Maintenance

Use the Maintenance group of functions to make changes to the system hardware or software:

- Add, delete, or change the status of line, trunk or service circuit cards.
- Print or display system logs and trace files.
- Switch the active controller in redundant systems.
- Add, delete, edit, update, or test files in voice prompt libraries.
- Set internal, incoming, or external timing link selection for digital trunks.

Figure 5-1 shows the options accessible from the Maintenance Menu screen.

Figure 5-1   Maintenance Menu Structure
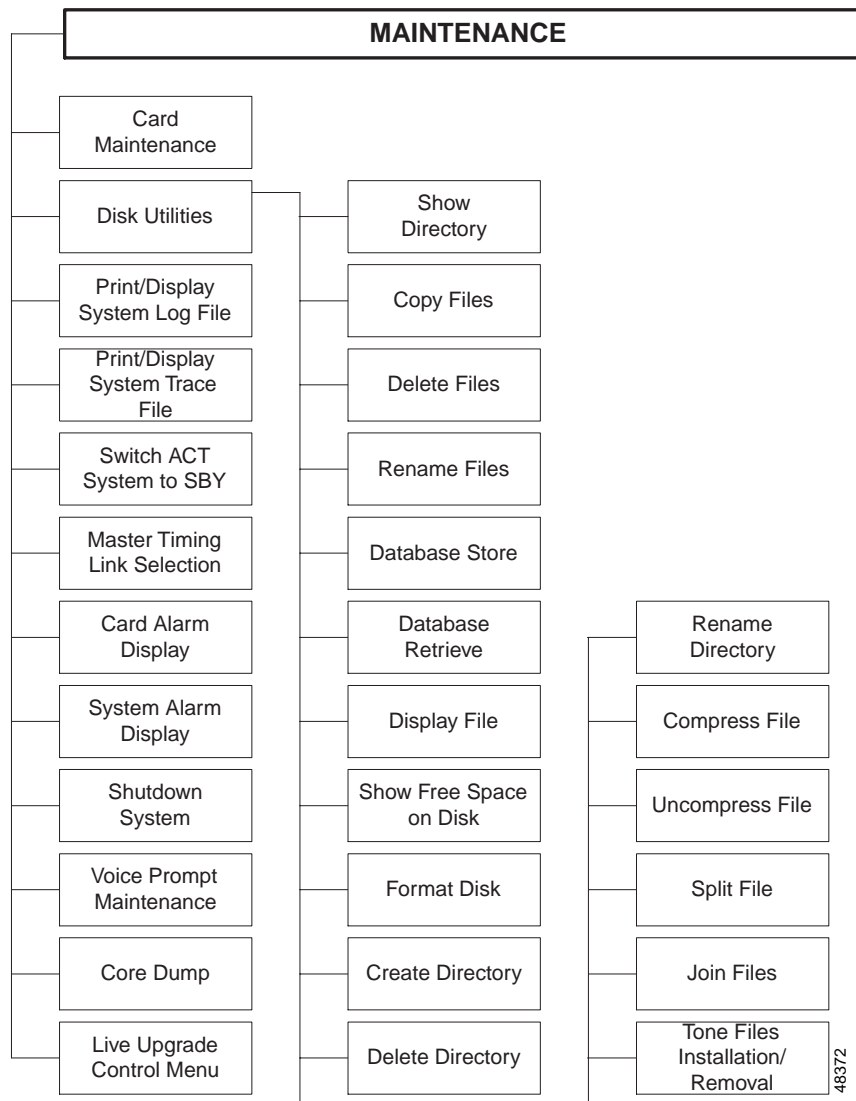
Accessing the Maintenance Menu Screen

Complete the following steps to access the Maintenance Menu screen:

Step 1   Access the Administrator Main Menu screen.

Step 2   Type **C** and press **Enter**.

The Maintenance Menu screen appears (see Figure 5-2). The cursor is located in the Enter Selection field.

Figure 5-2   Maintenance Menu

```
                   M A I N T E N A N C E    M E N U

          A) Card Maintenance
          B) Disk Utilities
          C) Print/Display System Log File
          D) Print/Display System Trace File
          E) Switch ACT System To SBY
          F) Master Timing Link Selection
          G) Card Alarm Display
          H) System Alarm Display
          I) Shutdown System
          J) Voice Prompt Maintenance
          K) Core Dump
          L) Live Upgrade Control



             Enter Selection: _
```

The cursor is located in the Enter Selection field. Type the letter that precedes the function you want and press **Enter**. To return to the Administrator Main Menu, press the **Prev Menu**, **Main Menu**, or **Exit** key. The functions that can be accessed from this menu are discussed in the remainder of this chapter.

Card Maintenance

Use Card Maintenance to add cards to or delete cards from the database and change the status of a card, a port on a card, or a span on a card.

