- ***group number*** — The number of the equipment group or service group
- **grpname** — An optional character string that can be associated with “grp”‘

Reference to a nonexistent channel or nonexistent group in this command causes it to fail.

Examples

The following example assigns channels 0 through 47 to equipment group 1.

assign chan 0-47 to eqpgrp 1

See Also

assign service/startup

display eqpgrp/group

delete eqpgrp

assign_permissions

The **assign_permissions** command assigns voice system security permissions to a user.

Synopsis

assign_permissions *<user login> <permissions level>*

Description

The **assign_permissions** command assigns voice system security permissions to a user. Security permissions determine the areas of the voice

system that the user can access. See Chapter 2, UNIX Administration , for more information on creating user logins.

The *user login* argument represents the user who is to be assigned security permissions.

The *permissions level* argument is the specific security class permission to be assigned. The security classes are as follows:

- Administration

  Allows the user full voice system capabilities

- Applications

  Allows the user Script Builder, configuration management, reports administration, and system monitor capabilities

- Operations

  Allows configuration management, reports administration, and system monitor capabilities

Example

The following example executes the command to assign voice system security to a user with the user login of brown.

assign_permissions brown operations

See Also

unassign_permissions
display_permissions

assign service/startup

The **assign service/startup** command assigns an installed service to DNIS and ANI numbers or directly to a channel.

Synopsis

assign service <*service_name*> [startup <*startup_name*>] to chan <*chan_list*>

assign service <*service_name*> to dnis <*phone_list*> [ani <*phone_list*>]

assign service <*service_name*> to ani <*phone_list*> [dnis <*phone_list*>]

Description

The **assign service/startup** command is used to assign services to either a set of channels or to DNIS and ANI numbers. Services should be assigned after the service is verified and installed, the number of channels changes, or the system is reconfigured. Use the **display script** command to see a list of valid service names.

The *chan_list* variable indicates channel numbers or channel number ranges in the form *chan1-chan2*. A comma or space should be used to separate channel numbers in the list of channel numbers or ranges.

The *phone_list* variable indicates telephone numbers or telephone number ranges in the form *phone1:phone2*. A comma or space should be used to separate the list of telephone numbers or ranges (for example, **phone1:phone2**).

Examples

The following example assigns service stdin ("standard in" as an arbitrary name for a script) to channel 0.

assign service stdin to chan 0

The following example assigns service stdout ("standard out" as an arbitrary name for a script) to channel 1.

assign service stdout to chan 1

The following example assigns service DNIS to all channels.

assign service *DNIS_SVC to chan all

The following example assigns startup service stdout to channels 4 through 7.

assign startup stdout to chan 4-7

The following example assigns the service stdout and startup service stdin to channels 4 through 7.

assign startup stdin service stdout to chan 4-7

The following example assigns the service stdout to DNIS 5000 through 5008 and ANI any.

assign service stdout to dnis 5000:5008

The following example assigns the service stdout to DNIS 5000 through 5008 and ANI 6000.

assign service stdout to dnis 5000:5008 ani 6000

The following example assigns the service stdout to DNIS any and ANI 6000 through 9000.

assign service stdout to ani 6000:9000

The following example assigns the service stdout to DNIS 3000 and ANI 2000-3000.

assign service stdout to dnis 3000 ani 2000:3000

See Also

display eqpgrp/group

delete eqpgrp

attach

The **attach** command attaches a circuit ard or channel.

Synopsis

attach *unit number* [-i] [-n]

Description

The **attach** command is used to attach a card that has been “detached.” Use the attach command to allow the voice system to use a card that has just been replaced by hot swapping (that is, like-for-like replacement).

To put the card into service, use the **restore** command.

The parameters for the **attach** command are:

- *unit* — This option identifies the unit; the choices are “channel” or “card.”
- *number* — This option specifies the channel or card number, a range of channel or card numbers in the form m–n, or **all** for all channel or card numbers. Card numbers are in the form *card#[.port#]* where *port#* is a port of the card#. If *port#* is not given, all ports of the card specified are attached. If no card number or channel number is given, the system displays a syntax message.

- **-n** — This option disables prompting from the system whether to wait until a conflict has been resolved (see the **-i** option below) or to terminate the request to **attach**.
- **-i** — This option is used to enable secondary command registration. If T1 diagnostics are being run, this option allows the “attaching” of another card. If **-i** is used and another maintenance command is being run (**remove**, **detach**, **attach**, **restore**, or **diagnose**), the request to **attach** is blocked and a message is printed to the screen. If **-i** is not used and any maintenance command is being run, the request to **attach** is blocked and a message is printed to the screen.

  If the command is permitted to run, it is determined if the command is in conflict with another command. A command is in conflict if the card or card associated with the command meets any of the following conditions:

  ~ T1 card is being diagnosed
  ~ An interdependency exists with the T1 card being diagnosed (for example, PRI)

  If one of the above conflicts exist and **-n** is not used, the user is asked whether to wait until the conflict is resolved or to terminate the request. If T1 diagnostics are executing online tests and a conflict is detected, the **attach** command is blocked. If T1 diagnostics are executing offline tests and a conflict is detected, the user is asked whether to wait until the conflict is resolved or to terminate the request to **attach**.

Examples

The following example attaches a card 2.

attach card 2

The following example attaches port 1 of card 2.

attach card 2.1

The following example attaches a card to channel 2, port 1.

attach card 2.1

See Also

detach
restore
remove

autoreboot

The **autoreboot** command provides a means of changing or displaying the parameters associated with the autoreboot feature.

Synopsis

autoreboot [enable|disable] [reboots <*numbers*>] [window <*minutes*>] [uptime <*minutes*>]

autoreboot [status|s]

autoreboot [help|h]

Description

The **autoreboot** command can be used to change parameters associated with the auto-reboot feature and to monitor the status of these parameters. The following options are recognized:

- **enable|disable** — This option specifies whether to enable or disable the autoreboot feature. The default is enable.
- **reboots <*number*>** — This option specifies the number of unanticipated reboots tolerated within the time period specified by *window*. The default is 5.
- **window <*minutes*>** — This option specifies the time period for the *reboots* parameter. The default is 60 minutes.

- **uptime <*minutes*>** — This option specifies the amount of time that the system must be in service before the automatic reboot feature is activated. The default is 5 minutes.
- **status** — This option shows the current values of the automatic reboot parameters, plus the number of unanticipated reboots that occurred in the *window* minutes preceding the most recent system boot.

When the auto-reboot feature is enabled and activated, the system automatically reboots after a UNIX panic. The auto-reboot feature is activated as follows:

If there were fewer *reboots* than unanticipated reboots during the *window* minutes prior to the most recent system boot, the automatic reboot feature is activated (if enabled) *uptime* minutes after the most recent system boot.

For example, assume the automatic reboot parameters are set to their default values. A system crash occurs. The system reboots at 8:00. If there were fewer than five unanticipated reboots between 7:00 and 8:00, the auto-reboot feature is activated as 8:05. Otherwise, it is activated at 9:00.

An unanticipated reboot is a system boot that occurs after a system crash. A system crash can be caused, for example, by a UNIX panic, a system restart via **RESET,** or a sudden power loss.

Example

The following example enables autoreboot feature and changes *window* to two hours:

autoreboot enable window 120

Caveat

This command must be run from ksh (KORN shell).

bbs

The **bbs** command reports status of the voice system Bulletin Board (BB).

Synopsis

bbs *[-d] [-h] [-l]*

Description

The **bbs** command displays the field values of the BB slots. This information is sent to standard out (stdout). Without any options, information is extracted only from the dynamic portion of the BB and printed in short format. Otherwise the information displayed is controlled by following options:

- ***-d*** — Prints information about the dynamic portion of the BB (the default).

- ***-h***— Prints information about the hardcoded portion of the BB.
- ***-l*** — Generates a long listing. The system displays all fields.

The column headings and meaning of the columns in the **bbs** listing are given in Table 31. In the table, the letter **l** indicates the **long** option, which causes the corresponding heading to appear. The **all** option means that the heading always appears.

Table 31. bbs Column Headings

Column Name	Option	Description
SLT	(all)	The slot number
BBNAME	(all)	The name associated with the process and slot
QKY	(all)	The message queue key
PID	(all)	The process ID
INS	(all)	The process instance
D	(all)	“YES” if the process is a message-sending DIP type; otherwise “NO”
CDATE	(l)	The last process creation time

1 of 2

Table 31. bbs Column Headings

Column Name	Option	Description
WK	(l)	The ET work state
SKEY	(l)	The semaphore key associated with the process and slot
QID	(l)	The message queue ID
RE-SPA	(l)	The number of respawns from the last restart of the voice system
WKCNT	(l)	The ET work count for process

2 of 2

Upon successful completion, **bbs** returns an exit status of zero. Otherwise, **bbs** prints an error message on *stderr* and returns a nonzero exit status if the voice system is not running, or if for some other reason it can not access the BB.

Example

The following example prints a long listing, displaying all possible fields.

bbs -l

ccarpt

The **ccarpt** command generates a call classification data summary report.

Synopsis

ccarpt <*date*>

ccarpt <*start_date*> <*end_date*>

Description

The **ccarpt** command generates a call classification data summary report. This report is stored in standard out (stdout).

The **<*date*>**, **<*start_date*>**, and **<*end_date*>** arguments may be in the form mm/dd/yy or mm/dd/yyyy.

If a 2-digit year argument is used, the following rules apply:

- If the year argument is 70 and above, the 20th century is assumed, For example, 5/27/96 is interpreted as May 27, 1996.
- If the year argument is between 00 and 69, the 21st century is assumed. For example, 5/27/06 is interpreted as May 27, 2006.

Examples

The following two examples generate the call classification data summary report for October 10, 1993, and are equivalent command statements.

ccarpt 10/20/93

ccarpt 10/20/1993

The following two examples generate the call classification data summary report from October 14 through October 20, 1993, and are equivalent command statements.

ccarpt 10/14/93 10/20/93

ccarpt 10/20/1993 10/20/1993

cddrpt

The **cddrpt** command generates a call data detail report.

Synopsis

cddrpt <*records*> <*service*> <*calldata*> <*date*>

Description

The **cddrpt** command generates the call data detail report. This report is sent to standard out (stdout). Before this can be done, the database system must be up and running, but the voice system does not need to be up.

The parameters for the **cddrpt** command are:

- ***<records>*** — This parameter represents the number of records to be reported. It can be any number, a range of numbers, or **all** indicating all records in the system.
- ***<service>*** — This parameter represents the script (application) name, or **all** for all applications.
- ***<calldata>*** — This parameter represents a flag indicating whether to include call event data. The valid options are **n** for not including event data or **y** for including event data.
- ***<date>*** — This parameter is the date the data was collected in the system. The valid options are either a date in mm/dd/yy format, mm/dd/yyyy format, or **all** indicating all records in the system.

  If a 2-digit year argument is used, the following rules apply:

  - ~ If the year argument is 70 and above, the 20th century is assumed. For example, 5/27/96 is interpreted as May 27, 1996.
  - ~ If the year argument is between 00 and 69, the 21st century is assumed. For example, 5/27/06 is interpreted as May 27, 2006.

Examples

The following two examples generate a call data detail report for the first 100 pieces of call data collected on date October 20, 1993 for application “balance_chk” and are equivalent command statements. (Call event data, if any, is also included in the report.)

cddrpt 100 balance_chk y all 10/20/93

cddrpt 100 balance_chk y all 10/20/1993

The following example generates a call data detail report for all call data in the system without including call event data.

cddrpt all all n all

Error Messages

CANNOT FIND /vs/trans/<*application*>.D OR MALLOC SPACE FOR IT

If you get the above message while running **cddrpt**, take the following remedial steps:

- Make certain the **/vs/trans/<*application*>**.D file exits and is current.
- Remove unnecessary files from the **/vs/trans/** directory.

cdsrpt

The **cdsrpt** command generates a call data summary report for a specific date.

Synopsis

cdsrpt *<hours>* *<service>* *<event data>* *<date>*

Description

The **cdsrpt** command generates the call data summary report for a date specified. The report is stored in standard out (stdout). Before this can be done, the database system must be up and running, but the voice system does not need to be up.

The parameters for the **cdsrpt** command are:

- ***<hours>*** — This parameter is the hour the call data was collected. It can be any number between 0 to 24 or “all” indicating all 24 hours.
- ***<service>*** — This parameter is the script (application) name, or “all” indicating all applications.
- ***<event data>*** — This parameter is a flag indicating whether to include call event data or not. The valid options are “n” for not including event data or “y” to include event data.

- ***<date>*** — This parameter is the date the data was collected in the system in the format mm/dd/yy or mm/dd/yyyy.

  If a 2-digit year argument is used, the following rules apply:

  - ~ If the year argument is 70 and above, the 20th century is assumed. For example, 5/27/96 is interpreted as May 27, 1996.
  - ~ If the year argument is between 00 and 69, the 21st century is assumed. For example, 5/27/06 is interpreted as May 27, 2006.

Examples

The following two examples generate a call data summary report for call data collected between 2 p.m. and 4 p.m. on date October 20, 1993 for all applications on the system, and are equivalent command statements. Call event summary is included in the report.

cdsrpt 14-16 all y 10/20/93

cdsrpt 14-16 all y 10/20/1993

The following two examples generate a call data summary report for all call data collected on date October 20, 1993 for the application “balance_chk.” Call event summary data is not included in the report.

cddrpt all balance_chk n 10/20/93

Error Messages

```
CANNOT FIND /vs/trans/<application>.D OR MALLOC SPACE FOR IT
```

If you get the above message while running **cdsrpt**, take the following remedial steps:

- Make certain the **/vs/trans/<*application*>.D** file exits and is current.
- Remove unnecessary files from the **/vs/trans/** directory.

codetype

The **codetype** command identifies the type of coding header in a speech file (SSP only).

Synopsis

codetype file

Description

The **codetype** command identifies the type of coding header that is present in a speech file. Codetype recognizes PCM64, ADPCM32, ADPCM16, SBC24, SBC16, or CELP16 headers.

See Also

addhdr
striphdr

configure_tam

The **configure_tam** command is used to download the configuration file for the TAM unit.

Syntax

configure_tam

There are no arguments for this command.

Description

The **configure_tam** command downloads the configuration file for the TAM unit. The configuration settings are saved and used as the active TAM configuration on reboot.

copy

The **copy** command copies a phrase from a UNIX talkfile to a UNIX talkfile (SSP only).

Synopsis

copy phrase <*phrase number*> from talkfile <*talkfile number*> to <*filename*>

Description

The **copy** phrase command copies a phrase from one UNIX talkfile to another UNIX talkfile. The path name for the file may be the full path name or the relative path name. If no path is specified, the file is created in the current working directory. If you are not in the directory in which the phrase to be added is stored, be sure to give the full path name for the talkfile and source file.

Note: Only the login *root* can copy a phrase to any of the root directories. Users without root permission can copy phrases only to directories for which they have permission, usually under their login id.

Note: The **copy** command copies a phrase from a UNIX talkfile within the SPEECHDIR default directory (**/home2/vfs/talkfiles**) to a UNIX file.

Examples

The following example copies phrase number 2 from talkfile 1 to the file **/speech/talk/a.1**.

copy phrase 2 from talkfile 1 to /speech/talk/a.1

The following example copies phrase number 174 from talkfile 25 to the file **/speech/talk/h.4**.

copy phrase 174 from talkfile 25 to /speech/talk/h.4

See Also

add
erase
list

cvis_mainmenu

The **cvis_mainmenu** command accesses the administration menus.

Synopsis

cvis_mainmenu

Description

The **cvis_mainmenu** program is a menu interface used to access the Administration menu. See the Chapter 3, Voice System Administration , for more information about the administration menus.

See Also

cvis_menu

cvis_menu

The **cvis_menu** command accesses the Voice System Administration menu.

Synopsis

cvis_menu

Description

This command provides access to the Voice System Administration menu.

See Also

cvis_mainmenu

dbcheck

The **dbcheck** command checks the resources available in the database (Version 7 ORACLE).

Synopsis

dbcheck -i

dbcheck r

dbcheck *[w n[,m]] [-s] [-e] [-m user[~user...]]*

Description

The **dbcheck** command checks spaces, usage, and rollback segment growth. The **dbcheck** command has three different usages.

The *-i* option installs cron entries (optional) to run **dbcheck** at regular intervals and support for logger/alerter messages. (The *-i* option only needs to run once). The cron job can be placed in either roots cron file or added to the end of the **/vs/bin/util/croncdh** job that runs once a day. The *-i* option also asks if you want new alerter messages added to the logger/alerter database along with explanations used with the *explain* command. This installation only needs to be run if you want the warnings to show up in the system event log or if you want to schedule automatic checking at regular intervals.

The *-r* option removes any cron entry set up by the *-i* option.

The third usage actually checks database space against a user set “water marks.” Three different things are checked:

- Free space
- Extents against the user set threshold *n* (15% default)
- Rollback segment(s) growth against the user set threshold *m* (20% default)

When executed, the **dbcheck** command generates the appropriate warnings (shown under “Diagnostics” below) if the database falls below *n* percent free or if the rollback segment grows to be more than *m* percent of the total database size.

The **dbcheck** command, by default, sends warning messages to the logger/alerter indicating a threshold has been exceeded (the **-i** option must be run first). The **-e** option disables the entries from going into the log file. The **-s** option prints the warning messages to standard output. The **-m** *user* option allows for the messages to be mailed to *user*. Multiple users can be sent the mail by separating the user names with a tilde (~). Below are sample outputs.

(Output to error log when less than 13% available space/extents or more than 23% used by rollback)

dbcheck -w13,23

```
*   Mon Feb 15 16:35:06 1993 dbcheck logTest.c:418
DBC001    -- -- ---  Database 10 percent free, 3072 Blocks of 30720 available.
                Reason:  Low DB Space.
*    Mon Feb 15 16:35:06 1993 dbcheck logTest.c:418
DBC002     -- -- ---  Extents low, 100 used of 121, on object MY_TABLE
                Reason:  Low DB Extents
*    Mon Feb 15 16:35:06 1883 dbcheck logTest.c:418
DBC003     -- -- --- Rollback segments=7680 blocks, 25 percent of total space.
                Reason:  High Rollback Usage.
```

Files

```
LOGROOT=$[LOGROOT:-”/usr/spool/log”}
${LOGROOT}/head/logDBC.h
${LOGROOT}/formats/DBCmsg
${LOGROOT}/formats/formats.mk
${EXPLAINDR}//translateLst
/vs/bin/util/croncdh
/usr/spool/cron/crontabs/root
/usr/spool/cron/crontabs/root.bu
```

Diagnostics

The **dbcheck** command returns the following values:

0 — Success, no limits exceeded

1 — Threshold exceeded

2 — Processing error

3 — Database is not running

Caveat

Once *dbcheck* log messages are installed using **dbcheck -i**, the alarm priorities, destinations, and thresholds can not be changed through the System Message Display screen as described in Message Administration on page 33, of Chapter 3, Voice System Administration.

See Also

dbfrag
dbfree
dbused
explain
logCat

dbfrag

The **dbfrag** command lists fragmentation information on the database (Version 7 ORACLE).

Synopsis

dbfrag [-h -b]

Description

The **dbfrag** command is a shell script that reports on database allocation, usage, and fragmentation. The block size reported is in ORACLE blocks (2048 bytes). You can request the information to be reported in Mbytes with the **-b** option. This tool is useful to get a quick check on database usage and provides a shell interface into some key ORACLE statistics.

This tool only reports on information in the SYSTEM tablespace. With the **-h** option, the listing is printed without a header. This option is useful if you want to parse this output to select a specific field.

The following requests fragmentation information in megabytes (using the **-b** option).

 # dbfrag -b

SYSTEM Tablespace, Space is in Mega-Bytes

ALLOCATED	FREE	% FREE	AVG/FRAG	LARGEST	FRAGMENTS	DB_FILES	ROLLBACK
129.00	108.88	84.40	5.44	108.12	20	1	7.91

Examples

The following example gets the largest contiguous ORACLE space available.

dbfrag -h | awk 'length>1 {print $5}'
```
10240
```

Diagnostics

The program returns the following:

0 — Success

1 — Processing Error

See Also

dbcheck
dbfree
dbused

dbfree

The **dbfree** command checks the space available in the database by partition (Version 7 ORACLE).

Synopsis

dbfree ***[h]***

Description

The **dbfree** command is a shell script that lists the amount of free space in the database by free contiguous blocks. The result is a detailed listing of each free memory area followed by the sum of each partition. The free blocks are listed in 2048 bytes/block (ORACLE blocks). There is also a column that lists the same information in megabytes. The ***-h*** option removes the column headers. Below is a sample output of the **dbfree** command.

Contiguous extents

TABLE SPACE NAME	FILE_ID	START_BLOCK	MBYTES FREE	ORACLE BLOCKS FREE
SYSTEM	1	5142	.02	12
SYSTEM	1	5560	.03	13
SYSTEM	1	4892	.04	18
SYSTEM	1	7892	.04	19
SYSTEM	1	4164	.05	28
:	:	:	:	:
:	:	:	:	:
SYSTEM	1	5598	.73	375
SYSTEM	1	8946	4.00	2048
SYSTEM	1	12650	4.45	2277
SYSTEM	1	25179	10.00	5120
SYSTEM	1	14939	20.00	10240
sum			47.18	24070

29 rows selected.

Diagnostics

The program returns the following values:

0 — Success

1 — Processing error

Caveats

The **dbfree** command creates a temporary table “dba_fragments” under user system that compresses the adjacent entries provided by the dictionary view “dba_free_space.”

See Also

dbfrag
dbcheck
dbused

dbused

The **dbused** command provides database use by oracle user (Version 7 ORACLE).

Synopsis

dbused *[hs] [u <uid/passwd>]*

Description

The **dbused** command is a shell script that shows the amount of space used by each object for a given user. Objects are tables, indexes, clusters, rollback, and cache. The default user is sti/sti. The ***-s*** option reports summary information grouped by objects. The special user “all” reports information for

the entire database. The ***-h*** option skips the header message. This option is useful if you are parsing. The ***-u <uid/passwd>*** option allows the user to specify the oracle user id and password (the default is sti/sti, all for all users).

Below is an output summary for user “all.”

 # dbused -su all

Space allocated to objects. Oracle blocks (2048 Bytes/Block)

NAME	TYPE	BLOCKS	MBYTES	EXTENTS	MAX_EXTENTS
C1	INDEX	5	.01	1	99
CCA	TABLE	5	.01	1	99
CCASUM	TABLE	5	.01	1	99
CDH	TABLE	5	.01	1	99
CDHSUM	TABLE	5	.01	1	99
E2	TABLE	5	.01	1	99
EVENTS	TABLE	5	.01	1	99
EVSUM	TABLE	5	.01	1	99
LDBCOLS	TABLE	5	.01	1	99

Below is output for user “sti.”