Accessing the Card Maintenance Screen

Complete the following steps to access the Card Maintenance screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **A** and press **Enter**.

The Card Maintenance Menu screen appears (see Figure 5-3). The cursor is located in the ADD, DELETE, CHANGE STATUS (A,D,C,P) field.

Figure 5-3   Card Maintenance Screen

```
                    C A R D    M A I N T E N A N C E

         R L S        CARD TYPE              V.RV   S
         --------     --------------------   -----  -
         1 1 1-1      Network Bus            X.XX   A
         1 1 1-2      Tone Generator         X.XX   A
         1 1 2-1      Network Bus            X.XX   S
         1 1 2-2      Tone Generator         X.XX   S
         1 1 7-1-1    ICC-T1                 X.XX   A
         1 1 7-1-2    ICC-T1                 X.XX   O
         1 1 7-1-3    ICC-T1                 X.XX   M
         1 1 7-1-4    ICC-T1                 X.XX   M




ADD, DELETE, CHANGE STATUS (A,D,C,P): _   _ _ ____   _____ _
   AND PORT DEFINITION:            272 Out Of 1152 Time-Slots Allocated
 1- 64 _____ _____ _____ _____ _____ _____ _____ _____
65-128 _____ _____ _____ _____ _____ _____ _____ _____
```

48344

Card Maintenance consists of up to 15 screens. Each screen lists 11 card entries, ordered according to their location within the system. A message towards the bottom of each screen states the number of time slots for which your system is licensed (actual number of purchased time slots) and how many time slots are currently in use (allocated).

Note   In the example in Figure 5-3, 1152 time slots were purchased for that switch, of which 272 have already been allocated. The time slot information on the Card Maintenance screen should match the time slot information displayed on the main menu and License Configuration screens.

Use the **Prev Screen** and **Next Screen** keys to page through the listings. Use the **Print Screen** key to obtain a hard copy of any of these screens.

Card Maintenance Screen Field Definitions

The Card Maintenance screen contains the following fields:

R L S—*Display only.* The Rack-Level-Slot/Group/Span hardware address (physical location) of the card.

CARD TYPE—*Display only.* Shows the kind of card in that location. You can change this field using the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field.

V.RV—*Display only.* The version and revision level of the firmware installed on the card. Use this field to verify that firmware revisions for all network interface and service circuit cards are at the current level. The information in this field appears only if the status (S) of the card is other than Out of Service (O). For a listing of current firmware version/revision levels, refer to the current customer release notes.

> **Note** If you are running a customer patch, you may see an inconsistency in the SPC.DWN and ICC.DWN file version revision numbers listed in this column. The inconsistency is due to the two character field length; customer patch version revision numbers are greater than two digits and the system converts them to binary coded digits for display purposes. Formal releases always contain two digits and do not experience this inconsistency.

S—*Display only.* The current status of the card. You can change this field using the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field. Valid values are:

A—Active. Ports on this card can be involved in active calls and can be allocated to new calls.

O—Out of service. No ports on this card can be involved in active calls; no ports are allocated to new calls.

S—Standby. Valid for one of the two NBC3s in redundant systems only, one of the two DTG or DTG-2s in redundant systems, redundant BRCs, or redundant Subrate Switching Cards (SSCs).

> **Note** VCO/4K and VCO/20 systems support only the DTG-2 Tone Generator card. VCO/80 systems support either the DTG-2 or DTG.

M—Maintenance. One or more ports on this card may be involved in active calls; no ports are allocated to new calls.

D—Diagnostics. No ports on this card are involved in calls or allocated to new calls.

C—Camped on. Status change to Diagnostics mode was attempted while ports on this card were still involved in calls; no ports are allocated to new calls; card remains in this mode until you take further action.

R—Remote Loopback. Valid only for PRI and programmable trunk cards.

P—Payload Loopback. Valid only for programmable trunk cards.

ADD, DELETE, CHANGE STATUS AND PORT DEFINITIONS (A,D,C,P)—*Data entry via main keypad.* Specifies the function to perform.

> **Note** You can add or delete Four Span T1/E1, MVDC T1, and ICC cards while the change state and port options are performed on a span. Operating on a span requires an interface identifier (i.e., 1 1 4-3, or 1 1 4-3-1 for ICC and SPC cards).

> **Note** You have the option of changing the status of all spans of an MVDC T1 or ICC card with a single command, or specifying a particular span. For example, to activate a card, type **1 1 4** and all spans in slot 4 are activated.

Adding a Card

You can add a card to the system database from the Add function of the Card Maintenance screen. The card does not have to be installed in the system before it can be added to the database.

Consider the following when adding a card to the database:

- When a card other than a programmable trunk card is added, its initial status is O (out of service). Use the Change Status function to bring the card on line and make it available for use by the system. Refer to the "Changing the Status of a Card" section on page 5-7 for information on the Change Status function.