 # dbused

Space allocated to objects. Oracle blocks (2048 Bytes/Block)

NAME	TYPE	BLOCKS	MBYTES	EXTENTS	MAX_EXTENTS
C1	INDEX	5	.01	1	99
CCA	TABLE	5	.01	1	99
CCASUM	TABLE	5	.01	1	99
CDH	TABLE	5	.01	1	99
CDHSUM	TABLE	5	.01	1	99
E2	TABLE	5	.01	1	99
EVENTS	TABLE	5	.01	1	99
EVSUM	TABLE	5	.01	1	99
LDBCOLS	TABLE	5	.01	1	99

Diagnostics

The program returns the following values:

0 - Success

1 - Processing error

See Also

dbfrag
dbfree
dbcheck

decode

The **decode** command converts adpcm16 or adpcm32 files to pcm64 files (SSP only).

Synopsis

decode [adpcm32/adpcm16]

Description

Decode is a filter that converts ADPCM16 or ADPCM32 files to PCM64 files.

Warning

Coding headers should be stripped (using the **stripdhr** command) before running **decode**.

See Also

addhdr
codetype
encode
striphdr

defService

The **defService** command defines an IRAPI service.

Synopsis

defService *[-h] [-n] [-s <servicename>] [-p <process>] [-t P | T] [-a 0 |1 |2 |3 |4] [<application>]*

Description

The **defService** command is for use by IRAPI application developers. It creates the registration file for an IRAPI service that is necessary for assigning or deleting service to or from a channel or DNIS and/or ANI. For TSM scripts, the output of the **tas** command serves as the registration file for the script.

If the **defService** command is entered with no options, **defService** prompts you for all of the necessary information. You will need to respond to fewer prompts if you enter the majority of the information from the command line.

The ***-h*** option allows you to print the usage statement and then exit.

The ***-n*** option uses the default values for all options not specified on the command line. However, no defaults exist for the ***<process>*** and ***<application>*** parameters.

When the application is started by the Application Dispatch (AD) process, the **IRP_SERVICE_NAME** is set to the ***-s <servicename>*** argument if ***<servicename>*** is non-NULL. Otherwise, **IRP_SERVICE_NAME** is set to ***<application>***, where the default is **NULL**.

The ***-t*** option specifies whether the process that provides the IRAPI application ***<application>*** is a permanent (P) or transient (T) process. The default is **P** for permanent.

If the process that provides the IRAPI application ***<application>*** is a permanent process, then ***-p <process>*** must be the name the process uses as an argument to ***irRegister(3irAPI)***. If the process that provides the IRAPI application ***<application>*** is a transient process, then ***-p <process>*** must be the full pathname of the process. No default exists for this option.

When the application is executed on a PRI line, the ***[-a 0 |1 |2 |3 |4]*** option specifies how the ANI should be supplied to the application. The valid values for this option are as follows:

- 0 — No ANI supplied; the default
- 1 — ANI type billing number only
- 2 — ANI type billing number preferred
- 3 — ANI type calling party SID)) only
- 4 — ANI type calling party (SID) preferred

The ***<application>*** argument specifies the IRAPI application. No default exists for this argument.

Upon successful completion, the **defService** command creates the **/vs/trans/*<application>*.T** file.

Files

/vs/trans/*.T

See Also

assign
delete
tas
iRAPI -AD(4irAPI-AD)
irRegister(3irAPI)

delete card/channel

The **delete card/channel** command removes a card or channel from a service or an equipment group.

Synopsis

delete card <*card.[port]*> from *[eqpgrp]* <*group number*>

delete channel <*number*> from *[eqpgrp]* <*group number*>

Description

The **delete card/channel** command removes the specified card or channel from a service or equipment group. The parameters for the delete card/channel command are:

- ***<card.[port]>*** — Specifies the card or channel number (a single card or channel number from a range of 0–255, a range of card or channel numbers in the form *m–n*, or the word **all** for all card or channel numbers).
- **eqpgrp** — Specifies “svcgrp” when deleting from a service group or “eqpgrp” when deleting from an equipment group. If no group type is given, the “svcgrp” is assumed.
- ***<group number>*** — Identifies the equipment group or service group.

If you want to remove all cards or channels from an equipment group, it may be easier to delete the entire equipment group than to delete channels or cards. To delete an equipment group, use the **delete eqpgrp** command.

Examples

The following example deletes card 4 from service group 1.

delete card 4 from svcgrp 1

The following example deletes channels 10 through 13 from equipment group 3.

delete channel 10-13 from eqpgrp 3

See Also

delete eqpgrp
delete service

delete eqpgrp

The **delete eqpgrp** command removes an equipment group.

Synopsis

delete eqpgrp <*group number*>

Description

The **delete eqpgrp** removes an equipment group. The ***<group number>*** argument is the equipment group list. To remove all equipment groups, use “all” as the group number.

Examples

The following example removes equipment group number 3.

delete eqpgrp 3

The following example removes all equipment groups.

delete eqpgrp all

See Also

assign card/channel

delete service/startup

The **delete service/startup** command unassigns the assignment of a service to DNIS and ANI numbers or of a service assigned directly to a channel.

Synopsis

delete service <*service_name*> [startup <*startup_name*>] from chan <*chan_list*>

delete startup <*startup_name*> [service <*service_name*>] from chan <*chan_list*>

delete service <*service_name*> from dnis <*phone_list*> [ani <*phone_list*>]

delete service <*service_name*> from ani <*phone_list*> [dnis <*phone_list*>]

Description

The **delete service/startup** command removes the specified telephone number or channel from the group to which a script is assigned. The parameters for the **delete service/startup** command are:

- ***application name*** — Specifies the name of application.
- ***<chan | dnis>*** — Specifies the name of the service group.
- ***<chan number | phone number>*** — Contains a list of one or more channels or telephone numbers separated by blanks. The word “any” or “all” shows that service is removed from all calls regardless of what number was dialed.

The *chan_list* variable indicates channel numbers or channel number ranges in the form *chan1-chan2*. Use a comma or space to separate the list of channel numbers or ranges.

The *phone_list* variable indicates telephone numbers or telephone number ranges in the form *phone1:phone2*. Use a comma or space to separate the list of telephone numbers or ranges.

Note: Only telephone numbers that were assigned using the assign service/startup command can be deleted.

Examples

The following example deletes startup service stdout from channels 4 through 7.

delete startup stdout from chan 4-7

The following example deletes the service stdout and startup service stdin from channels 4 through 7.

delete startup stdin service stdout from chan 4-7

The following example deletes the service stdout to DNIS 5000 through 5008 and ANI any.

delete service stdout from dnis 5000:5008 and ANI any

The following example deletes the service stdout from DNIS 5000 through 5008 and ANI 6000.

delete service stdout from dnis 5000:5008 ani 6000

The following example deletes the service stdout from DNIS any and ANI 6000 through 9000.

delete service stdout from DNIS any and ani 6000:9000

The following example deletes the service stdout from DNIS 3000 and ANI 2000-3000.

delete service stdout from dnis 3000 ani 2000:3000

See Also

assign service/startup
display services
display dnis

detach

The **detach** command places a card or channel in the NONEX state. If a card is detached, it can then be replaced by hot swapping (that is, like-for-like replacement). The blue LED indicates that is ready to be removed from the system.

Synopsis

detach *unit number [-i] [-n]*

Description

The **detach** command places a unit into the nonexistent (NONEX) state. Before using the detach command, a unit must be in the manual-out-of-service (MANOOS) or BROKEN state. To detach a unit that is not in the MANOOS or BROKEN state, use the **remove** command to put the unit into the MANOOS state, and then enter the **detach** command.

Note: If you have detached a card, and then stopped and started the voice system with the card still in the system, the card is reattached and put in the MANOOS state. You can issue the detach command again to put it back in the NONEX state.

The parameters for the **detach** command are:

- ***unit*** — Identifies the unit. The choices are “channel” or “card.”
- ***number*** — Specifies the channel or card number, a range of channel or card numbers in the form *m–n*, or the word “all” for all of the channel or card numbers. Card numbers are in the form *card#[.port#]* where *port#* is the port of the card#. If *port#* is not given, all ports of the card specified are detached. If no card number or channel is given, the system displays a syntax message.

- ***-n*** — This optional parameter disables prompting from the system whether to wait until a conflict has been resolved (see the ***-i*** option below) or to terminate the request to detach.
- ***-i*** — This optional parameter is used to enable secondary command registration. If T1 diagnostics are being run, this option allows the "detaching" of another card. If ***-i*** is used and another maintenance command is being run (**remove**, **detach**, **attach**, **restore**, **diagnose**), the request to **detach** is blocked and a message is printed to the screen. If ***-i*** is not used and any maintenance command is being run, the request to **detach** is blocked and a message is printed to the screen.

  If the command is permitted to run, a check is made to see if the command is in conflict with another. A command is in conflict if the card or card associated with it:

  ~ Is the T1 card being diagnosed
  ~ Will cause a change in the existing TDM bus master assignment
  ~ Has an interdependency with the T1 card being diagnosed (for example, PRI)

  If one of the above conflicts exist and ***-n*** is not used, the user is asked whether to wait until the conflict is resolved or to terminate the request. If T1 diagnostics are executing online tests and a conflict is detected, the **detach** command is blocked. If T1 diagnostics are executing offline tests and a conflict is detected, the user is asked whether to wait until the conflict is resolved or to terminate the request to detach.

Examples

The following example detaches card 4 and places it in the NONEX state as far as the system is concerned.

detach card 4

The following example detaches channels 1 through 3 and places them in the NONEX state as far as the system is concerned.

detach channel 1-3

See Also

attach
remove
restore

diagnose bus 1

The **diagnose bus 1** command tests a bus while it is in service.

Synopsis

diagnose bus *1*

Description

If a unit fails the diagnostics, the permanent state is changed to BROKEN; otherwise, the permanent state is unchanged.

The output is sent to the screen and also saved to a file in **/vs/data/diagnose** called **diagBus.1**.

Example

The following example diagnoses bus 1.

diagnose bus 1

diagnose card

The **diagnose card** command tests a card while it is in service.

Synopsis

diagnose card *card# [option]...*

Description

The **diagnose card** command is done at the card level for any card in the system. The *card number* option is the card number you want to diagnose. The word “all” can be used to specify all cards.

If a card is stuck in the INSERV state, use the **diagnose card *card#* immed** command. This temporarily removes the unit from the busy state unconditionally and places it in the manual-out-of-service (MANOOS) state. Note that any calls on the card when the “immed” option is used are dropped immediately.

For all circuit cards, the valid options are:

- ***-n*** — Disables prompting from the system whether to wait until a conflict has been resolved (see the ***-i*** option) or to terminate the request to diagnose.
- ***-i*** — Enables secondary command registration. If digital network-interface diagnostics are being run, this option allows another card to be diagnosed. If ***-i*** is used and another maintenance command is being run (**remove**, **detach**, **attach**, **restore**), the request to diagnose a non-network-interface card is blocked and a message is printed to the screen. If ***-i*** is not used and any maintenance command is being run, the request to **diagnose card** is blocked and a message is printed to the screen.

  If the command is permitted to run, a check is made to see if the command is in conflict with another. A command is in conflict if the card or card associated with it:

  ~ Is the digital network-interface card being diagnosed

  ~ Has an interdependency with the digital network-interface card being diagnosed (for example, PRI)

If one of the above conflicts exist and ***-n*** is not used, the user is asked whether to wait until the conflict is resolved or to terminate the request. If digital network-interface diagnostics are executing online tests and a conflict is detected, the **diagnose card** command is blocked. If digital network-interface diagnostics are executing offline tests and a conflict is detected, the user is asked whether to wait until the conflict is resolved or to terminate the request to diagnose.

If a unit fails the diagnostics, the permanent state is changed to BROKEN. If the unit being diagnosed previously was marked BROKEN and it passes diagnostics, it is put in the MANOOS state. Otherwise, the permanent state is unchanged.

When diagnostics are complete, if the diagnostics passed, the T1/E1, Quad, SSP, and LSPS cards are reinitialized.

If an SSP card passes diagnostics, the system displays a message similar to the following:

```
Diagnose <card> n, Passed.
```

If a digital network-interface card passes diagnostics, the system displays a message similar to the following:

```
All tests passed.
```

If a digital network-interface card fails diagnostics, a help screen is provided giving you information to help resolve the reason for the failure. If you try to

diagnose cards that are not installed in the system or if they are installed but are in the nonexistent state, the system displays an error message.

To delete out of the command, press **DEL**. If this does not stop the command, you may need to press **CTRL** and backslash simultaneously. Be aware, however, that this fixes the console, but does not terminate the diagnostic routine. If, while running diagnose, you want to stop the command, a message similar to the following may appear:

```
Aborting request.  Further administrative action may be
needed to reach desired state.
```

```
The diagnostics command for board board number has been
stopped.
```

The card will be marked as BROKEN.

Or, the system may display:

```
Could not stop diagnostics for board board number.
```

The diagnostics may continue to run in the background. Use the **display** command to check the state of the card.

Examples

The following example runs diagnostics on card number 3.

diagnose card 3

The following example runs diagnostics on cards 4 through 7.

diagnose card 4-7

The following example runs diagnostics on cards 4 through 7 immediately, dropping all calls currently in progress.

diagnose card 4-7 immed

dip_int

The **dip_int** command sends DIP interrupt to a script on a channel or a range of channels.

Synopsis

dip_int *channel*

dip_int *channelStart-channelEnd*

Description

The **dip_int** command sends a message or messages to TSM requesting that TSM send interrupt messages to the script running on *channel* or the range of channels *channelStart-channelEnd*. If no script is running on the channel or if TSM does not own the channel, no action is taken for the channel. The **dip_int** command does not wait for a response from TSM. Scripts running on the channel receive the EDIPINT event.

CAUTION:
Be careful when you use this command. It may affect other applications running on the system.

Examples

The following example requests that TSM send interrupt messages to channel two.

dip_int 2

The following example requests that TSM send interrupt messages on channels one through 32.

dip_int 1-32

Return Values

If the **dip_int** is successful, a 0 value is returned. If any value other than 0 is returned, the **dip_int** command completely or partially failed.

If **dip_int** returns a value of 2, then **dip_int** failed due to temporary condition. In this case, the user should attempt the **dip_int** command again.

See Also

soft_disc

display assignments

The **display assignments** command displays the services assigned to channels.

Synopsis

disp assignments *[option] [option]*

Description

The **display assignments** command is used to display all the services and startup services assigned to channels. The display assignments command options are shown in Table 32:

Table 32. display assignments Command Options

Option	Description
all (default)	Displays information on all services
service name	Displays channels assigned with a specific service

1 of 2

Table 32. display assignments Command Options

Option	Description
startup *startup name*	Displays channels assigned with a specific startup service
channel *chan#*	Displays assignments for the channel specified by *chan#*. A range of channels can be specified.

2 of 2

Note: If more than one option is used, the system displays only channels that satisfy all the options given. If an invalid combination of options is given, the system displays an error message.

Examples

The following example displays information for channel 1

disp assignments channel 1

The following example displays information for all channels that have the service *xxx* assigned

disp assignments *xxx*

The following example displays information for all channels that have the startup service *xxx* assigned

disp assignments startup *xxx*

display card

The **display card** command displays information about specified cards.

Synopsis

disp[lay] ca[rd] *[option [option]]*

Description

The **display card** command displays data about a specified card or about cards in a specified state. In the output, the physical slot number, the osindex, and the voice system card number are all the same. The output also correctly reflects which card is primary master, which is secondary master, and which cards are slave.

The display card command options are:

- ***card*#.*port*#** — Displays information on card *card*# and on port *port*# of the specified card. All ports are shown if *port*# is not given. A range of cards may be specified in the form *m*–*n* without using the *port*# option.
- **all** — Displays information on all cards.

- **t1** — Displays all E1/T1 and Quad cards.
- **sp** — Displays all SSP cards.
- **lsps** — Displays all LSPS cards.
- **mtc** — Displays all cards being used by the maintenance process.
- **manoos** — Displays all cards in the manual out-of-service state.
- **broken** — Displays all cards in the broken state.
- **nonex** — Displays all cards in the nonexistent state.
- **ins[erv]** — Displays all cards that have at least one channel in the in-service state.
- **netoos** — Displays all cards that have at least one channel in the network out-of-service state.
- **hwoos** — Displays all cards that have at least one channel in the hardware out-of-service state.
- **foos** — Displays all cards that have at least one channel in the facility out-of-service state.

If more than one option is used, only cards that satisfy all the options given are displayed. If an invalid combination of options is given, the system displays an error message.

Examples

The following example displays information on all cards.

disp card all

The following example displays information on all cards in the “Mtc” state.

disp card mtc

The following example displays information on all T1 cards in the "Broken" state.

disp card t1 broken

The following example displays card information on card 13. In this example, card 13 is a Quad T1 (CWB10) circuit card. All Quad cards have four spans (0, 1, 2, 3).

disp card 13

Sample output:

```
CARD 13   STATE: Manoos    CLASS: Digital(T1)            O.S.INDEX: 13
           NAME:  CWB10     OPTIONS: slave,tdm1
 SPAN  0   PROTOCOL: PRI    DCH_GRP:  1                    DCHAN: yes
           SPANSTATE: Manoos
 CD.PRT  CHAN STATE   STATE-CHNG-TIME  SERVICE-NAME PHONE   GROUP      OPTS TYPE
```

```
13.0     24 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.1     25 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.2     26 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.3     27 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.4     28 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.5     29 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.6     30 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.7     31 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB


13.8     32 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.9     33 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.10    34 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.11    35 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.12    36 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.13    37 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.14    38 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.15    39 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.16    40 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.17    41 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.18    42 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.19    43 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.20    44 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.21    45 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.22    46 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRIB
13.23    47 Manoos   Jun 05 12:23:11  *DNIS_SVC     -        2        talk PRID


SPAN  1   PROTOCOL: PRI    DCH_GRP:  2                    DCHAN: yes
```

SPANSTATE: Manoos

CD.PRT	CHAN	STATE	STATE-CHNG-TIME	SERVICE-NAME	PHONE	GROUP	OPTS	TYPE
13.24	48	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.25	49	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.26	50	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.27	51	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.28	52	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.29	53	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.30	54	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.31	55	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.32	56	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.33	57	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.34	58	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.35	59	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.36	60	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.37	61	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.38	62	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.39	63	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.40	64	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.41	65	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.42	66	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.43	67	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.44	68	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.45	69	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.46	70	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRIB
13.47	71	Manoos	Jun 05 12:23:11	*DNIS_SVC	-	2	talk	PRID

```
SPAN  2   PROTOCOL: UAS
          SPANSTATE: Manoos

CD.PRT CHAN STATE   STATE-CHNG-TIME  SERVICE-NAME PHONE   GROUP   OPTS TYPE

13.48    72 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.49    73 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.50    74 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.51    75 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.52    76 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.53    77 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.54    78 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.55    79 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.56    80 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.57    81 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.58    82 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.59    83 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.60    84 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.61    85 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.62    86 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.63    87 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.64    88 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.65    89 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.66    90 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.67    91 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.68    92 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.69    93 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.70    94 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
```

```
13.71    95 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS

SPAN  3   PROTOCOL: UAS
          SPANSTATE: Manoos
CD.PRT CHAN STATE   STATE-CHNG-TIME  SERVICE-NAME PHONE   GROUP   OPTS TYPE
13.72    96 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.73    97 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.74    98 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.75    99 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.76   100 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.77   101 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.78   102 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.79   103 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.80   104 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.81   105 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.82   106 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.83   107 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.84   108 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.85   109 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.86   110 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.87   111 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.88   112 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.89   113 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.90   114 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.91   115 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
13.92   116 Manoos  Jun 05 12:23:11  *DNIS_SVC    -       2       talk UAS
```

```
13.93   117 Manoos  Jun 05 12:23:11  *DNIS_SVC     -        2        talk UAS
13.94   118 Manoos  Jun 05 12:23:11  *DNIS_SVC     -        2        talk UAS
13.95   119 Manoos  Jun 05 12:23:11  *DNIS_SVC     -        2        talk UAS
```

display channel

The **display channel** command displays channel information.

Synopsis

disp[lay] channel *option [option]*

disp chan *option [option]*

Description

The **display channel** command is used to list information at the channel level. The **display channel** command options are:

- **number** — Displays information on the channel specified by channel number. A range of channels may be specified in the form m–n.
- **all** — Displays information on all channels.
- **mtc** — Displays all channels being used by the maintenance process.

- **telephone *tel number*** — Displays channels with telephone numbers assigned.
- **manoos** — Displays all channels in the manual out-of-service state.
- **nonex** — Displays all channels in the nonexistent state.
- **broken** — Displays all channels in the broken state.
- **t1** —This options displays all channels assigned on T1 cards.
- **sp** — This options displays all channels assigned to SSP service.
- **netoos** — This options displays all channels assigned to network service.
- **hwoos** — This options displays all channels assigned to hardware service.
- **foos** — This options displays all channels assigned to facility service.

If more than one option is used, the system displays only channels that satisfy all the options given. If an invalid combination of options is given, the system displays an error message.

Examples

The following example displays information for channel 1.

disp channel 1

The following example displays information all channels being used by IRAPI processes.

disp channel irapi

The following example displays information on all channels.

disp channel all

display dnis

The **display dnis** command displays the services assigned to DNIS and ANI numbers.

Synopsis

disp dnis

Description

The **display dnis** command is used to display all the services assigned to DNIS and ANI numbers.

Example

The following example displays information for all the services assigned to DNIS and ANI numbers:

disp dnis

display eqpgrp/group

The **display eqpgrp/group** command displays an equipment group report.

Synopsis

disp eqpgrp ***group number***

disp group ***group number***

Description

The **display eqpgrp** command is used to list all the equipment assigned to the specified equipment group. The *group number* is the number of the equipment group. If the group number is missing, the system displays a syntax message. If you specify "all", the system displays every equipment group.

Examples

The following example lists all the equipment assigned to equipment group 1.

disp eqpgrp 1

The following example lists all the equipment assigned to equipment groups 2 through 20.

disp group 2-20

The following example lists all equipment assigned to all equipment groups.

disp eqpgrp all

See Also

assign card/channel

delete eqpgrp

display equipment

The **display equipment** command displays the following output:

- serial number — displayed for E1/T1, Quad, SSP, LSPS II, and SBC (including CPU, IO, MEML, MEMU, and VGA cards).
- vintage — displayed for E1/T1 and SSP.
- suffix — displayed for E1/T1 and SSP.

display messages

The **display messages** command displays system (error) messages.