- When you add a programmable trunk card (Four Span T1, Four Span E1, MVDC T1, and ICC), all ports are allocated. When a programmable trunk card is deleted, all spans must be OOS. Ports are displayed one span at a time. The download occurs when the first span is activated.

- When adding an NBC3 card, the card location must have an R-L-S of either 1 1 1-1 or 112-1. No other hardware address is valid for an NBC3.

- A BRC can reside in Slots 3 to 16 of the Master Port Subrack or Slot 1 or 2 of an Expansion Port Subrack.

    Note   BRCs are only supported in VCO/80 and SDS-1000 systems.

- Deactivate individual ports on a card or span when you add a card by combining the Add command with the Port Definition command. Directions for this operation are included in this subsection. Refer to the "Changing the Status of a Port" section on page 5-11 for more information on the Port Definition command.

- Except for DRC 24, DRC 48, and SPC-DTMF, each port on a card consumes one time slot of the total time slots licensed. When you add a new card to the database, the number of available time slots is reduced by the number of ports on the card. When you are within 64 time slots of your Time slot Allocation Capacity, you are warned with a message. When adding a new card causes the number of ports to exceed the timeslot capacity, an error message is displayed and you are unable to add this or other cards to the system until you remove existing cards or upgrade your Timeslot Capacity License. (Contact your Cisco Systems Sales Representative for information on upgrading your license.)

    Note   Each SPC-TONE, DTG-2 or DTG consumes 64 time slots. These time slots are "free," that is, provided at no charge by Cisco. The number of time slots available is adjusted upward to reflect the free DTG time slots, as displayed in the Card Maintenance, License Configuration, and main menu screens. Sixty-four time slots in the range of 0x4C0 to 0x4FF are reserved for each service engine configured as SPC-TONE.

- You can adjust the number of time slots required for a 64- or 128-port IPRC card by modifying the PLAYBACK PORTS field on the IPRC Card Configuration screen.

- When adding a Subrate Switching Card (SSC), you must first allocate the ports. To allocate SSC ports, go to Database Administration, then to the Subrate Configuration screen. Type the number of ports to be allocated, in multiples of 8, in the Timeslots Allocated for Subrate field.

Complete the following steps to add a card to the database:

Step 1   Access the Card Maintenance screen (refer to the "Accessing the Card Maintenance Screen" section on page 5-3).

The Card Maintenance screen appears. The cursor is located in the command field.

Step 2   Type **A** and press the **Next Field** key. The cursor moves to the first R-L-S field.

Step 3   Type the physical location: rack/cabinet number, level number, and slot number, and press the **Next Field** key after each entry.

The cursor moves to the Card Type field and the "Hit 'Select' Key To Select Card Type..." message appears.

Step 4   Use the **Select** and **Reverse Select** keys to scroll through the values until the correct card type is displayed.

> ✎
> Note   The Announcement and Primary Rate/DSS1 card types, although selectable, are not supported.

Step 5   Deassign ports as required:

- If no ports are to be deassigned (marked as unavailable) at this time, proceed to Step 6.

- To deassign individual ports, use the **Next Field** key to advance the cursor to the port(s) to be placed out of service. Use the space bar to eliminate information in that field and deassign the port(s).

Step 6   Press **Enter**.

The "Card Is Added, But Out Of Service!" message appears as the database is automatically updated. The screen display is updated to show the addition of the card to the list. The Status field indicates the card is out of service, and all ports are shown as available. The cursor returns to the command field.

Step 7   Repeat Step 2 through Step 6 for all cards you want to add.

Step 8   Press the **Exit** key to return to the Maintenance Menu screen, or remain at this screen to change the status of the new cards.

To exit the Card Maintenance screen without making any changes, press the **Exit**, **Prev Menu**, or **Main Menu** key. No changes are made to the database unless **Enter** is pressed.

Changing the Status of a Card

You can place cards and spans in Active, Out of service, Diagnostics, Maintenance, Remote Loopback, or Payload Loopback mode using the Card Maintenance screen.

Consider the following when making card and/or span status changes:

- A card must be in the database before its status can be changed.

- When you change a card to Active, the screen is not updated until the card is brought into service.

- If you place a card into Active or Maintenance mode, you must first physically install it in the system.

- To reset an active card, change the status from Active to Out of Service then back to Active.

- You can place a card into Diagnostics mode only if it is already in Active or Maintenance mode.

- When you change a card to Out of service, any calls linked to the ports on that card are torn down. If any ports on the card are involved in active calls, a message indicating the number of ports on the card that are involved in active calls is displayed, along with a prompt to continue or abort the process. If you continue, the calls are torn down and the card status is changed. If you abort the process, there is no change to the card status or the active calls.