Synopsis

display messages
[*priority *<alarms, critical, '*C', major, '**',minor, '*',events, all>] **[-c]**

[start <mm/dd HH:MM:SS>]
[stop <mm/dd HH:MM:SS>]
[card <range,T1,TR,SP,...,all>]
[channel <range,T1,TR,SP,...,all>]
[ID <message ID1,message ID2,all>]
[source <TSM,VROP,SPIP,TRIP,...,all>]
[pattern <regular expression search pattern>]
[number,all]

Description

The **display messages** command displays error and status messages that have been logged by the voice system. Various options are provided so that the display can be limited to specific types of messages. If no arguments are supplied to **display messages**, information is displayed on how to read the messages (the message format) as well as command usage. The messages are written to standard output.

If more messages exist than can be displayed on the screen, you will be prompted with “Press the ENTER key to see more, or enter ‘q’ to quit.” If you do not want to be prompted to press **ENTER** (that is, if you want to display all of the messages at once), use the **-c** option.

The *priority* argument should be used to display messages with specific types of urgencies. Two groups of priorities exist: alarms and events. Alarms are messages that have been reported as *C (critical), ** (major), or * (minor) priorities. Events are all the remaining messages that have no priority, for example, status messages. For example, to display the last 100 alarms, type the following:

display messages priority alarms 100

You can also display specific priorities using the *priority* option. You can specify either the name of the priority or its symbol (for example, **critical** or ***C**) To display all of the critical messages, type the following:

display messages priority critical all

Note: You should use the **priority alarm** argument when alarms are needed, otherwise use the **priority events** argument. The priority argument must be used with this command.

Combinations of priorities can also be displayed by listing each priority separated with a comma. For example, to display the last 100 alarms messages, type the following:

display messages priority ‘*C’,‘’,‘*’ all**

where *C, **, and * must be enclosed in quotes.

Display Message Options

To display only specific types of messages, you may precede the number of messages to be displayed with one or more of the following options:

- ***start***
- ***stop***
- ***card***
- ***channel***
- ***id***
- ***source***
- ***pattern***
- ***number***

If more than one of the options is specified, the system displays only messages that meet all of the specifications.

start

The *start* option allows you to specify a starting time for display of messages. The system displays only messages that were logged on or after the time you specify. The time can be specified by date and/or a time. The word “today” is

equivalent to specifying the current date. Examples of specifying the date are:

- “May 1, 1992”
- “05/01/93”
- “05-01-93”

Examples of specifying the time are:

- hh:mm:ss
- hour=hh
- min=mm
- sec=ss

  where hh is 0 to 23, and mm and ss can be 0 to 59.

DO NOT mix the hh:mm:ss format with the item==xx format. If portions of the time are not specified, the time default is 0 hours, 0 minutes, and 0 seconds.

Also, giving only the time of day indicates the current date. For example, if today is January 15, 2000, the command **display messages start “12/31 09:00”** displays all of the messages that were logged starting at 9 am on December 31, 1999. In order to display messages from a previous year, you *must* specify the year. The entire start date and time must be enclosed in quotes (for example, **display messages start “April 21, 1993 13:00:00”**).

If only the date is specified, the time defaults to the beginning of the day. For example, **display messages start today** displays all of the messages that were logged today (the day in which the command is executed).

stop

The *stop* option allows you to display messages logged up to a specific time. The date and time syntax is the same as that for the *start* option. Therefore, **display messages stop today** displays all messages that were logged before today.

The *start* and *stop* options can be used together to display messages that were logged over a specific period of time. For example, **display messages start "May 1" stop "May 2"** displays all messages logged on May 1 of this year.

If you want the start and stop options to be the same day (for example, May 1), you must specify the hours and minutes for which you want to display messages. Otherwise, the time defaults to 00:00 for both the start and stop options and no messages are displayed.

card

The *card* option allows you to specify messages logged about a specific card or cards. For example, **display messages card 2** displays all messages logged that are associated with card 2. You can display combinations of cards. For example, **display messages card 2,3** displays messages for

cards 2 and 3 and **display messages card 0-2** displays messages for cards 0, 1, and 2.

You can also use the *card* option to display messages logged about a specific type of card. For example, **display messages card t1** displays all messages logged about T1 cards.

channel

The *channel* option works like the *card* option. For example, **display messages channel t1** displays all messages logged about T1 channels, whereas **display messages channel 5** displays all messages logged about channel 5.

Note: The *channel* option requires an argument. Typing **display messages channel 100** attempts to display all messages pertaining to channel 100. If you want to display the last 100 messages pertaining to any channel, type **display messages channel all 100**.

Note that specifying both the *card* option and the *channel* option displays all of the specified card-related messages. However, of the channels that are specified, only those that reside on the specified cards are displayed. For example, **display messages card t1 channel all 100** displays the last 100 messages logged for T1 cards and T1 channels.

id

The *id* option allows you to display specific message ids that have been logged. For example, **display messages id TWIP004** displays all occurrences of that message, **display messages id TWIP004,TWIP009** displays all occurrences of both messages.

source

The *source* option allows you to display messages logged by a particular system process. Table 33 shows some of the standard system processes.

Table 33. Standard System Processes

Process Name	Function	Types of Messages Reported
MTC	System Maintenance Process	Card/Channel status, Diagnostic Results
SPIP	SP Card Interface Process	Speech, TTS, PRI, SR Problems/Status
TSM	Script interpreter/processor	Script Problems
TWIP	T1 Interface Process	T1 Problems/Status
VROP	Speech Database Process	Playback/Coding Database Problems

For example, **display messages source TWIP** displays all messages logged regarding T1 cards and channels.

pattern

The *pattern* option allows you to specify a regular expression as accepted by *logCat* that may appear in any part of a message. (See logCat on page 490 for additional information.) The *pattern* must enclosed in quotes and surrounded by slashes (/). For example, **display messages pattern '/XYZ/'** provides all messages that use the pattern XYZ anywhere in the message.

Note: The *pattern* option is case-sensitive.

number

The *number* option specifies the number of messages you want to display, or you can use the **all** value to display all messages. The command accepts a 3-digit number so you can display up to 999 messages.

Note: Although the *number* option only allows up to 3 digits, you may have more than 999 messages logged. Therefore, you can only view up to 999 messages in the message log report with the **display messages** command. The **logCat** command with the **-t** option can be used to display all logged messages. See the **logCat** command later in this book for more information.

Display Format

All messages are displayed with two or three lines of information. Messages are separated by a blank line to ease viewing. Table 34 on page 404 lists the

system message formats along with definitions and examples. Each message displayed conforms to the following format:

```
PR DAY MON DD HH:MM:SS ZZZ YYYY   SOURCE
     TTTTTTTT YY UU NUM TEXT...
     TEXT (continuation if necessary.)
blank line
```

Table 34. System Message Formats

Field	Definition	Examples
PR	Priority	*C (Critical), ** (Major), * (Minor), “”(Event)
DAY	Day	Sun - Sat
MON DD	Date	Jan 1 - Dec 31
HH:MM:SS	Time	00:00:00 - 11:59:59
ZZZ	Time Zone	EST, EDT, CST...
YYYY	Year	1992,...
SOURCE	Source	TSM, TWIP, VROP,...
TTTTTTTT	8 char Msg ID (Tag)	TWIP2104,...

1 of 2

Table 34. System Message Formats

Field	Definition	Examples
YY	FRU Type	TR, T1, SP, or HO or -- if N/A
UU	Unit Type	CA (Card) or CH (Channel) or -- if N/A
NUM	Unit Number	000 to 999 or --- if N/A
TEXT	Message Text	Varies with message (see example); can be more than one line long.

2 of 2

Example

The following example is representative of the output that results from typing **display messages**:

```
                MESSAGE LOG REPORT

Pr  Time           Source
--  ----           ------

** Wed Dec 30 15:55:16 1992TWIP
   TWIP017  T1 CA   0   Facility out of service.
            Reason: Blue alarm
```

```
*  Wed Jan  6 13:38:21 1993TRIP
   TRIP002  TR CA   1   Corrupted data detected on TDM bus.
            Timeslot 254. Reason: TDM Parity Error

*  Wed Jan  6 13:41:52 1993TRIP
   TRIP005  TR CH  24   No loop current.
```

display_permissions

The **display_permissions** command displays the current voice system security permissions for a particular user.

Synopsis

display_permissions *<user login>*

Description

The **display_permissions** command displays the current voice system security permissions for a particular user if any are assigned.

The ***<user login>*** argument represents the user for which permissions are to be displayed.

Example

The following example displays voice system security permissions for a specific user.

display_permissions brown

See Also

unassign_permissions
assign_permissions

display services

The **display services** command lists all valid services or scripts.

Synopsis

display services

disp services

Description

The **display services** command lists all valid services or scripts on a system.

Example

The following example lists all valid services or scripts currently on the system.

disp services

display span

The **display span** command displays information about the spans on a digital network-interface circuit card. E1/T1 (CWB2) circuit cards have one span (0). Quad T1 (CWB10) or Quad E1 (CWB11, CWB12) circuit cards have up to four spans (0, 1, 2, 3).

Synopsis

disp[lay] span *[option [option]]*

Description

The **display span** command displays data about a specified span or spans, or about spans in a specified state. In the output, the physical slot number, the osindex, and the voice system card number are all the same.

The display card command options are:

- ***card#.span#*** — Displays information on span ***span#*** on card ***card#***. All spans are shown if ***span#*** is not given. A range of spans may be specified in the form ***card#.span#–card#.span#***. Two spans may be specified in the form ***card#.span#,card#.span#***.
- **all** — Displays information on all spans.
- **mtc** — Displays all spans being used by the maintenance process.
- **manoos** — Displays all spans in the manual out-of-service state.
- **broken** — Displays all spans in the broken state.
- **ins[erv]** — Displays all spans that have at least one channel in the in-service state.
- **nonex** — Displays all spans in the nonexistent state.
- **broken** — Displays all spans in the broken state.
- **netoos** — Displays all spans that have at least one channel in the network out-of-service state.
- **hwoos** — Displays all spans that have at least one channel in the hardware out-of-service state.
- **foos** — Displays all spans that have at least one channel in the facility out-of-service state.

If more than one option is used, only spans that satisfy all the options given are displayed. If an invalid combination of options is given, the system displays an error message.

Examples

The following example displays span information on card 2 spans 0, 1, and 2.

disp span 2.0-2.2

The following example displays information on all spans.

disp span all

Sample output:

The following example displays information on all spans in the “Mtc” state.

disp span mtc

The following example displays span information on card 13, span 0.

disp span 13.0

Sample output:

```
CARD 13   STATE: Inserv    CLASS: Digital(T1)            O.S.INDEX: 13
           NAME:  CWB10     OPTIONS: primary_master,tdm1
 SPAN  0   PROTOCOL: PRI    DCH_GRP:  1                    DCHAN: yes
           SPANSTATE: Inserv    FUNCTION: code+play
```

```
CD.PRT   CHAN STATE   STATE-CHNG-TIME  SERVICE-NAME PHONE     GROUP    OPTS TYPE
13.0       24 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.1       25 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.2       26 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.3       27 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRIB
13.4       28 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.5       29 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.6       30 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.7       31 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.8       32 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRIB
13.9       33 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.10      34 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.11      35 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.12      36 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.13      37 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRIB
13.14      38 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.15      39 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.16      40 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.17      41 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.18      42 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRIB
13.19      43 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.20      44 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.21      45 Inserv  Jun 06 11:30:16  *DNIS_SVC    -         2        talk PRIB
13.22      46 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRIB
13.23      47 Inserv  Jun 06 11:30:09  *DNIS_SVC    -         2        talk PRID
```

display_tam

The **display_tam** command displays the sensors monitored by the TAM unit, including current value, threshold values, alarm levels, actions, LED status (for when LEDs are blocked from view), and so on.

Synopsis

display_tam

There are no arguments for this command.

Description

The **display_tam** command displays all the values of the sensors monitored by the TAM unit. If necessary, the **display_tam** command sends this output to page.

dspActAlarms

Synopsis

dspActAlarms [**-H**] [**-t** ***cnt***] [**-b** ***cnt***] [**-a** ***startTime***] [**-z** ***endTime***] [**-s** ***/searchPatl***]

Description

Display the active alarms.

Variables include:

- **-H** — suppress header lines prior to the first alarm.
- **-t *lines*** — tail the last "lines" of file.
- **-b *lines*** — show beginning "lines" of file.
- **-a *locant*** — specifies the place to start printing.
- **-z *locant*** — specifies the place to stop printing.
- **-s *locant*** — search for specific patterns or times. There may be more than one specification.

See Also

dspRetAlarms

retireAlarms

dspRetAlarms

Synopsis

dspRetAlarms [**-H**] [**-t** ***cnt***] [**-b** ***cnt***] [**-a** ***startTime***] [**-z** ***endTime***] [**-s** ***/searchPatl***]

Description

Display the retired alarms.

Variables include:

- **-H** — suppress header lines prior to the first alarm.
- **-t** ***lines*** — tail the last "lines" of file.
- **-b** ***lines*** — show beginning "lines" of file.
- **-a** ***locant*** — specifies the place to start printing.
- **-z** ***locant*** — specifies the place to stop printing.
- **-s** ***locant*** — search for specific patterns or times. There may be more than one specification.

See Also

dspActAlarms

retireAlarms

edExplain

The **edExplain** command edits the explanation text for one or more message tags.

Synopsis

edExplain ***{msgID} [...]***

Description

The **edExplain** command edits the explanation text for one or more message tags.

The following are environment variables for the **edExplain** command:

EDITOR

This is the program used to “edit” the explanation text. The default is vi.

EXPLAINDIR

This is the root directory of the explanation texts. The default is **/gendb/data/explain**

VERBOSITY

If set to anything, **edExplain** will run verbosely.

An explanation file is basically a clear text file. Its contents are displayed “as is” to the user when this explanation is requested. If it is a primary explanation procedure (an explanation that the end user will want to reference by name), it should begin with a line of the form:

<< {tag} [{tag}...] >>

This identifies the explanation or procedure and all its alternate names as defined in the translation file **$EXPLAINDIR/translateLst**.

The **translateLst** file should be updated to include the msgID, msg string, and file name, in which the explain text can be found (usually just the msgID name). When exiting the **translateLst** file, enter **:w!** followed by **q**.

Two exceptions exist to the rule that the file contains clear text that will be displayed to the user:

- Any line beginning with a pound sign (#) character is considered to be an internal comment and is not displayed.
- Lines beginning with “.explain” are special directives to include at this point another explanation text in place of this line.

Example

In the following example, the first line is the SCCS identification line and is not displayed to the end user. The second line identifies the explanation. Then the text describing the problem follows.

```
#   %W% %T% %H%
<< TWIP007 TWIP_BDERR >>
.... text of explanation describing what a T1 card error
means...
```

encode

The **encode** command converts ADPCM16 or ADPCM32 files to PCM64 files.

Synopsis

encode [adpcm32/adpcm16]

Description

Encode is a filter that converts PCM64 files to ADPCM16 or ADPCM32 files.

ADPCM16 is easy to code and saves space, but does not provide good quality sound.

Warning

The voice header used by GSE should be stripped (using **stripdhr**) before running encode.

Appropriate code headers must be added (using **addhdr**) before the converted file can be played on the voice system.

See Also

addhdr
codetype
decode
striphdr

erase

The **erase** command deletes a phrase from a UNIX talkfile (SSP only).

Synopsis

erase phrase <*phrase number*> from talkfile <*talkfile number*>

Description

The **erase** command deletes the phrases identified by the phrase ID from the UNIX file. The phrase number many be any of the following:

- A single phrase, for example, **1**
- A set of phrases, for example, **1, 2, 5**

- A range of phrases, for example, **1–5**
- All phrases, for example, **all**

After you enter the **erase** command, the system displays the following message, asking you to confirm the command before each phrase is erased:

```
Do you want to erase phrase <phrase#>? (y/n)
```

If the “all” option is used for phrases, the system prompts you only *once* to confirm the command:

```
Are you sure you want to erase ALL phrases from
talkfile <talkfile#>? (y/n)
```

If the specified phases does not exist, the system displays:

```
Phrase <phrase#> does not exist in talkfile
<talkfile#>
No action taken.
```

When the system has deleted the phrase or phrases, the system prompt is displayed.

Note: The **erase** command removes a phrase from the SPEECHDIR default directory, which is **/home2/vfs/talkfiles**.

Example

The following command erases phrase 174 from talkfile 23.

erase phrase 174 from talkfile 23

The following example erases phrases 218 through 222 and phrase 225 from talkfile 26.

erase phrase 218-222, 225 from talkfile 26

The following example erases all phrases from talkfile 29.

erase phrase all from talkfile 29

See Also

add
copy
list

explain

The **explain** command displays on-line error message explanations.

Synopsis

explain {msgID} [...]

explain -l {pattern} [...]

explain -d {msgID} [...]

Description

The {msgID} is one of the two forms of identification that comes with each online error message. The primary form is ***{CLASS}nnn***, where *{CLASS}* is the class of messages, such as CGEN, TSM, and *nnn* is the index of the message within the class of messages. The second form, which is available with most messages, is the mnemonic form (for example, CGEN_NOMSGQ or CGEN_MSGRCV.

If the explanation of the message fits in 24 lines and only a single explanation is requested, it is printed without interruption. If the explanation is longer than 24 lines or more than one explanation is requested, the output is *paged* via the use of a paging program. Use the **-d** option to disable paging. The default paging program is **/bin/pg**.

If the **-l** option is used, **explain** looks up all messages whose *{msgID}* matches the pattern. For example, **explain -l A V** lists the names of explanations available that begin with either “A” or “V,” while **explain -l VROP** lists all explanation names available that begin with **VROP**. In other words, the *{pattern}* is anchored at the beginning of the *{msgID}* and assumes a match of anything after the pattern selected.

Variables for Advanced Users

The **explain** command is also affected by certain environment variables. These environment variables are intended for advanced users only.

PAGER

The pager program used if the explanation is longer than 24 lines or more than one explanation is requested. The default is **pg**. If you do not want paging even for long explanations, using **-d** or setting **PAGER=cat** will disable paging. A one-line form would be:

PAGER=cat explain {msgID} or **explain -d {msgID}**

EXPLAINDIR

The directory in which the explanation directories are found. The default is **${PRODUCTROOT}/gendb/data/explain**.

PRODUCTROOT

This is the installation directory and defaults to / (root).

VERBOSITY

This is a debugging aid. Setting it to anything causes debugging output to be generated while **explain** performs its job.

The **edExplain** command allows you to add or change explanations. An explanation comes in two parts, a file containing the explanation itself, and a set of synonyms or translations that allow the **explain** command to find the file under more than one tag. To create a new explanation, you must provide

both. When modifying an existing explanation, all you need to do is edit the file containing the explanation.

The explanation file itself is almost a clear text file of what you want the user to see when they ask for the explanation. There are two features of the file that are not plain clear text. All lines beginning with the pound sign (#) character are treated as internal comments and are not output. Also lines of the form **explain {msgID}** have special meaning. They cause the inclusion of the explanation text specified by the *{msgID}*. This allows you to have common explanations and reference from more than one explanation.

The recommended format for an explanation procedure is:

```
# Comment and SCCS keywords

<< {msgID} [{msgID}...] >>
{text of message}
...
```

When creating a new explanation procedure, you will be asked to edit the synonyms list and be placed in the appropriate **translateLst** file. There are instructions at the top of the file. Each noncomment line is a list of synonyms, with the right most word on the line being the name of the file in which the text is located. For example:

```
ADM001ADM_SYSERR
ALERT003AL_INVALID_THRESHOLDAL_INVALID_T
```

The description for ADM001 and ADM_SYSERR are found in a file named **ADM_SYSERR**. The description for ALERT003 and AL_INVALID_THRESHOLD are found in a file named **AL_INVALID_T**. The second example has a truncated file name, because file names are limited to 14 characters in most UNIX systems and if you want to use source code control, then the file name must not be longer than 12 characters. The recommended way to store an explanation is under a file name related to the mnemonic *{msgID}* rather than the {*CLASS}nnn* name, since the later is meaningless. A file name of the form *{CLASS}nnn* does not provide a sophisticated user with much information about the contents of the file, while the mnemonic form does. If the mnemonic is longer than 12 characters, then you should create a shorter name related to the mnemonic that is unique within 12 characters.

The following environment variables affect the behavior of **edExplain**

EDITOR

This is the name of your preferred text editor. The default is vi.

EXPLAINDIR

This is the directory in which the explanation directories are found. The default is **${PRODUCTROOT}/gendb/data/explain**.

PRODUCTROOT

This is the installation directory. The default is /.

VERBOSITY

This is a debugging aid. Setting it to anything cause debugging output to be generated while **edExplain** performs its job.

Files

/gendb/data/explain # directory in which explanation directories are located.

/gendb/data/explain/translateLst # file containing the synonym list of {msgID}s.

See Also

edExplain

findHomes

The **findHomes** command populates your home directory with user files saved as part of an assisted upgrade.

Synopsis

findHomes ***[-?] [-v] [-D <dir>]***

Description

The **findHomes** command provides a convenient way to restore your files from the location where they are saved by the Upgrade Assistance Package

to the home directory for each user defined in the **/etc/passwd** directory**.** *Note that this command only works if users have the same login ID as they had on the preupgrade system.*

For each user, the entire directory structure (including all files) preserved from the user home directory on the pre-upgrade machine is moved to the user home directory on the upgraded system. If a saved file has the same name as a file that already exists in a user's home directory on the upgraded system, the saved version is moved to **o.*<filename>*** in that directory.

Files for any users whose login IDs change from the pre-upgrade system to the upgraded system must be manually moved from their saved location to their new home directory. This manual intervention is also required for any user who did not use his login ID as the name of his home directory on the pre-upgrade system.

The **findHomes** command should be run after the assisted software upgrade is complete and logins for all users expected to move from the pre-upgrade system to the upgraded system are administered on the upgraded system.

The ***[?]*** argument displays a help message.

The ***[-v]*** argument causes a list of saved files to be printed as they are moved.

The ***-D <dir>*** argument specifies an additional directory to be searched for saved user files.

The Upgrade Assistance Package saves user files in **/home/o.<*homedir*>**, where <*homedir*> is the last directory in the full-path-name home directory specified for each user in the **/etc/passwd** file on the preupgraded system. Often, <*homedir*> is the user's login ID. If the file restoration to this directory fails, then the files are restored in a directory with the full path name of the user's home directory on the preupgraded system.

Note: A message is printed indicating any directory for which all the files are not successfully relocated.

Example

The following example causes all files found in **/home/o.<*homedir*>** and **/usr/<*homedir*>** to be moved to the home directory specified for each non-system user specified in the **/etc/passwd** file on the upgraded system:

findHomes -v -D/usr

fixLogFile

The **fixLogFile** command upgrades existing logging files after **lComp** is run so that data continues to be readable by **logCat**.

Synopsis

fixLogFile ***[-d] [-s {save-file}] [-r] [-a] [-S] [-o {spec}] [-n {spec}] file1 [file2...]***

Description

When classes of logging messages are expanded, contracted, inserted, or removed, **fixLogFile** can change the index assignments of messages. When this happens, messages whose indexes changed and were logged under the previous environment become unexpandable by **logCat**. The **fixLogFile** command, given information about the previous assignments and the new assignments, upgrades logged data so that it remains expandable by **logCat**.

Each message is examined. If the class of messages appears in the new environment and still covers the index assigned to the message, a new index is assigned based on where it appears in the new environment. If the class of messages is no longer part of the message logging environment or if a class is reduced in size so that it no longer covers the index of a message, then it is necessary to use one of the following three options:

- ***-d*** — Deletes the message entirely from the logging file.
- ***-r*** — Demaps the message. This entails expanding the message in the old environment and then creating a new logging message using the LOG_REMAP_DISCARD format. The data is still readable in the log files, but is marked as being part of a discarded message environment. This is the default behavior.

- ***-s {save_file}*** — Removes the message from the original logging file and saves it in the specified file, thus preserving the unique data for possible later retrieval.

Normally, **fixLogFile** generates a short message about each file that it converts. The ***-S*** flag suppresses this output.

The **fixLogFile** command requires access to the **old o.systemLog.h** and **o.textLogFmt** files and the new **systemLog.h** file to perform its job. It expects to find these files in **$LOGROOT/formats**. If alternate sources of these files are to be used, the ***-o*** and ***-n*** flags are used. Each of these flags takes a *{spec}* argument, which has the following form:

{dir}[,{systemLog.h}][,{textLogFmt}]]

The default values for these two specifications is:

-o ${LOGROOT}/formats,o.systemLog.h,o.textLogFmt
-n ${LOGROOT}/formats,systemLog.h,textLogFmt

The *{dir}* portion specifies an alternate directory in which the **[o.]systemLog.h** and **[o.]textLogFmt** files are to appear. If the remainder of the *{spec}* is missing, the default file names apply. If specified, the **{systemLog.h}** and **{textLogFmt}** portions specify the names of these two files as they appear in the specified *{dir}*. Any section of the specification that is skipped retains its previous or default value.

A list of one or more logging files may be specified. If they are listed, each one is assumed to be a compressed logging file and is converted. The ***-a***

option automatically converts all of the compressed logging files found in ***${LOGROOT}/data***. No file names can be provided if the ***-a*** option is specified. When the ***-a*** option is used, each regular file found in ***${LOGROOT}/data*** is examined to see if it is a compressed logging file. If it is not, it is ignored. If it is, it is converted.

After the files are converted, the time stamps are reapplied so they have the same date after conversion as they did before the conversion.

Caveats

The **fixLogFile** *command* only takes care of changes in classes of logging messages. For example, if the class PERM was added, removed, or moved, **fixLogFile** could correctly deal with the changes to the logging files. The **fixLogFile** command does not deal with reorganizations or changes of messages within a class. Do *not* change the order of appearance messages or the arguments to a logging message if you expect to be able to expand the data in the future or save the previous **textLogFmt** file for the expansions.

If the conversion takes place while the **logdaemon** process is running, be sure to either stop and restart **logdaemon** or reinitialize it using the **reinitLog** command.

See Also

logCat
logdaemon

iCk, iCkAdmin

The **iCk** process is the daemon process that performs various integrity checks on the system based on rules in a script file.

The **iCkAdmin** command is a related administration command.

Synopsis

iCk [-v NNN] [{envName}={value}] [{rule-file}]

iCk -c [-i | -f {file} | cmd...]

iCkCmd [-i | -f {file} | cmd...]

iCkAdmin [-c] [-a {on|off}] [s {entryType [:{ID}]}]
[-e {entryType [:{ID}]} [iCk.rules-file]

Description

The **iCk** *process* performs various jobs that fall into the category of “integrity” checks. It is driven by an ASCII file containing rules describing the checks desired to be performed. Its primary job is to run as a daemon process, started by **init**, and to perform the specified jobs at the intervals specified by the rules. Its secondary job is to serve as a command interface to a human user and convey commands to the **iCk** process which is running as a daemon process.

As a daemon process, **iCk** accepts one flag, the **-v** flag, which initializes the internal verbosity flags according to the value *NNN* provided. This value can be in decimal, hexidecimal, or octal. None of the symbolic flag names apply in this mode. Table 35 describes the bit meanings.

Table 35. Verbosity Flag Values

Bit	Name	Description
0x0001	V_RESCANBB	Log messages whenever the Bulletin Board is rescanned
0x0002	V_TIMINGMSG	Log messages when timing messages are sent
0x0004	V_HUNGPROCESS	Log messages when hung process checking is performed
0x0008	V_AUTOREBOOT	Log messages when autoreboot processing is performed
0x0010	V_FILEMAX	Log messages when maximum file checks are performed
0x0020	V_FILECHECK	Log messages when file ownership/modes are checked
0x0040	V_PIPECMDS	Log messages when pipe commands are received
0x0080	V_TRACE	Log messages about all major routines in **iCk**
0x0100	V_SERVICE	Log messages whenever a service is queued or performed

Environment Variables

The **iCk** *command* also accepts environment variables from the command line of the form:

{variable-name}={value}

These can be used to set the following environment variables that also affect the behavior of the **iCk** command:

VERBOSITY

This is an alternative way to set the internal verbosity flags. The meanings of the bits are the same as for the value supplied to the **-v** flag.

SHELL

This specifies the name of the shell to be used when executing commands. The default is **/bin/sh**.

UTMP

This specifies where the “utmp” file associated with the system is located. Currently, this value is not used except for debugging purposes.

PATH

This indicates where **iCk** finds executable programs. The default is **/bin:/etc/:/usr/bin:/vs/bin:/vs/bin/util:/vs/bin/tools**.

When running as a daemon process, **iCk** accepts a file name, which is the name of the rules file from which it is supposed to operate. If not specified, the default rules file is **/vs/etc/iCk.rules**.

When **iCk** is executed with the *-c* flag or by the alternate name **iCkCmd**, is run as the command interface to the **iCk** daemon process.

-i This option specifies that **iCk** to run in interactive mode. This causes it to generate prompts as it requests information from its standard input.
Without the *-i* flag, **iCk** silently accepts input from its standard input. This might be useful if used in a shell script.

-f {file} This value causes **iCk** to read a series of commands from the specified file or device instead of from its standard input.

{cmd}... This field causes **iCk** to use the remaining arguments on the command line as the commands to be sent to the **iCk** daemon process.

See Commands on page 466 for details about commands to which **iCk** will respond.

Administers Rules File

The **iCkAdmin** command administers the **iCk** rules file. It has no direct communication with the **iCk** daemon process. Changes it might make to the rules file do not take effect until the **iCk** daemon process is requested to read the modified rules file.

- **-c**

  This option causes **iCkAdmin** to verbosely check out the rules file and report complaints.

- **a {on|off}**

  This option causes the rules file to be read, the **autoReboot** entry set the specified state, and written back out again.

- **-s {entryType[:{ID}]}**

  This option causes the rules for the specified entries to be shown.

- **-e {entryType[:{ID}]}**

  This option allows interactive editing of the specified entries. *This feature is not yet complete*.

For both the *-s* and *-e* options, the **entryType** is the name of a type of entry minus the dollar sign ($) character, that is, **rescanBB**, **timingMsg**, etc. The optional **{ID}** field means the name of the process for **timingMsg** and **hungProcess** entries and the name of the file for **fileMax** and **fileCheck** entries.

Rules File

Comments begin with the pound sign (#) character and continue to the end of the line. All blank lines are ignored. Activity requests are indicated by keywords, all of which begin with the dollar sign ($) character.

In the descriptions of the activities, the following definitions apply:

- *{process}* — This is the ASCII name of a process appearing in the Bulletin Board, that is, TSM or MTC.

- *{runlevels}* — This is specification of the run levels at which to perform the activity. The syntax is the same as used by *init*, that is, 4 = run level 4, 234 = run levels 2, 3, or 4.
- *{checkPeriod/Time}* — This indicates the activities performed repetitively will have a specification of either how often to perform the activity or at what times of the day or week to perform the activity. One of three forms is used:

  ~ -

  Perform the activity once when the rules are first read and then do not perform it again.

  ~ checkPeriod

  A period of time is specified as the sum of a number of different time elements: [NNd] [NNh] [NNm] [NNs]. For example, 5m means “every 5 minutes,” and 5h 30m means “every five and a half hours.” Each element is a number followed by the type of specifier, d, days, h, hours, m, minutes, s, seconds. The order is irrelevant. 5h 30m is the same as 30m 5h.

  ~ Time

  If it is more important that an activity be performed at a specific time of day or week, then the “time” format should be used. It has the following form: **X {monthday} {weekday} {hour} {min} {sec}**

All five elements are required for the specification to be accepted. Each element can be:

- *

  All items in class (days of the month, hours in the day, and so on.).

- N

  The specific item

- N-M

  The items between N and M inclusive

- N,M

  The individual items N and M in the class

The items within each class are:

- *{monthday}* — 1-31
- *{weekday}* — ASCII day of the week (sun, mon,...)
- *{hour}* — 0-23
- *{min}* — 0-59
- *{sec}* — 0-59

For example: "* * * **0 0**" means perform each hour on the hour. "**13 fri 12 0 0**" means perform the activity at noon on any Friday the 13th.

- *{cmd}* — This specific command is executed if the activity so dictates. Within the command itself, there are four meta-words that can be used to generate flexible commands. Not all four meta-words have meaning in all cases.

  ~ *%f*

  The full file name

  ~ *%d*

  The directory portion of the file name

  ~ *%b*

  The base name of the file name

  ~ *%p*

  The process identification (PID) of the process

Activities

- **$timingMsg *{process} {runlevels} {checkPeriod/Time}***

  This activity causes a timing message to be sent to a specified process at regular intervals whenever the system is at one of a specified run levels. Currently, the TSM and the VROP processes expect to receive timing messages once every 2 seconds.

- **$hungProcess *{process} {runlevels} {checkdPeriod/Time} {timeout{fill|report|exec cmd}}***

  This activity causes a specific process, whose name appears in the Bulletin Board, to be evaluated to see if it is hung in regard to reading its messages. Processing only takes place when the system is at one of the specified run levels. *{timeout}* is the length of time the process can stay in the “working” state before being declared hung. Once a process is determined to be hung, one of three responses are possible:

  ~ kill

  The process is killed by sending it first a **SIGUSR1** signal, followed by a **SIGKILL** signal if it does not voluntarily exit.

  ~ report

  A message is logged to the effect that the process is hung. No other action is taken.

  ~ exec

  The specified command is executed. The %p meta-word has the value of the PID of the process associated with the rule.

- **$autoReboot *{off/on} {u-reboots} {ubPeriod} {runlevels} {setPeriod}***

  This activity controls the feature that automatically sets the UNIX kernel autoreboot flag. If the entry is marked “off,” then the autoreboot flag is not automatically turned on. It can still be manually set with an **iCk** command. If the entry is marked “on,” then the automatic setting is enabled. The remaining parameters control when the flag is set. The algorithm that controls the setting of the flag is as follows:

  ~ The number of unanticipated reboots of the kernel is determined by examining the **/etc/wtmp** file (the history file of **init** actions) for “change of run level” entries and “boot time” entries. Any entry falling within the {*ubPeriod}* of time prior to the most recent system boot time are considered. If a “boot time” entry is preceded by a “change of run level” to levels 0, 5, or 6, the boot is considered anticipated, since someone deliberately entered the command to reboot the system. If a “boot time” entry is not preceded by such a “change of run level” entry, then the reboot is considered unanticipated. This includes power failures, reset button pushes, and panics of the UNIX kernel.

  ~ If the number of unanticipated reboots is less than *{u-reboots}*, the autoreboot flag is set *{setPeriod}* to an amount of time after the system comes up to one of the run levels specified by *{runlevels}*.

  ~ If the number of unanticipated reboots is greater than or equal to *{u-reboots}*, setting of the autoreboot flag is inhibited and is not set until the system has been up at one of the run levels specified by *{runlevels}* for a *{ubPeriod}* of time.

For example, typing **$autoReboot on 5 60m 4 5m**, which is the standard default setting, specifies that if fewer than five unanticipated reboots occurred in the past 60 minutes, the autoreboot flag is set in the UNIX kernel 5 minutes after reaching run level 4. If five or more unanticipated reboots occurred in the past 60 minutes, then the autoreboot flag is not set until 60 minutes after reaching run level 4.

- **$fileMax {file} {maxSize} {checkPeriod/Time} reduce {minSize}**
  $fileMax {file} {maxSize} {checkPeriod/Time} remove
  $fileMax {file} {maxSize} {checkPeriod/Time} exec {cmd}

  This activity checks one or more files to ensure that they have not grown too large. *{file}* is the name of a file or a pattern specifying a set of files. *{maxSize}* is the maximum size in bytes to which a file must grow to before it triggers a response from **iCk**. A check on the size of the file or files is made as specified by *{checkPeriod/Time}*. One of three responses to a file becoming too large can occur:

  ~ reduce

    The offending file is reduced in size by saving the last *{minSize}* bytes of the file and discarding the rest.

  ~ remove

    The offending file is removed entirely.

  ~ exec

The command specified is executed. In this case the meta-words **%f**, **%d**, and **%b** are defined as the various parts of the file name and can be used in the command.

- **$fileCheck *{file} {runlevels} {checkPeriod/Time} {type} {owner} {groups {modemask} {modes} [cmd]***

  This activity can be used to ensure that a specific file or files exist and have the proper ownership and modes. *{file}* specifies the file or a pattern that selects a set of patterns. *{runlevels}* specify at which run levels the checks are made. *{checkPeriod/Time}* specifies the frequency of checks. *{type}* specifies the type of file. It can take one of seven values:

  ~ - The type does not matter.
  ~ *f* The file is a “regular” file.
  ~ *d* The file is a directory.
  ~ *p* The file is a named pipe.
  ~ *c* The file is a character special device.
  ~ *b* The file is a block special device.
  ~ *l* On SVR5.4 systems, the file is a symbolic link.

  The {owner} variable specifies who owns the file. If this value is -, then who owns the files is not of interest. *{group}* specifies which group owns the file. If this value is -, then which group owns the files is not of interest. *{modeMask}* specifies which bits of the mode are of interest while *{modes}* is the state of the bits desired. For example, if both *{modeMask}*

and *{modes}* were 0444, then the check would be to ensure that the file is readable by anyone, but whether it is writable or executable is not of interest. If on the other hand *{modeMask}* was 0777, while *{modes}* was 0444, then the check would be to ensure that the file is only readable and must not be writable or executable by anyone. If a file fails to pass a $fileCheck test, it is always reported. If the optional *[cmd]* is specified, then this command is executed. The meta-words %f, %d, and %b are set to the various parts of the file name for use in the command.

- **$EOF**

  This special mark indicates the end of the rules. Anything beyond this mark in the rules file is ignored.

Examples of Rules

$fileMax /etc/wtmp 360000 ~* * * 0 0~ reduce 36000

If the file **/etc/wtmp** exceeds 360,000 bytes, reduce it to 36,000 bytes. Check the size of the file on the hour. (The structures in this file are 36 bytes in length and it must be an integral number of structures, hence the chosen sizes.)

$fileCheck /etc/passwd - - f root - 0777 0444

Check only once. The **/etc/passwd** file should be owned by *root* and be read-only to everyone.

$fileCheck /etc/shadow - - f root - 0777 0400
Check only once. The **/etc/shadow** file should be owned by *root* and be read-only to *root*.

$fileMax /tmp/*.lst 10000 - remove
Remove all the files in **/tmp** ending with an extension of *.lst* if they are bigger than 10,000 bytes. Do this only once.

$fileMax /tmp/*.hist 0 - exex ~/bin/mv %f %d/o.%b~
For any nonzero-length files in **/tmp** with an extension of *.hist*, save them as **/tmp/o.*.hist**

Commands

In command mode, **iCk** responds to the following commands. Each command sends a message to the **iCk** daemon process except for the first command. All commands can be abbreviated to the shortest unique string. Hence **au** is sufficient to identify the *autoReboot* function and **ac** the **activate** function. For most commands one letter is sufficient.

- **x “ | “ exit “ | “ ^D**

  This command exits from the interactive command mode. This does not affect the **iCk** daemon process.

- **bootCnts [period]**

  This command computes the UNIX reboot information from the **/etc/wtmp** file. If *period* is supplied, this length of time is used. If it is not supplied,

then the window period of time for the **$autoReboot** rule is used. This command generates three numbers: the total number of reboots in the specified period of time *prior to* and including the current boot of the system, the number that were anticipated (or deliberate), and the number of unanticipated reboots. This request does not communicate with the **iCk** daemon process.

- **autoReboot {set|clear}**

  This command forces the kernel autoreboot flag into the specified state.

- **readRules [rule-file]**

  This command rereads the rules file. If a new file name is provided, then it is read instead of the previous file. Before using this command, the new rules should be checked with the **iCkAdmin** command to insure syntactic correctness.

- **wakeup**

  This command makes the **iCk** daemon wake up immediately and check its state.

- **rescanBB**

  This command makes the **iCk** daemon wake up and reexamine the Bulletin Board for new instances of known process types.

- **quit**

  This command causes the **iCk** daemon to exit gracefully. (Since **iCk** is normally run from the **/etc/inittab** file, **init** immediately respawns the daemon.) In interactive mode, the command requires confirmation.

- **verbosity *{value}***

  This command sets the **iCk** daemon's verbosity flags to the specified values. In this case, the symbolic names are accepted as well as octal, decimal, or hexidecimal values. Combined values can be produced by separating values with the pipe (|) character.

- **activate *{spec}***

  This object, in conjunction with the V_TRACE flag, causes the activities specified by *{spec}* to be logged whenever they execute.

- **inhibit *{spec}***

  This object, in conjunction with the V_TRACE flag, causes the activities specified by *{spec}* not to be logged whenever they execute.

- **print *{spec}***

  This object logs the status of the activities specified by *{spec}*. The status information logged as a result of the **print** command varies based on the activity. The common information printed is the activity index, which may be used in future *{spec}* 's, the rule index, which should correspond to the position of the rule in the rules file, and the type of the activity. In addition,

there is the *a_clockID*, which is nonzero if an alarm is running for the current activity and the **a_nextAlarm**, which indicates at what time the next alarm is set to expire. At the end of the entry is the **a_flags**, 0, meaning no flags are set, AF_SUPPRESS_TIMING, meaning that timing is deliberately suppressed for the time being, AF_CHECK_NEW_RUNLEVEL, meaning that when the run levels change, this activity is checked to see if it should reactivate, and AF_DEBUG_OFF, which is set for any activity that has been inhibited by the **inhibit** command. There is also the **a_state**, which indicates the current state of the activity. Its values are:

- AS_INACTIVE — This value is currently not being processed.
- AS_TIMER_RUNNING — There is currently an alarm outstanding for this activity.
- AS_SERVICE_QUEUED — An alarm has expired for this activity, but has not yet been processed.
- AS_IN_PROGRESS — An activity is currently being processed.

The above-mentioned commands, **activate**, **inhibit**, and **print**, require an activities specification. Such a specification is defined from the following list of objects. More than one object can be combined with the pipe (|) character:

- **rescanBB**

  This object is the **$rescanBB** activity.

- **timingMsg**

  This object is all the **$timingMsg** activities.

- **hungProcess**

  This object is all the **$hungProcess** activities.

- **autoReboot**

  This object is the **$autoReboot** activity.

- **fileMax**

  This object is all the **$fileMax** activities.

- **fileCheck**

  This object is all the **$fileCheck** activities.

- **miscellaneous**

  This object applies to the **print** command only. It causes a report of whether the autoreboot flag was automatically set or not, the state of the UNIX kernel autoreboot flag, the current run level, the number of rules read, and the number activities currently in force to be logged.

- **all/ALL**

  This object specifies all activities.

- ***NNN***

  This object, where *NNN* are digits, specifies an explicit activity by its index in the array of all activities.

All remaining information is activity specific. By activity the information logged is:

- **$timingMsg**

  The name of the process, the Bulletin Board slot, and instance.

- **$hungProcess**

  The name of the process, the PID, the Bulletin Board state, work count, time, flag, slot, and instance. The flag can have values of HP_STUCK, meaning that it does not seem to be reading its message queue, HP_SIGUSR1, meaning it has been sent a SIGUSR1 signal to request it to die, and HP_SIGKILL, meaning that it has been killed with the uncatchable SIGKILL signal.

- **$autoReboot**

  The computed unanticipated reboot count at the time the system was last rebooted plus the length of the period over which the computation is made.

- **$fileMax**

  The name of the file.

- **$fileCheck**

  The name of the file.

- **core**

  This command is available for debugging purposes. It causes **iCk** to produce a core file in **/tmp/iCk.core** via a core dump operation is a spawned child process. In other words, **iCk** itself does not stop, but you do get a reliable core of **iCk** for debugging evaluation.

Default File

The **iCk** process responds to default parameters placed in **/vs/etc/default/iCk**. Initially there are two values. These values set specific internal parameters:

- RUNLEVELTIMEOUT

  This parameter specifies how long to wait after changing run levels before accepting the value from **/etc/utmp** without confirmation from **iCkCmd**. The default is 3 minutes.

- RECHECKTIMEOUT

  This parameter specifies how long to wait after changing run levels before rechecking for new processes in the Bulletin Board. The default is 30 seconds.

  Also any environment variables desired can be set in the default file.

Files

/vs/etc/iCk.rules # the default rules file
/tmp/iCkPipe # the named pipe used to speak to iCk
/vs/etc/default/iCk # default parameters

Caveats

The **iCk** process is a daemon process running as “root.” Since the rules support the concept of executing an arbitrary command, the **/vs** and the **/vs/etc** directories need to be protected against tampering and the **iCk.rules** file should only be writable by authorized users.