- You can change a card with ports involved in active calls from Active to Maintenance or Diagnostic mode without affecting calls in progress (except for programmable trunk cards; refer to the next item in this list). When the card mode is changed from Active, ports on the card are no longer hunted for call allocation.

- You can change cards other than programmable trunk cards to Active, Maintenance, Out of service, Diagnostics, or Remote Loopback mode. (Remote Loopback only applies to PRI/N cards.)

- You can change programmable trunk cards to Active or Out of service mode. When a programmable trunk card is active, each span can be changed to Active, Maintenance, Out of Service, Diagnostics, Remote Loopback, or Payload Loopback. (Payload Loopback applies only to programmable trunk cards in ESF mode. In this mode, the T1 stream is looped back to the network with a new frame.)

- When a programmable trunk card changes from Active or Maintenance to Diagnostics mode, any calls linked to the ports on that card are torn down. If any ports on the card are involved in active calls, a message indicating the number of ports on the card that are involved in active calls is displayed, along with a prompt to continue or abort the process. If you continue, the calls are torn down and the card status is changed. If you abort the process, there is no change to the card status or the active calls. On programmable trunk cards the T1 signal is looped back to the card while it transmits a signal consisting of all unframed ones. This causes a loss of carrier on Rev. B T1 cards.

- The status of an NBC3 cannot be changed from this function. BRC switchover is caused by changing one of the active BRCs to Out of Service. The redundant pair then automatically transitions to active while the first pair is reset and is placed in standby mode. A BRC can be changed to Out of Service only if there is a redundant BRC pair for the affected subrack, and that pair is in standby mode. BRCs cannot be placed into Maintenance, Standby, or Diagnostic mode; only Active or Out of Service. BRCs are Active only in pairs; if one card in the pair goes out of service (such as when it is physically removed from the rack), the other card transitions to standby causing immediate loss of service to the port subrack in systems with nonredundant BRCs.

- You can take DTG or DTG-2 cards out of service only if another DTG or DTG-2 in standby mode exists in the subrack.

- When an IPRC is changed to Active mode, the voice announcement application is downloaded to it automatically from hard disk, if necessary. IPRCs are only downloaded following a power-up reset or if the application on the card does not match the download file on the system disk. If a download is not successful, the card remains in Maintenance mode. If the download is successful, the voice prompt information is downloaded and the IPRC goes to Active.

  Note   Any active IPRC that has not had prompts downloaded to it has a status of Maintenance.

- When a CPA is changed to Active mode, the tone detection application is downloaded to it automatically from hard disk, if necessary. CPAs are only downloaded following a power-up reset or if the application on the card does not match the download file on the system disk. If a download is not successful, the card remains in Maintenance mode (any active CPA that is downloaded has a status of Maintenance). If a download is successful, the CPA goes to Active. When a status change to Diagnostic mode is performed, the system checks if any ports on the card specified are linked to a call. If one or more ports are active, the card is placed into Camped On mode. Diagnostic routines

can now be run; the system skips any ports linked into a call. If, later, you attempt to change from Camp On to Diagnostics, the system again checks if any ports on that card are still linked into a call. If so, the "Ports Still Active, Left In Camp On" message is displayed.

- Remote Loopback mode applies only to PRI and programmable trunk cards. This mode allows you to run diagnostics on the total loop (trunks from the far end interface to the VCO and back to the far end). The card must first be Active before its status can be changed to Remote Loopback. Refer to the *Cisco VCO/4K ISDN Supplement* and the *Cisco VCO/4K Technical Descriptions* for more information on the ISDN PRI option.

- Do not change the status of a DTG to out of service if the VCO/4K is configured with both DTG and SPC-OUTP outpulsing resources, unless you first verify that the SPC-OUTP is in service and added to a resource group.

Complete the following steps to change the status of a card:

Step 1   Access the Card Maintenance screen (refer to the "Accessing the Card Maintenance Screen" section on page 5-3).

The cursor is located in the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field.

Step 2   Type **C** and press the **Next Field** key.

The cursor moves to the first R-L-S field.

Step 3   Type the physical location: rack/cabinet number, level number, and slot number, and press the **Next Field** key after each entry.

The display is updated to show the card type, current status, available ports, and the screen that contains the selected card's listing, if not already displayed. The cursor moves to the State field and the "Type Status, Then Depress Enter!" message appears.

> **Note**   For Four Span T1/E1 and MVDC T1 cards, you must specify the span, otherwise the message "Interface Required" appears. For ICC and SPC cards, you must specify the group and interface.
> When changing the status of a multi-span card, you do not need to specify a particular span, although this option is still available. For example, to activate all spans of a multispan card, type **1 1 14** and all spans in slot 14 become active.

Step 4   Type the appropriate character in the Status field and press **Enter**. Refer to "Card Maintenance Screen Field Definitions" section on page 5-4 for field descriptions.