See Also

logCat

IComp

The **IComp** command combines a series of message files and produces a file of compressed format files and an expansion format file.

Synopsis

IComp ***[-s name] [-c name] [-t name] [-d name] [-m name] <file1> [file2...]***

Description

IComp compiles logging format files. The input files are in the form:

XXX...NNN... message.....%fff[<<SQL spec>>]....
%fff[<<SQL spec>>]....%fff[<<SQL spec>>]...

In other words, the input files contain standard C format statements, with optional SQL field definitions included. Long lines may be broken up with backslash, newline sequences. Such lines are concatenated, discarding the backslash and newline characters, by **IComp** and treated as one long line during compilation.

IComp produces five files: a header file, a compressed format file, an expansion format file, a data dictionary file, and a data dictionary mapping file. The default names are **systemLog.h**, **cmpLogFmt**, **textLogFmt**, **dataDictLog**, and **ddMapLog,** respectively.

-s name	Changes the **systemLog.h** file to ***name***
-c name	Changes the **cmpLogFmt** file to ***name***
-t name	Changes the **textLogFmt** file to ***name***
-d name	Changes the **dataDictLog** file to ***name***
-m name	Changes the **ddMapLog** file to ***name***

The **systemLog.h** file contains a series of defines of the form:

#define _{FILE}_START NN

where *{FILE}* is the all-uppercase form of the input file name. This header file allows applications to refer to errors of a specific class relative to the beginning of the class of errors and so avoid having to edit code as the various classes of errors codes grow or shrink.

The **cmpLogFmt** file contains the compressed formats, which the log subroutine uses to produce compressed logging messages.

The **textLogFmt** file contains two sections. The first section is a series of offsets to each expansion format and its length. The second section contains the expansion formats, which **expandLog** uses to convert a compressed logging file into a human-readable statement.

The **dataDictLog** file contains SQL names for the variable fields in each message. They are of the form:

abs_index <FS>fld-name,type[,length[,precision]]<FS>...<GS>

The *abs_index* is the index number of the message within the universe of all messages compiled by **IComp**. If the optional SQL specification does not appear after the format, **IComp** generates one of the form:

CLASSNNN_M,type[,len[,precision]]

based on the format. CLASS is the all-uppercase name of the file the message came from, NNN is the index of the message within the file, and M is the field within the message, starting at 1.

The **ddMapLog** file contains structures describing where to find each data dictionary entry for each message. It also contains an array with the class names.

See Also

logCat

list

The **list** command lists the directory entries for specific phrases in the UNIX file (SSP only).

Synopsis

list -l *[phrase <phrase list>]* [in] [talkfile *<talkfile list>]*

Description

The **list** command displays the phrases stored in the specified talkfile. The valid arguments for the **list** command are:

- ***<phrase list>*** — Specifies the number (or range) of the phrase or phrases to be listed. To list all phrases in a particular talkfile, enter **all** for *<phrase number>*.

  The following example displays all phrases in talkfile 104:

list phrase all in talkfile 104

- ***<talkfile list>*** — Specifies the number (or range) of the talkfile or talkfiles containing the phrase or phrases to be listed. To list a particular phrase number in all talkfiles, enter **all** for *<talkfile number>*.

  The following example displays phrase 1010 in all talkfiles:

  list phrase 1010 in talkfile all

The listed entries are sorted by talkfile number and phrase. The information printed for each phrase consists of talkfile number, phrase number, phrase size in bytes, phrase size in blocks, the phrase length in seconds, and the speech coding type.

Note: The **list** command lists the directory entries for specific phrases in the SPEECHDIR default directory, which is **/home2/vfs/talkfiles**.

Examples

The following example displays phrase 174 as stored in talkfile 25.

list phrase 174 in talkfile 25

The following example displays phrase 12 as stored in talkfile 1.

list phrase 12 in talkfile 1

The following example displays all phrases stored in all talkfiles:

list phrase all in talkfile all

See Also

add
copy
erase

logCat

The **logCat** command reads the compressed logging files and outputs human readable messages.

Synopsis

logCat ***[-{t|b} lines] [-a locant] [-z locant] [-v] [-c] [-m] [-r root] [-s locant] [-q locant] [-w width] [-p continuation-prefix] [-d data -l log-prefix | file] [-f format] [-V]***

Description

The **logCat** command reads in a file of compressed logging messages generated by **log** and expands them to a readable format.

The default action, with no arguments, is to list all log files of the type specified first in the Config file. For example, **logCat -d${LOGROOT}/data -l{primary-log-prefix}**. The options are as follows:

- ***-t lines*** — Tails the last “lines” of file.

- ***-b lines*** — Shows the beginning “lines” of file.
- ***-v*** — Specifies the verbose mode (that is, report the file names of the files examined).
- ***-c*** — Continuously displays the last lines of file. If the **logdaemon** switches to a new file, follow it.
- ***-m*** — This option is the meticulous time check. Normally, the log file name and the creation date are used to determine the date of the file. If the creation dates have been messed up, the *-m* flag causes the time stamp of the first message in each log file to be used instead of the name and modification date. This is slower but more reliable.
- ***-r root*** — Specifies an alternate root directory for **textLogFmt** file. The default is **/usr/spool/log**. Also, the **data** directory containing the compressed logging data files is expected to be in the root directory if not overridden by the *-d* flag or the LOGDATA environment variable.
- ***-a locant*** — Specifies the place to start printing.
- ***-z locant*** — Specifies the place to stop printing.
- ***-s locant*** — Searches for specific patterns or times.
- ***-q locant*** — Searches for specific patterns or times. This is the same as *-s* if the locant is a time locant. If the locant is a search pattern, the search is applied to the raw compressed log data instead of the expanded log

data. This means that the pattern can only include variable portions of the logged messages. It is much faster than the *-s* option when properly applied.

A locant is one of two things, either a date/time stamp or a search pattern.

Dates can be any of the standard readable formats: mmm dd, yyyy, mm/dd/yy, mm-dd-yy, and so on. The time is hh:mm:ss. It is also possible to specify the separate elements as follows: sec=nn min=nn hour=nn mday=mm mon=nn or mon=mmm year=nn[nn] wday=n or wday=ddd yday=nnn. Portions left out default to this date, 0 hours, 0 minutes, and 0 seconds; that is, giving only the time of day indicates today's date. If the form "item=xxx" is used, all elements not specified default to '*'; hence "wday=Sun" means all messages on any Sunday. Do not mix standard format with the "item=xxx" format. The results are not predictable.

Spaces should be enclosed in quotes, for example, **-a"7/14/87 05:08:30"**. Search patterns are enclosed in forward slash (/) characters, with an optional repetition count following, for example, -z/GEN006/2 means the second message containing GEN006. The repetition count has no meaning with the *-s* or *-q* locants, but does for the *-a* and *-z* locants.

The search capability supports the following meta-search constructs:

^	Beginning of message
$	End of message
*	Any number of unspecified characters

?	A single unspecified character
[xxx]	Any character in the list “xxx”
[!xxx]	Any character not in the list “xxx”
\{chr}	Normal C backslash conventions, \n \t \b \f \r \NNN \\ \/ \[

- ***-w width*** — If lines are to be wrapped, this is the width at which the wrapping should take place. 0 means no wrapping and is the default. The width can also be supplied via the environment variable LOGCOLUMN.
- ***-p continuation-prefix*** — This is the string to be appended to each continuation line. The default is no continuation prefix. The continuation prefix can also be provided via the environment variable LOGCONTPREFIX data.
- ***-d data*** — This option is the name of the directory to find the log files in. The data directory can be provided in the environment variable: LOGDATA. The default is **${LOGROOT}/data**. The *-d* argument takes precedence over the environment variable.
- ***-l log-prefix*** — Prefix of the log files to examine. The default is the first log file in the **Config** file. The log-prefix can also be provided via the environment variable LOGFILEPREFIX file.
- ***file*** — Explicit file to be displayed. If “-”, use standard input. The use of a file name overrides the *-d* and *-l* options.

- ***-f format*** — Format specification for printing messages. The default is **%P %T %N %S:%L\n%M**

  The format specifier uses the following notations:

%P(...)	Priority level format: %d or %s
%T(...)	Time level format: all options supported by “date” command
%N	Name of process specified by the **loginit** call of the process
%S	Source file name
%L	Line number
%M	Message text
%%	The % character
\{chr}	Standard C backslash conventions
...	All other characters are printed as is. The format can be provided via the environment variable LOGFORMAT.

- ***-V*** — This option makes the control characters visible. They are printed as \X if they have a special C notation. Otherwise, they are printed as <*NNN*>, where *NNN* is the octal value.

Environment Variables

Environment variables are checked whenever the related command argument is missing from the command line. If both the command argument and the environment variable are missing, the specified default is used.

LOGROOT

This variable is the directory in which the **textLogFmt** is found, containing the expansion formats. Also, the directory in which the **data** directory is found if LOGDATA is not specified.

LOGDATA

This variable is the directory in which the log data files are found. The default is **${LOGROOT} /data**.

LOGFORMAT

This variable is the format in which to print the log messages. The default is **%P %T %N %S:%L n%M**.

LOGCOLUMN

This variable is the column at which to wrap long expansions. The default is0, meaning do not wrap long messages.

LOGCONTPREFIX

This variable is the string to be prepended to continuation lines when long lines are being wrapped. The default is no prefix.

LOGFILEPREFIX

This variable is the logfile prefix to be examined if no -l argument is specified. If neither a -l argument is specified nor LOGFILEPREFIX set, then the first log destination in the Config file of the type 'L' is used.

See Also

lComp

logDstPri

The **logDstPri** command creates the shared memory containing the dynamic destinations and priorities of logging messages using the **logMsg()** interface.

Synopsis

logDstPri ***[-H {dir}] [-c] [-v] [-d] [-x {cnt}] [rules]***

Description

The **logDstPri** *command* reads an ASCII rules file, described in **msgDst**, and then sets up a shared memory segment using the information in the rules file In this way, any process in the system using the **logMsg ()**, **vlogMsg ()**, or **logSysError ()** library calls can determine the appropriate priority and logging destinations for each message they send.

By default, the rules files are expected to appear in **${LOGROOT}/msgDst.rules**, where *${LOGROOT}* is **/usr/spool/log**. By default, the header files used to translate ASCII names of message indices into numbers are expected to appear in the directory **${LOGROOT}/head**. An alternate directory for the header files can be specified via the *-H* option on the command line. An alternate rules file can be specified as a file name on the command line.

After changing the rules file, it is recommended that the rules be checked before they are put into service. The *-c* flag causes **logDstPri** to read the rules file and report any rules that are misformatted or not understood. The return value from **logDstPri** is the number of errors detected.

To see the error complaints and install the rules all at once, specify the *-v* flag. This causes the verbose complaints to be generated. The *-c* flag implies the *-v* flag.

When **logDstPri** is resetting the values in shared memory, as opposed to creating the shared memory for the first time, it can be requested to delete the old shared memory and create a new segment by specifying the *-d* flag. Do not use the *-d* flag on a running system because any process that is already using the old shared memory continues to use it even after it is “deleted.” This means that two different rules files might be in force at the same time. It may be necessary to specify the *-d* flag if a large number of new messages have been added to the rules file. Currently, **logDstPri** creates the shared memory 200 entries larger than the highest logging message index found in its rule file. This means that as long and the new rules file does not

go beyond 200 entries higher than the current highest entry, everything is okay. The number of extra entries can be altered by specifying the *-x* option.

Files

${LOGROOT}	Default is **/usr/spool/log**
${LOGROOT}/msgDst.rules	The message priority and destination file
${LOGROOT}/head/*.h	Header files used by the logging system

Shared Memory Segment

The shared memory segment is keyed off the inode of the rules file and the define symbol *LDP_KEY*, defined in **log/head/logDstPri.h**. The library routine **ftok({file},LDP_KEY)** is used to generate the shared memory key.

See Also

logCat
logMsg
logDstPri
msgDst

logEvent/logMsg

The **logEvent/logMsg** command allows shell scripts to log a specific message.

Synopsis

logEvent ***[script] [msg] [dst] [pri] [srcFile] [srcLine] <arg1> ...***
logMsg ***[script] [msg] [srcFile] [srcLine] <arg1> ...***

Description

The **logEvent/logMsg** command allows shell procedures to log messages using specific messages. This is opposed to the **logit** command, which generates messages within the logging system, but which always uses SYSMSG as the message format for the messages it generates. The **logEvent** command emulates the logEvent( ) library routine, while the **logMsg** command emulates the logMsg( ) library routine.

The **logEvent** command requires a destination and a priority when it is called. Messages logged via this interface are explicitly logged to the specified destinations and at the specific priority.

The logMsg command does not take a destination mask or a priority. It gets these pieces of information from the logging destination and a priority shared memory maintained by the **logDstPri** command via the **/usr/spool/log/msgDst.rules** file.

Both **logEvent** and **logMsg** require that the proper number of arguments be supplied for the specified message and that numeric arguments in the message format match pure numbers from the argument list. For example:

GEN012 OUT_OF_RANGE %D<<value,D>> is out of range \ for %s<<arg,S>> in %s<<routine,S>>.

This format requires that the first argument be a number, therefore,

logMsg XXX LG_OUT_OF_RANGE -- yes var compute

will fail because “yes” is not a number, while

logMsg XXX LG_OUT_OF RANGE -- 10 var compute

will not fail.

Table 36 defines the command line arguments.

Table 36. Argument Descriptions for logEvent/logMsg

Argument	Description
script	Name of the shell script for which the message is being logged. Normally, this is either **basename$0** or in ksh **${##*/}**
msg	The symbolic name of the message, for example, **LG_OUT_OF_RANGE**

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Table 36. Argument Descriptions for logEvent/logMsg

Argument	Description
dst	This is only used with the **logEvent** command. It is the bit mask specification of where the message will be sent. It can be a number or symbolic destinations, as specified in *msgDst.rules*. If more than one symbolic destination is specified, they should be concatenated with a plus sign (**+**), for example, **stderr+log**
pri	The priority of the message. This is only used with the **logEvent** command. It may be any of the following: **0**, **-** or **NONE**, **1**, **M** or **MANUAL, 2, *** or **MINOR, 3, **** or **MAJOR, 4, *C** or **CRITICAL**
srcFile	The name of the file from which the **logEvent** or **logMsg** command is being issued. If you do not care, you can use "**-**." Supplying the correct value is useful for debugging purposes, particularly if a script might generate the same message from more than one place. If there are many individual functions within your script, you might find it advantageous to use the name of the function instead of the file.
srcLine	The line within the file from which the **logEvent** or **logMsg** command is being issued. If you do not care, you can use "**-**." You might use **$LINENO** from the ksh environment, which is the line with the script or within a function.

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Table 36. Argument Descriptions for logEvent/logMsg

Argument	Description
arg1	For each argument required by a specific message format, one and only one argument is required. Neither too many or not enough is acceptable. Also, the size and type of the argument must be appropriate: **%s** (takes any kind of argument) **%d %u %o %x %X** (argument must be a pure integer type number, for example, -**10**, **5**, **0177**, **0x8e**) **%f %e %g %E %G** (argument will be interpreted as a pure floating point number, for example, **15**, **15.3**, **1.56E3**) **%c** (argument must be a single character, for example, **x**, **5**, **%**)

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See Also

logCat
logit
logDstPri
log

logFmt

The **logFmt** command displays and changes the parameters used to display messages and explanation texts, specifically the messages mnemonics and screen width.

Synopsis

logFmt ***[global] {display|interactive|{opt}={value}}***

Description

Each logging message has a class name and a mnemonic name associated with it. A class name, for example ICK001, is the combination of the name of the class, for example, ICK, and the index of the message within the class, for example, 001. The mnemonic name is a short composite string of characters that identifies the type of logging message. The mnemonic name for ICK001 is ICK_BAD_CMD. By default, the mnemonic names of messages are not displayed when **display messages** is used to examine the logging files. If you want the mnemonic message names to appear, then **logFmt** allows you to alter the system so that they either appear for everyone by default or appear for you specifically.

You can also adjust the width of the screen display. By default the screen width is set to 75 characters. If you have a wider screen, you might want to specify that more of the screen be used to display messages.

Table 37 defines the **logFmt** command line arguments.

Table 37. Argument Descriptions for logFmt

Argument	Description
global	This modifier causes the action specified to operate on the “global” (system-wide) parameters that control the behavior of **display message**. You must be **root** if you want to change the global parameters. You can examine the global parameters without being **root**.
display	This verb causes **logFmt** to display the current parameters. If *global* is specified, then the system-wide parameters are displayed. Otherwise, your personal parameters are displayed.
defaults	Specifying *defaults* without the *global* option causes your personal preferences about mnemonics and screen width to be removed. You then get the system-wide settings. Specifying *defaults* with the *global* option causes the system-wide settings to be reset so that mnemonics are off and the default screen width is 75 characters.
interactive	This option interactively prompts for the parameters controlled by **logFmt**. Pressing **ENTER** in response to any query causes the current value to be retained. The current value appears within square brackets (**[ ]**).

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Table 37. Argument Descriptions for logFmt

Argument	Description
mnenonics=enable	This option causes mnemonics to be displayed when logging messages are examined with **display messages**.
mnemonics=disable	This option causes mnemonics not to be displayed when logging messages are examined with **display messages**.
width=NN	This option causes the screen width to be set to *NN*, where *NN* is between 40 and 199 columns. The default setting is 75. Do not attempt to set the screen width to a value wider than your screen can actually handle or the display will be unpleasant when using **display messages**.

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When mnemonics are enabled, they also show up when **explain** is used to examine the description of a message. Whether mnemonics are enabled or not, the mnemonic name can always be used to select an explanation using **explain**.

Files

/vs/data/logFmtParms # Global parameters file
${HOME}/.logFmtParms # User's parameter file
/usr/spool/log/textLogFmt #Current default expansion format file

/usr/spool/log/textLogFmt.Mne # Expansion file with mnemonics
/usr/spool/log/textLogFmt.NoM # Expansion file without mnemonics

Examples

The following example enables the mnemonics. This affects only you and overrides the system-wide setting.

logFmt mnemonics=enable

The following example sets the system-wide default so that mnemonics are not displayed. Any user who wants to see mnemonics has to personally enable them. You need to be *root* to execute this command.

logFmt global mnemonics=disable

The following example displays the system-wide settings for mnemonics and screen width.

logFmt global display

The following example sets your personal screen width to 130 characters when displaying messages using **display messages.**

logFmt width=130

mkAlerter

The **mkAlerter** command reads an alerter description and generates C or C++ code that implements the description.

Synopsis

mkAlerter ***[-M] [-o {executable}] [-p {templ-path}] [-t [-f]] [-q] [-v] [-l] [X=Y...] [{alerterfile}.A...]***

Description

The **mkAlerter** command is a program that reads an alerter description and translates it, with the help of code template files, into compilable C or C++ code. It also produces a make file for compiling the code. Alerter description files always have a ".A" extension. By default, **mkAlerter** produces a single source file, with an extension of ".c". It also produces a header file (extension ".h") and a make file (extension ".mk"). If the make file already exists, **mkAlerter** does not overwrite the existing file. This allows you to modify the make file as desired without fear of it being destroyed the next time **mkAlerter** is used, but does take advantage of the knowledge contained in the make file template used by **mkAlerter** when it does create a make file. The source file and the header are *always* overwritten each time **mkAlerter** is run. No modifications should ever be made to these intermediate source files, since the changes are lost the next time **mkAlerter** is run. If the *-M* flag is specified at execution time, **mkAlerter** splits the source file produced into two

pieces, one containing *main ()* and the other containing everything else. The source file containing *main ()* ends in "*Main.c*" with truncation as necessary. Once produced, this file, like the make file, is be overwritten. If you want to produce your own initialization, you can use the *-M* option and then make your changes to the "**Main.c*" file.

Normally, the make file specifies that the executable to be produced by this alerter description is the same as the name of the alerter description minus the "*.A"* extension. The *-o* option allows you to specify an alternate executable name. This is used when the make file is generated.

The code template files are normally expected to exist either in the current directory or in **/usr/lib/alerter**. If the templates are not found in either of these places, **mkAlerter** uses its own internal copies, but also reports the fact. If the templates exist elsewhere, an alternate path can be specified with the *-p* option. Each directory that should be searched is separated by a colon (:), the same as a normal UNIX description.

To get the initial template files, the user can specify the *-t* option. This causes **mkAlerter** to create each of the required template files using its internal copies. At this point each site may, if desired, alter these templates to produce alerter code appropriate for its needs. By itself the *-t* flag does overwrite existing template files. The *-f* flag causes the new templates to overwrite existing ones.

The following is a current list of template files and their contents:

AlertInc.t	Description of include files.
AlertCopyR.t	Copyright notice.
AlertHead.t	Template of the header file.
AlertMain.t	Description of main () function.
Alerter.t	Primary template describing the alerter program.
AlertTest.t	Description of the code to respond to timeouts for alerting.
AlertMsg.t	Template describing a subroutine to process messages for a particular logging destination.
AlertDir.t	Template describing the subroutine to handle logging messages sent directly to the alerter process.
AlertMk.t	Template for the makefile.
AlertObj.t	Template for each *.o file in the makefile.

The *-q* option is not currently implemented. It is meant to check the templates for completeness. The *-v* flag increases the verbosity of **mkAlerter** while it performs some of its activities.

Normally **mkAlerter** produces *#line* directives, which are used by the C compiler to report where errors are detected during compilation. While these are good during the compiling phase, they mislead most debuggers and make debugging difficult. The *-l* option suppresses the *#line* directives and is recommended when the debugging phase includes the use of a process debugger, such as **sdb** or **pi**.

It is also possible to specify variable assignments that appears in the make file via the X=Y syntax. Of particular interest is CC=CC, which also causes **mkAlerter** to generate C++ code rather than C code.

See Also

readAlerterDesc

mkheader

The **mkheader** command allocates user memory for script variables.

Synopsis

mkheader <*application name*>

Description

The **mkheader** program creates an address in user memory for each script variable. This information is stored in an ***application-name def.h*** header file and is used in naming both the output file and the allocation program. The joint usage of the same header file enables the script to interact with the transaction state machine (TSM). The *-e* option specifies exact string matches.

The **mkheader** program prompts an operator to enter three types of information at the system console. The information may be entered interactively or batched together in a single file. Interactive entries are ended by entering **CONTROL + D**. The system prompts for:

- Variable names
- Header file names in order of dependency
- Structure names with header file locations

When **mkheader** is entered with an argument (limited to 7 characters) for *application-name*, an ***application-name def.h*** header file is created for the output information. The **mkheader** program then prompts for three types of information which it uses in producing the output file.

- It prompts the operator for the name of one of the variables char, int, or short. Char is the only variable that requires a length (default = 1).

  It then allocates space for the variables at the beginning of the allowable user memory and places this information in the newly created header file.

- It prompts the operator to enter header files that are needed to make the files covered in the third section compile. They should be named in the order of dependence. For example, if information in the header file **b.h** is needed by the header file **a.h**, header file **b.h** must be entered first and then header file **a.h**.

  Full pathnames must be given. The file **mesg.h** and the structure mbhdr are common to all scripts and are entered automatically.

  The header files can be stored in a batch file. The batch file could contain the following header files:

  #include “/att/msgipc/dbcom.h”
  #include “/att/include/shmemtab.h”
  #include “/att/msgipc/tsm stop.h”
  #include “/att/msgipc/cdata.h”

- This last prompt is used for allocating the space for each structure. It prompts the operator to enter each header file name and its structure names. For each header file, the operator enters the word "all" (if all structures are needed) or specific structure names.

  Mkheader recursively allocates memory and produces ***application-name def.h*** defines for structure members which are themselves structures (except for struct mbhdr).

As a shortcut, the input for the three prompts may be stored in another file (data file) and read in each time. For example:

mkheader *application_name* < data file

Once the header files are entered, **mkheader** writes a program called ***application_name*_aloc.c** to allocate the rest of user memory. The resulting source code is automatically compiled, using **mkheader.a** library functions, and then executed. This adds the remaining structure definitions to the ***application_name def.h*** header file. TSM does not allow a script to use more than 50,000 bytes of user memory. Scripts that exceed this limit are not run when data beyond the limit are accessed.

Files

/vs/bin/vs/mkheader
/vs/bin/vrs/mkheader.a

Examples

The following are examples of the prompts and the output for the mkheader program. This example shows a user who needs some space for 20 characters, 2 integers, and a short variable. The user also needs to have space declared for a structure called dowj, which is used by the script. The header file is found in **/att/msgipc/tsmdipappl.h**.

In the example, the structure size of SZDOWJ is 16, which is automatically supplied by **mkheader**.

console input: **mkheader** *<application_name>*

FIRST PROMPT: Type in the variables you need space for according to the following format:

type name [length]

Example 1: int yn
Example 2: char dg 20

(End input with CTRL-D)

Variable?: char dg 20
Variable?: int yn
Variable?: short cid
Variable?: int iom

Variable?: (CTRL-D)

SECOND PROMPT: Please enter any dependency files that the header files in the next section will need in order to compile. Use full path names. (End input with CTRL-D)

File name? /u/factory/file.h
File name? (CTRL-D)

THIRD PROMPT: Enter the header file name and structure names needed to create the def.h file. Use full path names. (End input with CTRL-D)

```
Header file?: /att/msgipc/tsmdipappl.h
Structures or all?: dowj
Header file?: (CTRL-D)

Compiling:    application-name aloc.c
Running:   application-name aloc
Output is called: application-name def.h
```

This is the final *application_namedef.h* file produced by this example.

```
/*****PRE-ALLOCATION OF USER SPACE *****/

#define DG:0
#define YN:20
#define CID:24
#define IOM:26

/***** DOWJ STRUCTURE *****/

#define DOWJ:30
#define RCODE:30
#define TIMEDATE:31
#define CATNUM:42
#define MKTSTAT:43
#define DOWHOUR:44
#define SZDOWJ:16
```

In this second example, the command line includes a data file from which the system gets the information usually entered by the users in response to system prompts.

The data file, called “data” in this example, contains the following information:

```
char name 20
int answer
short reply
^D
/att/include/shmemtab.h
^D
/att/msgipc/cdata.h
Day_pntr cdata
^D
```

The following appears on the screen:

```
Conversant% mkheader test6 < data
```

Type in the variables you need space for according to the following format:

```
type name [length]
```

Example 1: int yn
Example 2: char dg 20

(End input with CTRL-D)

Variable?:
Variable?:
Variable?:
Variable?:

Please enter any dependency files that the header files in the next section will need in order to compile. Use full path names. (End input with CTRL-D)

File name?: File name?:

Enter the header file names and structure names needed to create the def.h file. Use full path names. (End input with CTRL-D)

Header file?: List of structures or all?:Header file?:

Compiling /usr/has/another/test6_aloc.c

Running /usr/has/another/test6_aloc

Output is called /usr/has/another/test6def.h

I am now checking for any duplicate defines that will cause problems.

The following is the contents of the test6def.h file:

```
/******* PRE-ALLOCATION OF USER SPACE *******/

#define NAME:0
#define ANSWER:20
#define REPLY:24
```

```
/******* DAY_PNTR STRUCTURE *******/

#define DAY_PNTR 26
#define FILE_FIRST 26
#define REC_FIRST 28
#define FILE_LAST 30
#define REC_LAST 32
#define SZDAY_PNTR  8

/******* CDATA STRUCTURE *******/

#define CDATA 34
#define SCRIPT 34
#define CHAN 50
#define EQUIP 52
#define STARTTIME 54
#define STOPTIME 58
#define EV0 62
#define EV1 66
#define EV2 70
#define EV3 74
-:
-:
-:
#define EV96446
#define EV97450
#define EV98454
```

```
#define EV99458
#define SZCDATA428
```

Note: Make sure that all variable names are unique without respect to case because lowercase letters are changed to uppercase for the final output.

mkimage

The **mkimage** command performs a backup of the contents of these files: **/mtce**, **/vs**, **/oracle**, **/voice1** (typically the speech file system), **/ tmp**, **/add-on1**, **/add-on2**, **/add-on3**, and **/fax**.

Synopsis

mkimage

Description

The **mkimage** command performs a complete system backup by copying the UNIX files in the **root** and **usr** file systems to cartridge tape.

Note: This command can only be run from the **root** directory.

When specifying the **mkimage** command, the voice system requests that the system be placed into single-user mode. The **mkimage** command aborts if you do not give the system permission. Once in single-user mode, you must

log in again and reexecute the **mkimage** command to continue the **mkimage** process. The **mkimage** unmounts all mountable file systems and then mounts **/usr**, **/var**, **/home**, and **/home2** file systems, which are the only file systems beside the root file system and **/stand** that appear on the root disk in a standard voice system. The system then creates a list of files to archive to tape and prompts you to insert a tape.

CAUTION:
Do not rename the file systems mentioned above as the newly named file system would not be included in the image tape.

Once the image creation has finished, the tape is verified by reading the table of contents from the tape and comparing it with the original list of files used to create the tape. If any errors are found, you see the following message that directs you to check for specific files for further information about the failure:

ERROR:Verification failed. Wait for the light on the tape unit to go off before removing the tape.

Three files have been written to the /tmp directory which show the results of the backup and verification. $DISK_FILES contains a list of all the files which were to be backed up. $TAPE_TOC contains a list of all files which were actually written to the tape. $DIFFOUT contains the difference between these two files.

Analysis of these files may help in understanding the nature of the failure.

Also, be sure you are using the supported cartridge type and that your tape drive is being cleaned regularly. Execute the **-init 6-** command to return to multiuser mode.

The **mkimage** command then returns the voice system to multiuser mode by rebooting. If no errors are found, you are prompted to make a note of the file system partition sizes after the voice system returns to multiuser mode.

Note: You do not get a warning from the voice system before it reboots to return to multiuser mode.

Note: The **mkimage** command can run anywhere from 45 minutes to one or more hours creating the image tape. Several tapes could be required depending on the amount of space used in the root disk file systems.

Note: The complete system image tape should only be used to restore a system root disk that has been severely damaged and needs file-system reconstruction at the lowest level. Use the **backup** and **restore** commands to recover from minor file damage or corruption.

Example

The following example backs up the **root** and **usr** file system to cartridge tape:

```
mkimage
```

newscript

The newscript command updates the changes to all currently assigned scripts.

Synopsis

newscript

Description

The **newscript** command notifies the TSM and CDH processes that an existing script in the **/vs/trans** directory has been changed. After **newscript** is run, TSM reloads all scripts from disk the next time it is run instead of using a copy in the system memory.

Files

/vs/bin/util/newscript

Example

The following example notifies the TSM and CDH processes that an existing application in the directory **/vs/trans** has changed.

newscript

pkgadd

The **pkgadd** command transfers a software package to the voice system.

Synopsis

pkgadd [-n] [-a admin] [-d device] [-r response] [-q] [-l] [-p] [pkginst1 [pkginst2 [. . .]]]

pkgadd -s spool [-d device] [-q] [-l] [-p] [pkginst1 [pkginst2 [. . .]]]

Description

pkgadd transfers the contents of a software package from the distribution medium or directory to the system. Used without the -d option, **pkgadd** looks in the default spool directory for the package (**/var/spool/pkg**). Used with the -s option, it reads the package to a spool directory instead of installing it.

The pkgadd command has the following parameters:

Note: When executed without options, **pkgadd** uses **/var/spool/pkg** (the default spool directory).

When transferring a package to a spool directory, the -r, -n, and -a options cannot be used.

- **-a** — Define an installation administration file, admin, to be used in place of the default administration file. The token none overrides the use of any admin file, and thus forces interaction with the user. Unless a full path name is given, **pkgadd** looks in the **/var/sadm/install/admin** directory for the file.
- **-d** — Install or copy a package from device. Device can be a full path name to a directory or the identifiers for tape, floppy disk, or removable disk (for example, /var/tmp or /floppy/floppyname). It can also be a device alias (for example, /floppy/floppy0).
- **-q** — Install in quiet mode. Only the prompts requesting user input and error messages are displayed on the screen.
- **-l** — Do not send error messages to the standard error output. Log messages to **/var/sadm/install/logs/pkginst.log**.
- **-n** — Installation occurs in noninteractive mode. The default mode is interactive.

Note: The -n option causes the installation to halt if any interaction is needed to complete it.

- **-p** — Do not give the initial prompt to the user to insert the distribution medium. All other prompts will continue normally.
- **pkginst** — Specifies the package to be installed. The format **pkginst.*** can be used to install all instances of a package.
- **-r** — Identify a file or directory that contains output from a previous pkgask session. This file supplies the interaction responses that would be requested by the package in interactive mode. Response must be a full path name.

Note: The **-r** option can be used to indicate a directory name as well as a filename. The directory can contain numerous response files, each sharing the name of the package with which it should be associated. This is used, for example, when adding multiple interactive packages with one invocation of **pkgadd**.

Each package needs a response file. If you create response files with the same name as the package (that is, pkinst1 and pkinst2), then name the directory in which these files reside after the -r.

Examples

The following example installs a package from a floppy diskette. The system prompts you for the name of the package you want to install.

pkgadd -d diskette1

See also

pkginfo
pkgrm

pkginfo

The **pkginfo** command displays software package information.

Synopsis

pkginfo [-q | -x | -l] [-p | -i] [-r] [-a arch] [-v version] [-c category1, [category2 [, ...]]] [pkginst [, pkginst [, ...]]]

pkginfo [-d device] [-q | -x | -l] [-a arch] [-v version]
[-c category1 , [category2 [, ...]]] [pkginst [, pkginst [, ...]]]

Description

pkginfo displays information about software packages that are installed on the system (with the first synopsis), or that reside on a particular device or directory (with the second synopsis).

pkginst designates a package by its instance. An instance can be the package abbreviation or a specific instance (for example, inst.1 or inst.beta). All instances of package can be requested by inst.*.

Without options, **pkginfo** lists the primary category, package instance, and the names of all completely installed and partially installed packages. It displays one line for each package selected.

The parameters for the **pkginfo** command are:

Note: The -p and -i options are meaningless if used in conjunction with the -d option.

The options -q, -x, and -l are mutually exclusive.

- -a — Specify the architecture of the package as arch.
- -c — Display packages that match the category. Categories are defined in the category field of the **pkginfo** file. If more than one category is supplied, the package needs to match only one category in the list. The match is not case specific.
- -d — Define a device on which the software resides. Device can be an absolute directory path name or the identifiers for tape, floppy disk, removable disk, and so forth. The special token spool may be used to indicate the default installation spool directory (**/var/spool/pkg**).
- -i — Display information for fully installed packages only.

- -l — Specify long format, which includes all available information about the designated package or packages.
- -p — Display information for partially installed packages only.
- pkginst — Specify the package instance or list of instances to be installed. The token all may be used to refer to all packages available on the source medium. The format pkginst.* can be used to indicate all instances of a package.
- -q — Do not list any information. Used from a program to check whether or not a package has been installed.
- -r — List the installation base for relocatable packages.
- -v — Specify the version of the package as version. All compatible versions can be requested by preceding the version name with a tilde (~). Multiple white spaces are replaced with a single white space during version comparison.
- -x — Designate an extracted listing of package information. The listing contains the package abbreviation, package name, package architecture (if available) and package version (if available).

See Also

pkgadd
pkgrm

pkgrm

The **pkgrm** command removes a software package from the voice system.

Synopsis

pkgrm [-n] [-a admin] [pkginst1 [pkginst2] ...]

pkgrm -s spool [pkginst]

Description

pkgrm removes a previously installed or partially installed package from the system. A check is made to determine if any other packages depend on the one being removed. If a dependency exists, the action taken is defined in the *admin* file.

The default state for the command is in interactive mode, meaning that the system displays messages during processing to allow the administrator to confirm the actions being taken. Noninteractive mode can be requested with the -n option.

The -s option can be used to specify the directory from which spooled packages are to be removed.

Options

The **pkgrm** command has the following parameters:

- **-n** — Noninteractive mode. If there is a need for interaction, the command exits. Using this option requires that at least one package instance be named when the command is invoked.
- **-a** — Use the installation administration file, *admin*, in place of the default *admin* file.
- **-s** — Removes the specified package or packages from the directory spool.
- **pkginst** — Specifies the package to be removed. The format **pkginst.*** can be used to remove all instances of a package.

See also

pkgadd
pkginfo

raidconf

The **raidconf** command reports the configuration of the RAID subsystem.

Synopsis

raidconf

Description

The **raidconf** command prints the following information to standard out:

- The number, size, and state of all logical system drives
- The number, size, and state of all physical SCSI devices attached to the RAID controller. In this list, target (tgt) 7 is the RAID controller itself.

This command reports a subset of the information reported by the **raidstat -v** command.

Examples

The following information is an example of **raidconf** output:

```
Logical System Drives Installed
ctl dev raid blocksize (blocks)SIZE(MB) state
  0   0    5       512  9216000    4500 ONLINE
  0   1    5       512 35399680   17285 ONLINE

Physical SCSI Devices on RAID Controller
ctl ch tgt lun blksize (blocks)SIZE(MB) devstate devtype
  0  0   0   0     512  8925000    4357   ONLINE 00 : Disk
  0  0   1   0     512  8925000    4357   ONLINE 00 : Disk
  0  0   2   0     512  8925000    4357   ONLINE 00 : Disk
  0  0   3   0     512  8925000    4357   ONLINE 00 : Disk
```

```
0  0   4   0     512  8925000    4357   ONLINE 00 : Disk
0  0   5   0     512  8925000    4357   ONLINE 00 : Disk
0  0   7   0     512        0       0   ONLINE C7 : Host
```

See Also

hasRAID
raidok
raidstat

raidok

The **raidok** command reports the state of the RAID subsystem.

Synopsis

raidok

Description

The **raidok** command prints one of three responses to standard out:

- Normal — This response indicates that the RAID subsystem is in the normal mode with all system drives online.
- Critical — This response indicates that all system drives are in the critical (degraded) mode. A physical drive is in the offline (dead) state.

- Rebuild — This response indicates that all system drives are in the critical mode. The offline physical drive is in the process of being rebuilt. When the rebuild completes, the system will return to normal mode.

See Also

hasRAID
raidconf
raidstat

raidstat

The **raidstat** command reports the status of the entire RAID subsystem to standard out.

Synopsis

raidstat [-v]

Description

The information provided by the **raidstat** command includes the state of the system and physical drives.

When entered without the **-v** option, **raidstat** returns a quick summary of the status of the RAID subsystem.

When entered with the **-v** option, more details on individual logical drives and physical SCSI drives are provided.

- The command output displays the number, size, and state of all logical system drives. The logical drive state can be one of the following:
  - ONLINE
  - CRITICAL (degraded)
- The command output displays the number, size, and state of all physical SCSI devices attached to the RAID controller. The physical drive state can be one of the following:
  - ONLINE
  - OFFLINE
  - REBUILD

When a SCSI drive fails, **raidstat -v** reports all logical system drives as being in the critical state. The failed SCSI drive is reported as being the offline state before it is replaced. After it is replaced and while it is being rebuilt, it is reported as being in the rebuild state.

Note: In the physical device listing, target (tgt) 7 is the RAID controller itself.

Example

The following example shows output when the RAID subsystem is normal:

raidstat

```
The status of the RAID sub-system is normal.

There are 2 logical system drives
All System Drives are on-line

There are 6 Physical Devices
All drives are on-line
```

The following example also shows output when the RAID subsystem is normal, but the **-v** option provides more detail:

raidstat -v

```
The status of the RAID sub-system is normal.

There are 2 logical system drives
All System Drives are on-line

ctl dev raid blocksize (blocks)SIZE(MB) state
 0   0    5       512  9216000    4500 ONLINE
 0   1    5       512 35399680   17285 ONLINE

There are 6 Physical Devices
All drives are on-line

ctl ch tgt lun blksize (blocks)SIZE(MB) devstate devtype
 0  0   0   0     512  8925000    4357   ONLINE 00 : Disk
 0  0   1   0     512  8925000    4357   ONLINE 00 : Disk
 0  0   2   0     512  8925000    4357   ONLINE 00 : Disk
```

```
 0  0   3   0     512  8925000    4357   ONLINE 00 : Disk
 0  0   4   0     512  8925000    4357   ONLINE 00 : Disk
 0  0   5   0     512  8925000    4357   ONLINE 00 : Disk
 0  0   7   0     512        0       0   ONLINE C7 : Host
```

In the following example, the RAID subsystem is in critical (degraded) mode with the failed SCSI drive in the process of being rebuilt:

raidstat -v

```
The status of the RAID sub-system is degraded.

There are 2 logical system drives
All System Drives are critical

ctl dev raid blocksize (blocks)SIZE(MB) state
 0   0    5       512  9216000    4500 CRITICAL
 0   1    5       512 80363520   39240 CRITICAL

There are 6 Physical Devices
At least one physical drive is off-line

ctl ch tgt lun blksize (blocks)SIZE(MB) devstate devtype
 0  0   0   0     512 17916240    8748  REBUILD 00 : Disk

ctl ch tgt lun blksize (blocks)SIZE(MB) devstate  devtype
 0  0   0   0     512 17916240    8748  REBUILD 00 : Disk
 0  0   1   0     512 17916240    8748   ONLINE 00 : Disk
 0  0   2   0     512 17916240    8748   ONLINE 00 : Disk
 0  0   3   0     512 17916240    8748   ONLINE 00 : Disk
 0  0   4   0     512 17916240    8748   ONLINE 00 : Disk
```

```
0  0   5   0     512 17916240    8748   ONLINE 00 : Disk
0  0   7   0     512        0       0   ONLINE C7 : Host
```

See Also

hasRAID
raidconf
raidok

reinitLog

The **reinitlog** command is the control program and is used to inform **logdaemon** that a new config file is to be used.

Synopsis

reinitLog

Description

The **reinitlog** command is used during the procedure of creating a new logger message destination. It sends a message to the **logdaemon** that informs it that a new config file is to be used. The **reinitlog** command causes the **logdaemon** to reread the configuration file and reopen the various logging files.

Files

$LOGROOT/Config	The configuration file which defines destinations.
$LOGROOT/data	The directory in which logging files are created.
$LOGROOT/logpipe	The FIFO which logdaemon reads.

See Also

ckConfig
logCat
logit

remove

The **remove** command places a unit in the manual-out-of-service state.

Synopsis

remove <*unit*> <*number*> <immed> <min_delay> [-i] [-n]

rem <*unit*> <*number*> <immed> <min_delay> [-i] [-n]

Description

The **remove** command is used to remove a unit from service when its temporary state is idle. It changes the permanent state of the unit to manual-out-of-service (MANOOS). It does not remove a unit that has a temporary

state of busy. If a unit must be interrupted immediately or appears to be stuck busy, use the **rem <*unit*> <*number*> <*immed*>** command.

The parameters for the **remove** command are:

- **<*unit*>** — Identifies the unit. The choices are “channel,” “card,” or "span."
- **<*number*>** —Specifies the channel or card number, a range of channel or card numbers in the form *m-n*, or the word **all** for all the channel or card numbers.

  Card numbers are in the form ***card#[.port#]*** where *port#* is a port of *card#*. If *port#* is not given, all ports of the card specified are removed. If no card number or channel number is given, the system displays a syntax message.

  Span numbers are in the form ***card#.span#*** where *span#* is the span number of the card. For an E1/T (CWB2) circuit card, 0 is the only valid number. For a Quad E1 or Quad T1 circuit card, valid numbers are 0, 1, 2, or 3.
- **-n** — Disables prompting from the system whether to wait until a conflict is resolved (see the **-i** option below) or to terminate the request to remove.
- **-i** — Enables secondary command registration. If T1 diagnostics are being run, this option allows the removal of another card. If **-i** is used and another maintenance command is being run (**remove**, **detach**, **attach**, **restore**, **diagnose**), the request to **remove** card is blocked and a

message is printed to the screen. If **-i** is not used and any maintenance command is being run, the request to **remove** card is blocked and a message is printed to the screen.

If the command is permitted to run, a check is made to see if the command is in conflict with another. A command is in conflict if the card or card associated with it:

- Is the T1 card being diagnosed
- Will cause a change in the existing TDM bus master assignment
- Has an interdependency with the T1 card being diagnosed (for example, PRI)

If one of the above conflicts exist and **-n** is not used, the user is asked whether to wait until the conflict is resolved or to terminate the request. If T1 diagnostics are executing online tests and a conflict is detected, the **remove card** command is blocked. If T1 diagnostics are executing off-line tests and a conflict is detected, the user is asked whether to wait until the conflict is resolved or to terminate the request to remove.

- **immed** — Removes a card or channel even if it is in use. Active calls are likely to be dropped when this option is specified. This option is necessary when the card or channel must be removed from service as soon as possible, and you are willing to terminate any active calls. You may also want to use this option to get control of a channel that is hung and not providing useful service.

- **min_delay** — Used to avoid waiting for channels to be granted. This option applies to **remove chan**, **remove card**, and **remove span** requests that are removing network interface channels, for example, T1. This option specifies to minimize the delay in removing channels from service by not waiting for the channel to be granted. This option speeds up execution of the **remove** command, especially when a large number of channels are currently active.