- If you type O, or if the card type is a programmable trunk card and you typed D, proceed to Step 5.

- If you type A, D (other than a programmable trunk card), M, or R, the database is automatically updated and the screen display is updated to indicate any additional status messages and the change of status when it occurs. The cursor returns to the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field and the "Card Status Is Changed" message appears.

If no ports on the specified card are involved in active calls, the database is automatically updated and the screen display is updated to show the change of status when it occurs. The cursor returns to the command field and the "Card Status Is Changed" message appears.

If ports on the card specified are involved in active calls, the "xx ports active, Continue/Abort (C/A)" message appears.

Step 5   Perform the status change in one of the following two ways:

- To perform the status change now, type **C** and press **Enter**.

All ports on this card involved in active calls are detached and the calls are torn down. The database is automatically updated and the screen display is updated to show the change of status when it occurs. The cursor returns to the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field and the "Card Status Is Changed" message appears.

- To abort and attempted later, type **A** and press **Enter**. The "Operation Aborted" message appears. (There is no effect on any call in progress and the card status is not changed.)

Step 6 Repeat Step 2 through Step 5 for all status changes you want to make.

Step 7 Press the **Exit** key to return to the Maintenance Menu screen.

To exit the Card Maintenance screen without making any changes, press the **Exit**, **Prev Menu**, or **Main Menu** key. No changes are made to the database unless you press **Enter**.

Deleting a Card

Use the Delete function on the Card Maintenance screen to delete a card from the system database. Consider the following when deleting a card from the system database:

- A card must be out of service to be deleted, and all ports on that card must be removed from their resource group. Refer to the "Changing the Status of a Card" section on page 5-7 for information on changing the status of a card.
- Refer to Chapter 3, "Database Administration," for information on the Resource Group Summary and Configuration functions.

Complete the following steps to delete a card from the database:

Step 1 Access the Card Maintenance screen (refer to the "Accessing the Card Maintenance Screen" section on page 5-3).

The cursor is located in the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field.

Step 2 Type **D** and press the **Next Field** key.

The cursor moves to the first R-L-S field.

Step 3 Type the physical location: rack/cabinet number, level number, and slot number, and press the **Next Field** key after each entry.

> **Note** You can delete an MVDC T1, ICC, or SPC by card or by span. To delete by card, type the rack, level, and slot numbers. To delete by span, type the rack, level, and slot/group/span or interface.

The display is updated to show the card type, current status, available ports, and the screen that contains the selected card's listing, if not already displayed. The "To Delete Card, Depress Enter!" message appears.

Step 4 Press **Enter**.

The "Are You Sure? Then, Depress Enter!" message appears.

Step 5 Press **Enter**.

Step 6   The database is automatically updated and the screen display is updated to show the modifications. The cursor returns to the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field, and the "Card is Deleted" message appears.

Step 7   Repeat Step 2 through Step 5 for all cards you want to delete.

Step 8   Press the **Exit** key to return to the Maintenance Menu screen.

To exit the Card Maintenance screen without making any changes, press the **Exit**, **Prev Menu**, or **Main Menu** key. No changes are made to the database unless you press **Enter** twice.

Changing the Status of a Port

You can mark individual ports on an internal service circuit or network interface card as unavailable (0) from the Port Definition function on the Card Maintenance screen. Ports previously marked as unavailable can also be returned to use (1) with this function. This function is also known as activating or deactivating a port.

Consider the following when changing the status of a port:

- If you use the Diagnostics Set Up Path function, first deactivate the port for which a path is to be set by entering **P**. While the port is deactivated, it cannot be allocated to a call. To make the port available for use, enter **P** to activate it.

- Use the **P** command to reset a port. First deactivate the port, then reactivate it.

- Because the NBC3s and BRCs have no ports, you cannot use this command for those cards. If you use this command for these cards, the system displays an error message.

- When you deactivate one or more ports, the system checks to see if any are involved in active calls. If so, a message indicating the number of ports involved in active calls is displayed, along with a prompt to continue or abort the process. If you continue, the calls are torn down and the ports are deactivated. If you abort the process, there is no change to the port or the active calls.

- When you deactivate a port, call processing no longer attempts to allocate it to any call; you do not need to remove the port from its resource group. This allows maintenance personnel to minimize the effects of a single port failure on the system.

- Outgoing ports that were deactivated by the Auto Makebusy feature are displayed in the same way that ports were deactivated from this screen: the port field contains 00. Ports deactivated by Auto Makebusy can be reactivated from this screen. (The Auto Makebusy feature monitors alarm thresholds for outgoing ports. When the alarm threshold for a port is exceeded, Auto Makebusy automatically deactivates that port.)

Complete the following steps to change the status of a port:

Step 1   Access the Card Maintenance screen (refer to the "Accessing the Card Maintenance Screen" section on page 5-3).

The cursor is located in the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field.

Step 2   Type **P** and press the **Next Field** key.

The cursor moves to the first R-L-S field.

Step 3   Type the physical location: rack/cabinet number, level number, and slot number, and press the **Next Field** key after each entry.

The display is updated to show the card type, current status, available ports, and the screen that contains the selected card's listing, if not already displayed. The cursor moves to the first Port field and the "Type Port Numbers, Then Depress Enter!" message appears.

> **Note** For Four Span T1/E1 and MVDC T1 cards, you must specify the span or the message "Interface Required" appears. For ICC and SPC cards, you must specify the group and interface.

Step 4 Use the **Prev Field**, **Next Field** keys, and the main keypad, to move the cursor to the desired port. Ports are organized sequentially, in clusters of eight.

    a. To remove a port from service, move the cursor to the port and type **0**.

    b. To make a port available, move the cursor to the port and type **1**.

Step 5 After you change the status of a port, press **Enter**.

Step 6 Complete one of the following options, which are dependent upon your configuration requirements:

- If no ports are being deactivated or if none of the ports specified to be deactivated are involved in active calls, the "Adjusting Ports" message appears while the database is being updated.

  When completed, the display is updated and the "Done!" message appears.

  The cursor is located in the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A,D,C,P) field. Proceed to Step 8.

- If any of the ports specified are involved in active calls, the "xx ports active, Continue/Abort (C/A)" message appears. Proceed to Step 7.

Step 7 Complete one of the following options, which are dependent upon your configuration requirements:

- To perform the status change now, type **C** and press **Enter**.

  All ports specified that are involved in active calls are detached and the calls are torn down. While the database is being updated, the "Adjusting Ports" message appears.

  When completed, the display is updated and the "Done!" message appears.

  The cursor returns to the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A, D, C, P) field. Proceed to Step 8.

- To abort the status change and try again later, type **A** and press **Enter**.

  The "Operation Aborted" message appears.

  The cursor returns to the ADD, DELETE, CHANGE STATUS AND PORT DEFINITION (A, D, C, P). There is no effect on any call in progress and the card status is not changed. Proceed to Step 8.

Step 8 Repeat Step 2 through Step 7 for any cards on which you want to change port status.

Step 9 Press the **Exit** key to return to the Maintenance Menu screen.

To exit the Card Maintenance screen without making any changes, press the **Exit**, **Prev Menu**, or **Main Menu** key. No changes are made to the database you press **Enter**.

Disk Utilities

The Disk Utilities menu provides access to the DOS-based utilities that allow you to perform the following functions:

- View directory listings for the hard and floppy disks

- Copy files between the hard and floppy disk or to another directory on the hard disk

- Delete files from the hard or floppy disk

- Rename files

- Store all database files on floppy disk (database backup)

- Retrieve all database files from a floppy disk

- Display the contents of a file (in hex)

- Show how much free space exists on the hard or floppy drive

- Format the hard disk

- Install and remove multiple tone plan feature tone plan files

The system hard and floppy drives use the same DOS disk format as IBM-compatible PCs. The system floppy disk drives require 3.5-inch double-sided, high-density (DS, HD) diskettes. Floppy disks formatted or copied on a DOS PC are compatible with the system. There are some differences between PC-DOS and system DOS; refer to the "Filename Conventions" section on page 5-13.

Filename Conventions

To move system files, use the same basic filename conventions as standard PC-DOS, with the exception of the backslash (\) character. Files are identified by a drive specifier (A: for floppy drive and C: for hard drive), a filename of between one and eight alphanumeric characters, and a three-character filename extension following a period (.ext). In addition, you can specify a file as part of a directory path. The VCO/4K file system requires you to use a forward slash (/) character to separate directories and filenames (similar to UNIX) rather than standard PC-DOS backslash (\) character.

Two wildcard characters can also be used within filenames and extensions:

- A question mark (?) is a single-character wildcard.

- An asterisk (*) is a multi-character wildcard.

When you use a question mark (?) in a filename or extension, it indicates that any character can occupy that position. For example, the filename AB?DE.XYZ specifies all filenames with five characters, begin with AB, have any next character, are followed by DE, and end with the extension XYZ.

When you use an asterisk (*) in a filename or extension, it indicates that any character can occupy that position. It also indicates that any characters can occupy the remaining positions in the filename or extension. The asterisk wildcard is commonly used to specify all files with the same extension (*.XYZ) or all files with a common filename (ABCDE.*).

Two terms are used to describe the relationship of files during a Copy File operation:

- Source file—the original file being copied (Copy From? field).

- Destination file—the original file being copied (Copy From? field).

Note These terms appear both in this text and in messages written to the screen and system log file.