  When using this option, you must display the status of the channels with the **display card** command to determine when they are in the MANOOS state. This option can be used with or without the *immed* option and improves the response time in either case.

CAUTION:
Removing a large number of channels from service with the min_delay option may cause momentary load problems on the switch.

To delete out of the command, press **DELETE**. If this does not stop the command, you may need to press **CONTROL** and backslash simultaneously. If, while running **remove**, you want to abort the command, a message similar to the following may appear:

```
At the user's request, administration of the following
cmd(s) has been interrupted.

CARD NUMBERS: <card numbers>
```

```
To assure proper operation of the identified card(s),
run diagnostics at the earliest opportunity.
```

When **remove** is aborted, you should run diagnostics on all cards being administered to ensure they are returned to a fully functional state.

Example

The following example removes card 0 from service.

rem card 0

The following example removes channels 0 through 2 and channel 4 from service.

rem channel 0-2,4

The following example removes all cards from service.

rem card all

The following example removes span 0 and span 1 of card 3 from service.

rem span 3.0-3.1

See Also

attach
detach
restore

restore

The **restore** command restores a unit to the in-service state.

Synopsis

restore *<unit> <number> [-i] [-n]*

Description

The **restore** command is used to change the permanent state of a unit from manual-out-of-service (MANOOS) to in service (INSERV). The specified unit is placed in the INSERV state unconditionally, unless its current state is not MANOOS.

The parameters for the **restore** command are:

- ***<unit>*** — Identifies the unit. The choices are “channel,” “card,” or "span."
- ***<number>*** — Specifies the channel or card number, a range of channel or card numbers in the form m-n, or the word “all” for all the channel or card numbers.

  Card numbers are in the form ***card#[.port#]*** where *port#* is a port of card#. If *port#* is not given, all ports of the card specified are restored. If no card number or channel number is given, the system displays a syntax message.

Span numbers are in the form ***card#.span#*** where *span#* is the span number of the card. For an E1/T (CWB2) circuit card, 0 is the only valid number. For a Quad E1 or Quad T1 circuit card, valid numbers are 0, 1, 2, or 3.

- ***-n*** — Disables prompting from the system, whether to wait until a conflict has been resolved (see the *-i* option below) or to terminate the request to restore.
- ***-i*** — Enables secondary command registration. If T1 diagnostics are being run, this option allows "restoring" of another card to be performed. If *-i* is used and another maintenance command is being run (**remove**, **detach**, **attach**, **restore**, **diagnose**), the request to **restore** card is blocked and a message is printed to the screen. If *-i* is not used and any maintenance command is being run, the request to **restore** card is blocked and a message is printed to the screen.

  If the command is permitted to run, a check is made to see if the command is in conflict with another. A command is in conflict if the card or card associated with it:

  ~ Is the T1 card being diagnosed
  ~ Will cause a change in the existing TDM bus master assignment
  ~ Has an interdependency with the T1 card being diagnosed (for example, PRI)

If one of the above conflicts exist and *-n* is not used, the user is asked whether to wait until the conflict is resolved or to terminate the request. If T1 diagnostics are executing online tests and a conflict is detected, the **restore** command is blocked. If T1 diagnostics are executing offline tests and a conflict is detected, the user is asked whether to wait until the conflict is resolved or to terminate the request to restore.

To delete out of the command, press **DELETE**. If this does not stop the command, you may need to press **CONTROL** and backslash simultaneously. If, while running restore, you want to abort the command, a message similar to the following may appear:

```
At the user's request, administration of the following
cmd(s) has been interrupted.

CARD NUMBERS: <card numbers>

To assure proper operation of the identified card(s),
run diagnostics at the earliest opportunity.
```

When **restore** is aborted, you should diagnostics on all cards being administered to ensure that they are returned to a fully functional state.

Example

The following example restores card 0 to service.

restore card 0

The following example restores channels 0, 1, and 5 to service.

restore channel 0-1,5

The following example restores all cards to service.

restore card all

The following example restores span 0 and span 1 of card 3 to service.

restore span 3.0-3.1

See Also

attach
detach
remove

retireAlarms

Syntax

retireAlarms [**-t**] [**-u** ***user***] [**-r** ***reason***] [**"*selector*" ... | ALL**]

Description

Variables include:

- **-t** — Add alarm times to the display in interactive mode.
- **-u *user*** — Mark the alarms as retired by *user*. The default is $LOGNAME.
- **-r *reason*** — Reason alarms are being retired.
- ***selector*** — Generally a regular expression identifying the alarms to be retired, though it can also be index numbers.
- **ALL** — Retire all currently active alarms.

Normally, **retireAlarms** operates in an interactive mode. If started with no arguments, it displays the currently active alarms and allows the user to select those to be retired. Selection can be by index number or by use of a matching pattern. To increase the number of alarms that can be displayed on a single screen, the time the alarm happened is not printed unless the -t flag is specified.

The **retireAlarms** command can be used as a line command if both a reason for the retiring is supplied and a selector. A *selector* is either a regular expression or a set of indices in the list which are to be retired.

A set of indices can be individual indices, optionally separated by white space or commas, or ranges of the form "m-n", where "m" is less than "n". For example, **2**,**4-6**,**VP** retires alarms 2, 4, 5, 6, and any one with the string VP in its "key."

See Also

dspActAlarms

dspRetAlarms

rmdb

The **rmdb** command displays the state of the resource manager (RM) and modifies the debug levels.

Synopsis

rmdb ***[-l]*** **[-s] [-u] [-d** ***[<range>]]*** **[-g** ***[<range>]*** **] [-f** ***[<range>]*** **] [-p** ***[<range>]*** **]**
[-C [<range>]] [-T [<range>]] [-P [<range>]] [-i [<interval>]]
[-tL [<levelMask>]] [-tA [<levelMask>]] [-tc <channel>] [-tC <channel>]

Description

The **rmdb** displays the state of the resource manager and modifies the debug levels. The valid syntax for ranges is as follows:

value [-value] [, value] | [value-value]*

Specifying a value an odd number of times indicates that it will be displayed. Specifying a value an even number of times indicates that it will not be

displayed. For example, **7-10,9** will display the items associated with values 7, 8, and 10. The 9 entry is excluded since it was specified two times.

The **rmdb** command accepts the arguments shown in Table 38.

Table 38. Argument Description for rmdb

Variable	Definition
-l	Takes the rmLOCK while sampling data structures. This ensures that the sample is internally consistent. However, if the RM data structures are left in a locked state, this causes the rmdb to block until they are unlocked. (Leaving the rm data structures locked is a system fault). Also, other processes that attempt to use the RM data structures are temporarily blocked until **rmdb** completes its query.
-s	Prints the values of the RM parameters and debug variables.
-u	Prints the function's usage statistics.
-d	Prints device table entries by device number.
-g	Prints out group lists (by index in the group table).
-f	Prints out the function table (by index in the function table).
-c	Prints out the card table (by card number in the card table).
-C	Prints out the channel table (by channel number).

1 of 2

Table 38. Argument Description for rmdb

Variable	Definition
-T	Prints out the channel touchtone queues (by channel number).
-P	Prints out channel profiles (by channel number).
-i	Repeats the display, with a sleep interval of the specified number of seconds between samples.
-U	Releases rmLOCK unconditionally.
-v	Dumps execution profile (visit counts).
-q	Prints message queue table entries (by **q** key).
-m	Prints message headers and contents for message queues indentified with **-q** option.
-S	Prints timeslot table.
-D	Audits dynamic resource structures.

2 of 2

The **-tL <levelMask>** sets the trace level mask. Supported masks are shown in Table 39 on page 517.

Table 39. Rmdb Trace Level Masks

Mask	Value
RM_TL_ERROR	0x1
RM_TL_GENERAL	0x2
RM_TL_ENTEREXIT	0x4

The **-tA <levelMask>** sets the trace area mask. Supported masks are shown in Table 40.

Table 40. Rmdb Trace Area Mask

Mask	Value
RM_TA_TIMER	0x1
RM_TA_RESOURCE	0x2
RM_TA_INPUT	0x4
RM_TA_PROFILE	0x8

1 of 2

Table 40. Rmdb Trace Area Mask

Mask	Value
RM_TA_MTC	0x10
RM_TA_MSG	0x20
RM_TA_INTERNAL	0x40

2 of 2

The **-tc <channel>** sets the trace channel low end.

The **-tC <channel>** sets the trace channel high end.

shmview

The **shmview** command displays the contents of various shared memory segments.

Synopsis

shmview [-h] [-?] [-g] [-t] [-b] [-d] [-D] [-E] [-f] [-m] [-p] [-P] [-k] [-rchans] [-vchans] [-pchans] [-bchans] [- memsize] [-sysmon] [-e [<egrplist>]] [-a [<chanlist>]] [-c [<cardlist>]] [-x [<spanlist>]] [-X [<spanlist>]] [-C [<chanlist>]] [-F <filename>] [-i <interval>]

Description

Valid syntax for ranges is:

value [-value] [,[value] | [value-value]]*

Specifying a value an odd number of times indicates it will be displayed. Specifying a value an even number of times indicates it will not be displayed. For example, **7-10,9** displays the items associated with values 7, 8, and 10. The 9th entry would be excluded since it was specified two times.

The **shmview** command accepts the following arguments:

- **-h** — Displays the help message.
- **-?** — Displays the help message.
- **-g** — Displays the IRAPI Global Parameter Data.
- **-t** — Displays the Trace Control Structure.
- **-b** — Displays the Trace Buffers.
- **-d** — Displays the Device Table Control Structure.
- **-D** — Displays the Application Dispatch DNIS/ANI Active List.
- **-E** — Displays the Event Monitor Table
- **-f** — Displays the Application Dispatch DNIS/ANI Free List.
- **-m** — Displays the Monitor Map Table.

- **-p** — Displays the SWIN Service Provider Table
- **-P** — Displays the TTS Progress structures
- **-k <*file*>** — Displays the values of the voice system shared memory keys in hex. These values can be compared to the third column of 'ipcs -m'
- **-rchans** — Displays the real channels on the system
- **-vchans** — Display the virtual channels on the system
- **-pchans** — Displays the purchased channels on the system
- **-bchans** — Displays the busy channels on the system
- **-memsize** — Displays the amount of memory on the system
- **-sysmon** — Displays the sysmon snapshot data
- **-e [<egrplist>]** — Displays the information for Equipment Groups (by equipment group number).
- **-a [<chanlist>]** — Displays the Application Dispatch Channel Table (by channel number).
- **-c [<cardlist>]** — Displays the Card Table (by card number).
- **-x [<spanlist>]** — Displays valid span entries for cards (by span number).
- **-X[<spanlist>]**—Displays all span entries for cards (by span number).

- **-C [<chanlist>]** — Displays the Channel Table (by channel number).
- **-F <filename>** — Display devtbl entries from a devtbl named <filename>
- **-s [<bufList>]** — Displays the VROP speech buffer headers (by buffer number).
- **-S [<bufList>]** — Displays the VROP speech buffer headers and contents (by buffer number) .
- **-v <filename>** — Displays the VROP speech buffer headers associated with <filename>.
- **-M <ServerList>** — Displays the system servers by server number.
- **-i <interval>** — Repeat the display, with sleep <interval> seconds between samples.

show_sys

The **show_sys** command allows you to retrieve configuration and administration information from customer sites.

Synopsis

/vs/bin/tools/show_sys [-l]

Description

The following information can be retrieved with the **show_sys** command:

- UNIX version machine type
- Installed software
- Memory
- Configuration of hard disks
- Free space in UNIX file system
- Tunable parameter changes
- Free space in swap
- Free space in the speech file system
- Free space in the Oracle database
- Oracle database tables
- Directory files in **/oracle/dbs**
- Cron information for root
- Local and remote database information
- ASP driver (speech card) version
- DNIS information (if T1s are present)

- T1 card information (if T1s are present)
- Device Information
- SAR Snapshot
- Parallel Printer Information
- UUCP information
- Devices file
- Permissions file
- Systems file
- Installed cards
- Parameter file(s) for assigned applications
- Databases used in each application
- CCA report for the previous week
- Call data report for a specific day of the previous week
- Traffic report for a specific day of the previous week

The *-l* option prints details about each of the information that can be retrieved with the **show_sys** command.

Example

show_sys

soft_disc

The **soft_disc** command sends a disconnect to a script on a channel or channels.

Synopsis

soft_disc <*channel*>

soft_disc <*channelStart-channelEnd*>

Description

The **soft_disc** *command* sends a message or messages to TSM requesting that the script running on *<channel>* or the range of channels *<channelStart-channelEnd>* be sent interrupt messages. If no script is running on the channel or if TSM does not own the channel, no action is taken for the channel.

The **soft_disc** *command* waits for a response from TSM. When it exits, TSM has acted on all the requests for all the channels by sending disconnects to the scripts or rejecting the requests. Scripts running on the channel receive the ESOFTDISC event.

Return Values

If the **soft_disc** is successful, a 0 value is returned. If any other value than 0 is returned, the **soft_disc** command completely or partially failed. If **soft_disc** returns a value of 2, then **dip_int** command failed due to temporary condition. In this case, the user should attempt the **dip_int** command again.

Example

The following example requests that TSM send interrupt messages to channel 2.

soft_disc 2

The following example requests that TSM send interrupt messages to channels 1 through 32.

soft_disc 1-32

See Also

dip_int

soft_szr

The **soft_szr** command starts a script on a channel.

Synopsis

soft_szr *<channelStart-channelEnd> <script>*

Description

The **soft_szr** command can be used to start a script on a channel. The **soft_szr** command sends a message to TSM requesting that a script be started on a channel. If the channel is in use, the script is not started. **Soft_szr** waits for a response from TSM. When **soft_szr** exits, TSM has either accepted the request and started the script or rejected the request.

There are two arguments to the **soft_szr** command: *<channel>* and *<script>*. The *<channel>* argument specifies the channel or range of channels on which you want to start the script. The *<script>* argument specifies the script to be started. The script does not have to be in the table of assigned scripts.

The channel number(s) must be valid and the channel(s) must not be busy, and the channel(s) must be in the inserv state. If you specify a channel that is busy, the command fails. If you specify a range of channels and one or more of the channels is busy, the command seizes the idle channels but fails for the busy channels.

Example

The following example starts the script “sodapop” on channels 0 through 4.

soft_szr 0-4 sodapop

The following example starts the script “test1”’ on channel 10.

soft_szr 10 test1

Return Values

If the **soft_szr** is successful, a 0 value is returned. If any value other than 0 is returned, the **soft_szr** command completely or partially failed. If **soft_szr** returns a value of 2, the **soft_szr** command failed due to temporary condition. In this case, the user should attempt the **dip_int** command again.

spadc

The **spadc** command collects data on the signal processing resources.

Synopsis

spadc ***[-m min] [-s sec] [-D dir]***

Description

The **spadc** command executes a program that collects data on the voice system signal processing resource utilization. Data is sampled every *-s* seconds, and average and peak measurements are written to a file called **mm-dd-yyyy** for the day of the month and year on which the command was executed (for example, 09-12-1997). The file is written in the *-D* directory every *-m* minutes.

The spadc command uses the following options:

- ***-m*** — minutes; used to specify how many minutes of data are represented in each output line of the **mm-dd-yyyy** file.
- ***-s*** — seconds; used to specify how many seconds pass between each data collection. Valid entries are from 5 to 60. The default is 60.
- ***-D*** — directory; used to specify the directory for the output. The default is **/var/adm/spa**.

Example

spadc -m 20 -s 10

This command collects the signal processing resource data in 10-second increments for a total of 20 minutes.

See Also

spar

spar

The **spar** command is the signal processing resource reporter.

Synopsis

spar ***[-ablmp] [-t min] [-f file]***

Description

The **spar** command executes a program that reports on the signal processing data activity collected by the **spadc** command.

The **spar** command options determine the report format:

- ***-b*** — board (circuit card)
- ***-a*** — algorithm
- ***-l*** — feature licensing
- ***-m*** — mean (average) data
- ***-p*** — peak data

- ***-t*** — time; used to specify how many minutes of data are summarized in each report line. The value must be 5 to 60, in increments of 5 (for example, 5, 10, or 15, and so on). The default is 20. To ensure valid data, the value for -t should be equal to or greater than the time increment specified for data collection by the **spadc** command.
- ***-f*** — file; used to specify an input data file. If no -f argument is given, the **/var/adm/spa/mm-dd-yyyy** file is used for the current day. If the data file is not in **/var/adm/spa**, you must provide a full pathname to the input data file.

Examples

Note that values of “NA” in a report indicate that data was not available for that period, for example, if **spadc** data collection was not active, or if the system had to be rebooted. A value of zero indicates data collection was activated but no activity occurred.

spar -ap

This command creates a report showing peak percent usage for the entire board and for each of the different algorithms allocated to the board. A partial sample output is shown below.

```
Signal Processing Activity Report(Peak Percent Usage By
Algorithm) 10/20/1997

CARD  5   STATE: Inserv   CLASS: Signal_Processor(SP)
O.S.INDEX:  0
```

NAME: AYC2 OPTIONS: slave,tdm1

FUNCTION: play+code

	brd	wwr	fwr	echo	cca	tts	dpr	play	code	celp	fax
00:20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
00:40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01:00	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.	.
08:20	16	5	0	8	1	2	0	0	0	0	0
08:40	22	13	0	5	3	2	0	0	0	0	0
09:00	32	15	0	9	5	3	0	0	0	0	0
09:20	47	26	0	10	5	6	0	0	0	0	0
09:40	55	33	0	12	4	6	0	0	0	0	0
10:00	57	28	0	9	11	10	0	0	0	0	0
10:20	68	37	0	11	13	8	0	0	0	0	0
10:40	69	42	0	10	9	8	0	0	0	0	0

11:00	71	44	0	11	10	9	0	0	0	0	0
11:20	66	42	0	4	10	11	0	0	0	0	0
11:40	91	58	0	15	8	10	0	0	0	0	0
12:00	80	47	0	12	16	5	0	0	0	0	0
12:20	77	39	0	10	15	13	0	0	0	0	0

Column headings reflect percent usage for the following:

- brd — All algorithms allocated to the board. Note that in a given row, the peak percentage for the board may be slightly different than the sum of the algorithm percentages because the peaks may not have occurred during the same interval. For example, if the **spadc** command collects data at 5-minute intervals, and the **spar** report displays the peak percentages for 20-minute intervals, the peak percentage for the board and for each of the algorithms may have occurred during any of the four different 5-minute **spadc** periods that provide data for the 20-minute **spar** interval.
- wwr — WholeWord recognition
- fwr— FlexWord recognition
- echo — Echo cancellation
- cca — Call Classification Analysis
- tts — Text-to-Speech

- dpr — Dial Pulse Recognition
- play — Play speech
- code — Record speech
- celp — Record speech with CELP algorithm
- fax — FAX

spar -l

This command creates a report showing average percent usage of licenses for each algorithm. A partial sample output is shown below.

```
RTU Report (Average Percent License Utilization Across System)
10/23/1997
```

	tts	dpr	flex	whole	swtts	fax
00:20	0	0	0	0	0	0
00:40	0	0	0	0	0	0
01:00	0	0	0	0	0	0
	.	.	.	.	.	.
	.	.	.	.	.	.

1 of 2

	.	.	.	.	.	.
07:00	23	0	0	0	0	2
07:20	23	0	0	0	0	2
07:40	26	0	0	0	0	3
08:00	12	0	21	0	0	0
08:20	NA	NA	NA	NA	NA	NA
08:40	NA	NA	NA	NA	NA	NA
09:00	31	0	14	0	0	0
09:20	32	0	14	0	0	1
09:40	19	0	15	0	0	0
10:00	18	0	12	0	0	3
10:20	13	0	19	0	0	3
10:40	13	0	22	0	0	3

2 of 2

Column headings reflect percent usage for the following:

- tts — Text-to-Speech
- dpr — Dial Pulse Recognition
- flex — FlexWord recognition

- whole — WholeWord recognition
- swtts — Software Text-to-Speech
- fax — FAX

See Also

spadc

spsav

The **spsav** command backs up speech (SSP only).

Synopsis

spsav -O <file> ***[-v] -t [talkfile <list>] [phrase <list>] [listfile <list>]***

Description

The **spsav** command backs up the specified talkfile number, phrase number, listfile, or phrase and talkfile of the speech. Only speech in the speech file system can be backed up using the **spsav** command.

The parameters for the **spsav** command are as follows:

- **-O *file*** — This parameter specifies the output device. Typically, this is cartridge tape (**/dev/rmt/c0s0**).
- ***-v*** — This parameter is the verbose flag that gives a running commentary of speech being saved.
- ***-t*** — This parameter is the tape flag. This is required for back up to cartridge tape.
- ***[talkfile <list>]*** — This parameter specifies the list of talkfiles to be backed up, specified as a single digit, a range m-n, or the word **all**. If no value is given, the default is **all**.
- ***[phrase <list>]*** — This parameter specifies the list of phrases to be backed up, specified as a single digit, a range m-n, or the word **all**. If no value is given, the default is **all**.
- ***[listfile <list>]*** — This parameter specifies the list of listfiles and associated speech to be backed up, for example, **listfile list.cabnt**.

The **spsav** command invokes an interactive program asking you to insert and remove cartridge tapes periodically. If the *-v* option is used, the system displays information about each step of the back up.

Example

The following example saves listfile “list.cabnt” from cartridge tape:

spsav -O /dev/rmt/c0s0 -v -t listfile list.cabnt

start_vs

The **start_vs** command brings the system up to a fully operational state.

Synopsis

start_vs

Description

The **start_vs** command returns the voice system software to fully operational state. If you use the **stop_vs** command to stop the system, you should use the **start_vs** command to start it again. The **start_vs** also should be used if the system was rebooted or powered down after **stop_vs** was used.

The **start_vs** command checks to see if the user stopped the system with the **stop_vs** command. The **start_vs** command attempts to place all cards into the state that they were in when the **stop_vs** command was issued. You must be logged on to the system console as *root* to use the **start_vs** command.

Since the **/vs/data/spchconfig** file cannot be edited while the voice system processes are running, it is a good idea to check the value of nbufs in the **/vs/data/spchconfig** file before executing the **start_vs** command. The value of nbufs defines the number of speech buffers. For the voice system to operate properly, nbufs must be set to 2.5 times the number of active channels.

Example

The following example starts the voice system software:

```
start_vs
```

See Also

stop_vs

stop_vs

The **stop_vs** command gracefully stops the voice system software.

Synopsis

stop_vs ***[time_out] [-n]***

Description

The **stop_vs** command gracefully stops the voice system software. If the system is receiving calls, **stop_vs** waits for approximately 3 minutes before it unconditionally stops the software. By waiting, the system allows callers to finish their transactions. The **stop_vs** command disables incoming call recognition on all cards to prevent them from being reactivated by an incoming call.

The *time_out* option is the time to wait before the voice system is stopped. The default value for this option is 180 seconds. The *-n* option prompts you with a message that another maintenance command (**restore**, **remove**, **attach**, **detach**, **diagnose**) is being performed. It asks if you want to continue or to terminate the **stop_vs** command. The **stop_vs** command terminates another maintenance command in progress when initiated. The default value for this option is **Yes**.

If you use **stop_vs** to stop the system, you should use **start_vs** to reactivate it. If you use **stop_vs** to stop the software and then reboot the machine, be sure to execute **start_vs** after logging in as *root*. This ensures that the system is returned to the state it was in before it was rebooted.

Example

The following example stops the voice system software:

```
stop_vs
```

See Also

start_vs

striphdr

The **striphdr** command strips voice or code headers from a speech file (SSP only).

Synopsis

striphdr *[voice/code]*

Description

Striphdr is a filter that removes either the voice or code headers from a speech file. Voice headers are required for files being edited by the GSE, and code headers are required for speech that is to be used with the voice system.

See Also

addhdr

sysmon

The **sysmon** command executes a program that monitors incoming telephone lines and the associated cards to see that they are functional.

CAUTION:
Do not execute more than *one* instance of **sysmon** at a time.

Synopsis

sysmon <*page number*>

Description

The **sysmon** command verifies that each incoming telephone line and its associated card are functional. Before initializing the test, locate a touchtone telephone close to the system controller and get a telephone number to be used for dialing into the system. Use the **assign channel** command to assign to a group any channels you want to test. Then, use the **assign service/startup** command to assign a script to the same group.

Once the channels and service are assigned, enter the *sysmon* command followed by the number of pages, or screens, you want to see. Each page displays 120 to 140 channels.

The resulting display shows all channels and their current states. Note that only equipped channels can be in the IDLE or MOOS state, while unequipped channels are followed by dashes (--).

Enter the telephone number for the touchtone telephone. Watch the display on the monitor and note the channels that receive the call. Follow the instructions provided by the voice system. Enter **0000** to end the test.

Example

The following example shows page four of the system monitor display.

sysmon 4

tam_attach

The **tam_attach** command is used to attach the Telecom Alarm module (TAM) after like-for-like replacement of the TAM. After issuing **tam_attach,** communication with the TAM is resumed, and the TAM is reconfigured.

tam_detach

The **tam_detach** command is used to detach the Telecom Alarm module (TAM) in preparation for like-for-like replacement of the TAM. After issuing **tam_detach,** communication with the TAM is stopped.

tas

The **tas** command executes the transaction assembler (tas) program to assemble script instructions.

Synopsis

tas ***[-e] [-I<include_directory> -T<talk_directory> -U<name> -D<name> -D<name_def> -Y<dir> -H] -o<output_file> <application_name>*****.t**

Description

The **tas** command is used to assemble script instructions recorded in an ***application-name*****.t file**. It produces an executable file designated ***application-name*****.T**, which is stored in a table as a list of executable script instructions.

The ***-e*** option requires exact string matches for speech phrases.

The arguments must be in the order given above for the command to work properly. The directory search specified by the arguments are *I* (include file) and *T* (listfile). No space is allowed between the *-I* and *-T* flags and their path names, but space is allowed after the *-e* flag. Note that the *-I* option to **tas** is interpreted by cpp(1).

The remaining arguments are:

- ***-U <name>*** — Remove any initial definition of name, where name is a reserved symbol that is predefined by the particular preprocessor (this option is interpreted by cpp(1)).
- ***-D <name>*** and ***-D <name-def>*** — Define *name* with value *def* as if by a #define. If no *-def* is given, *name* is defined with value 1. The *-D* option has lower precedence than the *-U* option. That is, if the same name is used in both a *-U* option and a *-D* option, the name is undefined regardless of the order of the options (this option is interpreted by cpp(1)).
- ***-Y <dir>*** — Use directory *dir* in place of the standard list of directories when searching for #include files (this option is interpreted by cpp(1)).
- ***-H*** — Print, one per line on standard error, the path names of included files (this option is interpreted by cpp(1)).
- ***-o <output_file>*** — The name of the output file. The default is **out.T**.

Note that the maximum number of literals per script allowed by the **tas** command is 450. If there are more than 450 literals in a script, the system

displays the error message “literal table overflow.” Additional limitations enforced by the **tas** command are (whichever occurs first in a list file):

- 1,000 phrases
- 4,000 words
- 40,000 characters

If more phrases are needed by an application, use multiple list files and tfile instructions within the script.

Note: If your script contains a large number of define statements, **tas** may report messages such as the following during compilation:

```
script.t: 1068: too much defining
```

where *script.t* is the script source file and *1068* is the line in which the define appears. The limit to the number of define statements that a script may have depends on the number of defined macros and their size. If this type of message appears, reduce the number of define statements in your script.

Files

/vs/bin/tas

Examples

tas example.t

The program includes applicable header files and replaces literal definitions with corresponding numbers to produce an assembled version of the script. The assembled code is stored on disk under the label **example.T**. The unassembled instructions are found in the file **/var/applN/trans/example.t**.

tas example.t -I/var/include -T/var/speech

In addition to performing the same functions described for the previous example, tas checks the files in **/var/include** when processing include statements and the file in **/var/speech** when processing T-file statements.

trace

The **trace** command outputs trace messages to standard output, while the system is taking calls, for specified processes and channels.

Note: This information may be useful for debugging applications and dips.

Synopsis

trace ***[name]...[chan <,range>]...[card <card #[.port#>]]...[area [,area...]...]***
[level [,level...]...][date] [tracelog | startlog]...[sleep <sleeptime>]

Description

The **trace** command prints trace messages to the standard output device (stdout) according to specified options. Executing trace also causes trace output to be logged to the trace shared memory buffer or to the trace log.

When trace is specified with *name*, all process-specific trace messages from process *name*, are printed. Process-specific trace messages are printed regardless of which channels that process may own or on which channels they are operating.

When trace is specified with *chan* or *card* options, all channel-specific messages, from any process are printed. The *card* option is applicable only to network interface cards (that is, cards that have channels). The *card* option is a special case of the channel option.

A combination of the *name* variable and *chan* options prints trace messages from both the *name* and *chan* options. The *name* and *chan* options act collectively rather than selectively.

If *area* is specified, only the process or channel messages associated with *area* are printed. The *area* option is, therefore, selective. Areas may be integers ranging from 1 to 32. Areas 1 through 16 are available for user applications. The voice system reserves areas 17 through 32.

Table 41 on page 548 describes the trace area arguments.

Table 41. Trace Area Arguments

Argument	Description
AS (area 17)	Trace advanced service operations such as TTS and speech recognition.
EM (area 18)	Trace event management operations.
IN (area 19)	Trace caller input operations including touchtone and speech recognition.
PM (area 20)	Trace parameter management operations.
RM (area 21)	Trace resource management operations.
SE (area 22)	Trace script execution. This includes trace entries made implicitly by Script Builder applications and through *tas(1)* scripts via the *trace(3TSM)* command.
ST (area 23)	Trace call and application initialization and completion operations.
TS (area 24)	Trace telephony service operations.
VS (area 25)	Trace voice code and play operations.
ER (area 26)	Trace error processing operations.
IL (area 27)	Trace internal library operations.
SI (area 28)	Trace script instructions. Every TSM script instruction displays a trace message.

1 of 2

Table 41. Trace Area Arguments

Argument	Description
AD (area 29)	Trace administration operations.
BM (area 30)	Trace bus management operations.
OT (area 32)	Trace old trace instructions. All old trace messages are placed in this area.
ALL (area 1–32)	Trace all areas.

2 of 2

The default, if ***area*** is omitted, is all areas except SI (area 28). Trace areas may also be specified numerically with lists and ranges. For example, the following is legal:

trace chan 5 area 1-7,10,TS

A *level* argument may also be specified. Levels range from 1 through 32, where level 1 indicates the least amount of detail and level 32 indicates the greatest level of detail. Levels may be specified as a single number, comma-separated list, or ranges. The current internal voice system levels in use (levels 17 through 32) may be identified through mnemonics. A complete list of area and level mnemonics can be displayed by executing the **trace** command with no arguments. The current voice system levels (areas 1 through 32) are defined as shown in Table 42 on page 550.

Table 42. Trace Level Arguments

Argument	Description
U (levels 1–16)	Trace all user levels.
AE (level 17)	Trace internal application error messages.
AG (level 18)	Trace internal application general messages.
AX (level 19)	Trace internal application enter/exit messages.
A (levels 17–19)	Trace all internal application levels.
FE (level 20)	Trace user-callable function error messages.
FG (level 21)	Trace user-callable function general messages.
FX (level 22)	Trace user-callable function enter/exit messages.
F (levels 20–22)	Trace all user-callable function levels.
PE (level 23)	Trace process interface function error messages.
PG (level 24)	Trace process interface function general messages.
PX (level 25)	Trace process interface function enter/exit messages.
P (levels 23–25)	Trace all process interface function levels.
IE (level 26)	Trace error processing operations.

1 of 2

Table 42. Trace Level Arguments

Argument	Description
IG (level 27)	Trace internal library operations.
IX (level 28)	Trace script instructions. Every TSM script instruction displays a trace message.
I (levels 26–28)	Trace script instructions. Every TSM script instruction displays.
RH (level 29)	Trace RM Helper function enter/exit messages.
RE (level 30)	Trace RM Helper function error messages.
RG (level 31)	Trace RM Helper function general messages.
RX (level 32)	Trace RM function enter/exit messages.
R (levels 29–32)	Trace all RM Helper and RM function messages.
S (level 17–32)	Trace all irAPI system levels.
ALL (levels 1–32)	Trace all levels.

2 of 2

The default, if level is omitted, is levels *U*, *A*, *AE*, *FE*, *PE*, *IE*, and *RE*. Trace levels can also be specified numerically with lists and ranges.

If the *tracelog* option is specified, all trace messages are logged to the trace log file and sent to *stdout*. If *startlog* is specified, tracing is done to the trace log but no trace output is sent to *stdout*. The trace log file can be queried for data deposited from prior executions of the **trace** command by using the **display** command with the *tracelog* option.

Trace messages can be printed with or without the date and time when they are generated. If *date* is specified, the date and time are printed with each trace message. The date and time are always printed for messages in the trace log file.

If the *sleep* argument is specified, trace will sleep *sleeptime* milliseconds between reading the trace buffer. The default is 200 milliseconds.

The **trace stop** command clears any active trace settings, ensuring that no trace output is generated to the trace log.

By default, all trace messages are saved in a trace shared memory buffer. The trace buffer is a circular buffer. If trace messages are written to the trace buffer faster than the trace command can read them, eventually the trace buffer overflows and trace messages are lost. When this happens, trace prints the following message, where *XXX* is the number of trace messages lost:

```
TRACE: ***** LOST XXX RECORDS
```

Two ways to minimize the number of trace messages lost:

- Use the **sleep** argument of the trace command to decrease the time that trace sleeps between reading the buffer. The default sleep time is 200 milliseconds.
- Increase the size of the trace buffer by adding or modifying the line **TRACE_BUFFER_SIZE=X** in the **/vs/data/irAPI.rc** file, where **X** is the number of messages that the trace buffer can hold. The default is 256. Increasing the value of **X** should reduce the chance of losing trace messages.

CAUTION:
If you change the size of the trace buffer, you must stop and restart the voice system (**stop_vs** and **start_vs**). Otherwise, you will not be able to run trace.

Examples

The following are examples of valid level lists and ranges:

1,2 Trace levels at 1 and 2

1-4,FE Trace at levels 1, 2, 3, 4, and 20

all Trace at levels 1-32.

Note: Levels are not hierarchically inclusive. That is, level 3 does not imply that tracing at levels 1 and 2 also occurs, which could be achieved by using a range starting from 1. For example, **1-3** for levels 1, 2, and 3.

Note that a user input (touchtone and speech recognition) log can be implemented by the following trace command:

trace chan all area IN level F

Files

/usr/spool/log/data/trace*
/vs/data/irAPI.rc

trarpt

The **trarpt** command generates a call traffic report.

Synopsis

trarpt *<hours> <summarize> <date>*

Description

The **trarpt** command generates a call traffic report. Information in this traffic report includes the number of calls coming in to the system during a specified time period, average holding time, and the percentage of time the channel was occupied for a certain hour. This report is sent to standard out (stdout). Before this can be done, the database system must be up and running, but the voice system does not need to be up.

The parameters for the **trarpt** command are:

- ***<hours>*** — Specifies the hours in which the traffic data was collected. The valid options can be a range between 0 to 23 (with 0 representing midnight and 23 representing 11 p.m.) or “all.”
- ***<summarize>*** — Indicates a traffic report or a traffic summary report to be generated. If the option is “n”, the report provides information on the total traffic volume for each channel in one-hour increments. If the option is “y,” the report is a summary report that provides information on the total traffic volume for each channel for the whole period specified in the *<hours>* parameter.
- ***<date>*** — Specifies the date the data was collected in the system. This parameter can be in the mm/dd/yy or mm/dd/yyyy format.

  If a 2-digit year argument is used, the following rules apply:

  ~ If the year argument is 70 and above, the 20th century is assumed. For example, 5/27/96 is interpreted as May 27, 1996.

  ~ If the year argument is between 00 and 69, the 21st century is assumed. For example, 5/27/06 is interpreted as May 27, 2006.

Example

The following two examples generate a traffic summary report for data collected on date August 24, 1993 between 8 a.m. and 5 p.m. on multiple entries per channel, and are equivalent command statements.

trarpt 8-17 y 08/24/93

trarpt 8-17 y 08/24/1993

The following two examples generate a traffic report for data collected on date August 24, 1993, one entry per channel, and are equivalent command statements.

trarpt all n 08/24/93

trarpt all n 08/24/1993

unassign_permissions

The **unassign_permissions** command removes voice system security permissions for a specific user.

Synopsis

unassign_permissions <*user login*>

Description

The **unassign_permissions** command removes voice system security permissions for a specific user.

The <*user login*> argument represents the user for which voice system permissions are to be removed. The user login will still exist; however, the user will not be able to access the voice system.

Example

The following example executes the command to remove voice system security permissions.

unassign_permissions brown

See Also

display_permissions
assign_permissions

vfyLogMsg

The **vfyLogMsg** command verifies the information associated with a specific logging message format.

Synopsis

lComp <msgnum>

Description

The **vfyLogMsg** command, given a message number or symbolic message name, recomposes the message format from the information stored in the **cmpLogFmt** files generated by **lComp**.

Note: You cannot use the **vfyLogMsg** command to look up a message format for a message class that you have just created, but not yet installed.

The *msgnum* argument can be in any of the following four formats:

- absolute message number

  The absolute message number format would be used if you were examining compressed logging files with an editor, for example, **238**

- symbolic name

  The symbolic name is found in the associated **log{CLASS}.h** header file, for example, **SYSMSG**

- message class/relative index in class pair

- **logGEN(2)** or **GEN.2**

  This last format can be specified in two ways: **logGEN(2)** or **GEN.2** Two forms exist because the log{CLASS}(index) form must be enclosed in quotes when used from the command line because the ‘(‘ and ‘)’ are shell meta-characters, which are difficult to type.

The output of the **vfyLogMsg** command contains up to five different types of information about the message format:

- Interpretations of the message number

  The first block of information contains the three interpretations of the message number.

- Restored message format

  The second block of information includes the restored message format without any of the SQL field names that might have been specified in the original format.

- SQL field name information

  This information is the SQL field name information either as specified in the original format or as generated by lComp for those fields that did not have specifications in the input description. One description line exists for each argument on the machine.

- Current message priority

  The fourth block of information describes the current priority assigned to this message in that shared memory and the destination bit mask. This block of information is available only if the logging destination/priority shared memory exists on the machine.

- Description of each destination bit

The fifth block of information describes each destination bit specified in the destination bit mask, starting with the lowest order bit.

Example

IComp

See Also

logCat
logDstPri

vsdisable

The **vsdisable** command disables the automatic restarting of the voice system.

Synopsis

vsdisable

Description

The **vsdisable** command is used to prevent the voice system from being started when the system is rebooted. Running **vsdisable** allows you to log into the system before the voice system is started. The voice system may be started manually at any time with the **start_vs** command.

Example

vsdisable

See Also

vsenable

vsenable

The **vsenable** command enables the automatic starting of the voice system at system reboot.

Synopsis

vsenable

Description

When the **vsenable** command is run, UNIX system files are modified to allow the voice system to be automatically started when the system is rebooted. By default, the voice system is installed with the automatic startup enabled. If there were any nonfatal problems during installation, the voice system is still installed but it has not been enabled for automatic startup at system reboot. After the installation problems have been cleared, use **vsenable** to enable automatic voice system startup at reboot.

Example

vsenable

See Also

vsdisable

vusage

The **vusage** command displays the current load on the voice system (SSP only).

Synopsis

vusage

Description

The **vusage** command enables the voice system administrator to determine the load on the voice system. It queries the voice system and prints the response on the screen, indicating the maximum number of channels in the system and the number of channels playing or coding, and the maximum number of buffers and the number in use.

Example

The following is an example of the **vusage** command and sample output.

$ vusage

```
Max (Current) Speech Buffers used:   0   (0)
Max (Current) Chans playing/coding:  0   (0)

$
```

WARNING:
The voice system must be running to execute this command.

See Also

display chan
sysmon

wl_copy

The **wl_copy** command copies FlexWord wordlists to disk.

Synopsis

wl_copy *<wordlist file>*

Description

The **wl_copy** command copies the wordlist files or directories given by names out to a floppy disk. Names should be relative path names, not

absolute path names, since they will be used to load the vocabularies onto a FlexWord system.

Note: Make sure change to the directory where your FlexWord wordlists are located, usually **/att/asr/wordlists/active**.

If any of the names are directory names, the contents of the directories and any subdirectories are also copied to floppy disk.

Example

wl_copy database

wl_edit

The **wl_edit** command edits FlexWord wordlists.

Synopsis

wl_edit *[-l <chan#>] [-s <ssp#>] [-L language] [-D <directory>] [-O] [-I] [-?]*

Description

The **wl_edit** command invokes a Motif-based phoneme editor for wordlists. Wordlists are opened using a standard Motif interface, and then words can be added, changed, or deleted.

Audible playback is provided with Text-to-Speech so that you can hear the pronunciation of any word. You must dial into the channel specified with the -*l* option to hear the pronunciations.

Error messages are written to a small window at the bottom of the screen. Error messages are also logged to the file **/usr/tmp/wledit.output**.

The **-s <*ssp*#>** argument is used to specify which SSP circuit card to use for speech playback. Circuit cards are referenced by O.S. index displayed in the **display card** command.

The **-L *language*** argument is used to specify the language output that appears on the screen.

The **-D *directory*** argument is used to specify that the program will start in the given directory.

The ***-O*** option is for debugging purposes. It causes certain events to be recorded in the output window.

The **-I** option inhibits forced initialization of the SSP circuit cards. The **wl_edit** command usually determines if the cards need to be reset and provides a forced initialization. The advantage of using this option is that the FlexWord Editor comes up faster. The disadvantage is that in some unusual situations you may not be able to hear the pronunciation of your words. If this happens, run **wl_edit** again without specifying the **-I** option.

WARNING:
If the voice system is running, wl_edit will prompt you to stop the voice system before continuing.

See Also

wl_init

wl_gen

The **wl_gen** command creates data files for a FlexWord vocabulary.

Synopsis

wl_gen -L *language*

Description

The **wl_gen** command uses the wordlists in **/att/asr/wordlists/active** and the models in **/att/asr/models/seg.yy21** to create all of the data files needed for FlexWord recognition. In particular, **wl_gen** creates the following files:

- **/att/asr/grammar_hs/sw_grammar.h** — A header file for FlexWord recognition scripts
- **/att/asr/sr_files/sr_file.sw** — Reformatted active wordlists

- **/vs/pack/cmp.seg.sw** — Vocabulary and model information for companion card DSPs
- **vs/pack/resource.sw** — Wordlist resource information for the resource manager

The **wl_gen** command should be called whenever there is a change to an active wordlist or when a wordlist is activated or deactivated. You need to diagnose the FlexWord SSP circuit card after using the **wl_gen** command.

The [-L *language*] argument is used to specify the language output that appears on the screen, that is, Brazilian, English, French, German, Japanese, or Spanish.

If more than 38 phonemes, including the underscore (_), are found with any word or phrase within a wordlist by the **wl_gen** command, you receive an error message. Once **wl_gen** finds an error within a wordlist, it quits looking at that wordlist, and the wordlist containing that word or phrase is not used when generating the FlexWord data files. Therefore, if you receive an error, you might have to run **wl_gen** several times to iteratively locate each error.

An example of the error message you will receive regarding the filename **ACCT_NUM** is as follows:

```
Generating the FlexWord data files ...

‘ACCT_NUM’ ignored: it contains a word with more than 38
phonemes
       (Six_Six_Six_Six_Six_Six_Six_Six_Six_)
```

The **wl_gen** command retains the wordlist numbers of any active wordlist. This means that scripts do not have to be recompiled unless they use a wordlist that was not active on the previous invocation of **wl_gen**.

Example

wl_gen

See Also

wl_edit
diagnose card

wl_init

The **wl_init** command generates an initial wordlist from a set of words.

Synopsis

wl_init <*file*>

Description

The **wl_init** command takes a file consisting of words and/or phrases and adds a phonetic pronunciation for each word or phrase. The pronunciation is determined by a dictionary lookup, and uses the phonetic alphabet “cecilbet.” The input file should consist of one word or phrase per line, with an underscore (_) instead of white space between words of a phrase. For

example, “call Rachel” should be written “call_Rachel.” Words are case insensitive. Each line of the file will be augmented with a tab followed by the cecilbet phonetic transcription of the line.

Example

wl_init database

See Also

wl_edit

wl_install

The **wl_install** command reads FlexWord vocabularies from floppy disk.

Synopsis

wl_install

Description

The **wl_install** command reads FlexWord vocabularies from a floppy disk, and copies them into **att/asr/wordlists/inactive**. It then asks whether any wordlists are to be activated, and if necessary, whether **wl_gen** should be run.

Example

wl_install

See Also

wl_copy
wl_gen

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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