Accessing the Disk Utilities Menu Screen

Complete the following steps to access the Disk Utilities Menu screen:

Step 1   Access the Administrator Main Menu screen.

Step 2   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

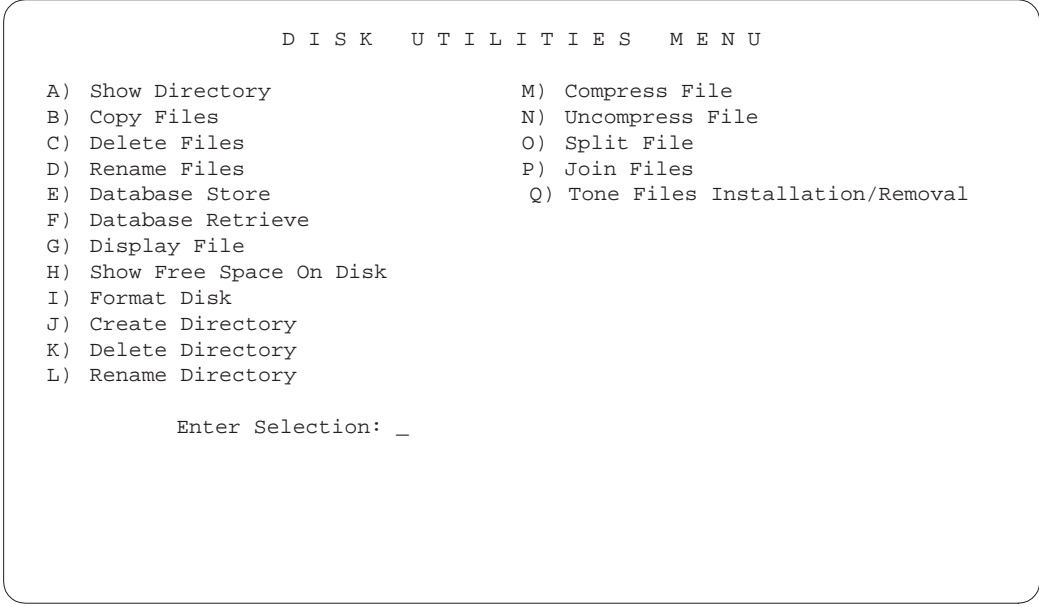**Step 3**   Type **B** and press **Enter**.

The Disk Utilities Menu screen appears (see Figure 5-4). The cursor is located in the Enter Selection field.

Figure 5-4   Disk Utilities Screen

```
                DISK  UTILITIES  MENU

A) Show Directory                 M) Compress File
B) Copy Files                     N) Uncompress File
C) Delete Files                   O) Split File
D) Rename Files                   P) Join Files
E) Database Store                  Q) Tone Files Installation/Removal
F) Database Retrieve
G) Display File
H) Show Free Space On Disk
I) Format Disk
J) Create Directory
K) Delete Directory
L) Rename Directory

        Enter Selection: _
```

Use the **Print Screen** key to obtain a hard copy of this screen.

The Disk Utilities Menu screen options are described in the following sections:

- Show Directory, page 5-15.
- Copy Files, page 5-17.
- Delete Files, page 5-18.
- Rename Files, page 5-19.
- Database Store, page 5-20.
- Database Retrieve, page 5-20.
- Display File, page 5-21.
- Show Free Space on Disk, page 5-22.
- Format Disk, page 5-23.

- Create Directory, page 5-24.

- Delete Directory, page 5-25.

- Rename Directory, page 5-25.

- Compress File, page 5-26.

- Uncompress File, page 5-27.

- Split File, page 5-27.

- Join Files, page 5-29.

- Tone Files Installation/Removal, page 5-31.
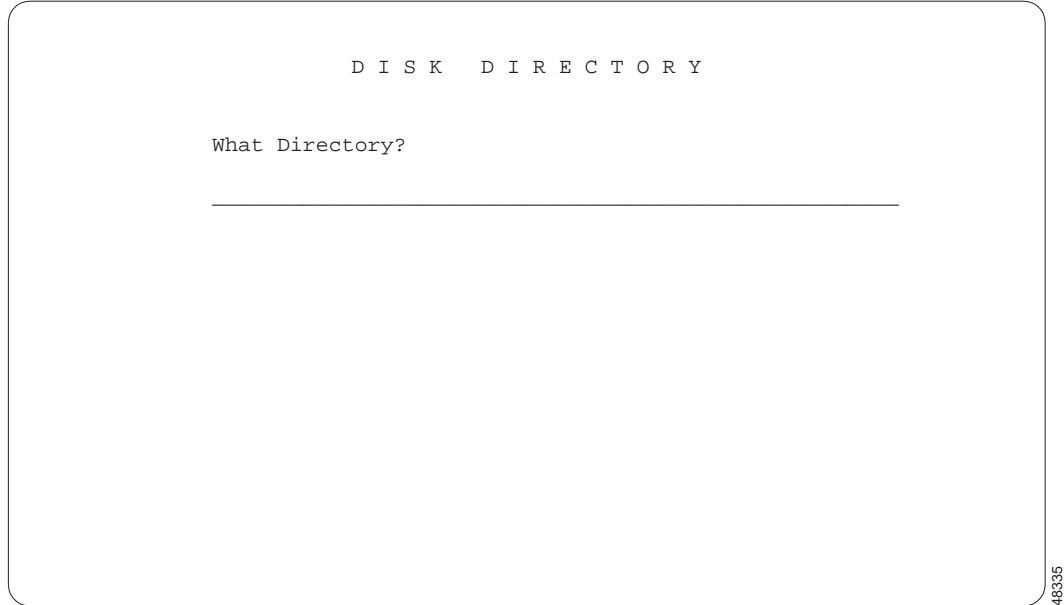
Show Directory

Use the Show Directory option to view a list of all directories and files contained in a specified directory on either the system hard drive (C:) or floppy drive (A:). To view a directory on the floppy drive, insert the floppy disk into the drive before you press **Enter**. The system displays the following information:

- File/Directory name—The name of the file. Directories are indicated by the characters <DIR> following the directory name.

- File Extension—The three-character file extension for that file. Directories do not have a file extension.

- File Size—The size of the file in bytes. Directory sizes are not displayed.

- Creation Date—The date the file or directory was created or altered.

- Creation Time—The time (in HH:MM:SS format) at which the file was created or altered. A 24-hour clock format is used, for example, 15:30:00 is 3:30 p.m.

Complete the following steps to view a directory listing:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **A** and press **Enter**.

The Disk Directory screen appears (see Figure 5-5). The cursor is located in the data entry field.

Figure 5-5   Disk Directory Screen

```
                        D I S K    D I R E C T O R Y


         What Directory?


         _____
```

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Step 3   Perform one of the following actions, which is dependent upon your needs:

- To list a hard drive (C:) directory, proceed to Step 4.

- To list a floppy drive (A:) directory, insert the floppy diskette into the drive and proceed to Step 4.

Step 4   Type the complete directory name you wish to display (including the drive designation), and press **Enter**.

The "Reading Directory…" message appears while the system accesses the specified directory. The screen then clears and displays a directory listing similar to that shown in Figure 5-6. The number of files in the directory is shown on the message line.

Step 5   To view another directory, press the **Exit** key and return to Step 3.

Figure 5-6   Hard Disk (C:) Directory Sample

```
SUMMA4              0    0- 0- 0   00:00:00
BOOT         <DIR>       1-22-99   10:54:02
DBASE        <DIR>       4-30-99   15:02:18
LOG          <DIR>       4-30-99   13:06:36
TRACE        <DIR>       1- 6-99   10:37:52
CORE2          8423732   1-14-99   12:01:30
CORE1             1770   1-22-99   14:36:06
GLOBALS EXE    612753    3-14-99   02:14:06
HOSTMGR EXE     34598    3-14-99   02:14:06
SYSWD   EXE     11019    3-14-99   02:14:06
PRI     DWN    107632    3-14-99   02:14:06
PERMGR  EXE    922091    3-14-99   02:14:06
BOOT    VCO       204    3-14-99




#DF Fri Apr  30, 1999 13:09 A-SBY B-ACT 13 files
```

To return to the Disk Utilities Menu screen before viewing another directory, press **Enter**.

Copy Files

Use the Copy Files option to copy files from one disk to another, and to copy files from one directory to another on the same disk.

If the file already exists on the destination disk, it is overwritten by the source file. A system status message shows the number of files copied. Use of wildcards in specifying filenames is supported as described in the "Filename Conventions" section on page 5-13.

Copy a single file by specifying the source and destination filenames. This process is especially useful when updating card download files, such as NBC or ICC downloads (NBC.DWN and ICC.DWN, respectively). The following example specifies to copy the ICC download file from the top-level directory on the floppy disk to the top-level directory on the hard disk. The destination filename in this example is the same as the source filename:

- Source file—A:ICC.DWN

- Destination file—C:/BOOT/ICC.DWN

You can copy all Trace files on the system hard disk to a Trace directory on a floppy disk by specifying the following source and destination files:

Source file—C:/TRACE/*.*

Destination file—A:/TRACE

Complete the following steps to copy one or more files:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **B** and press **Enter**.

The Copy Files screen appears (see Figure 5-7). The cursor is located in the Copy From? field.

Figure 5-7   Copy Files Screen

```
                        C O P Y   F I L E S


        Copy From?

        _____


        Copy To?

        _____
```

Step 3   Complete one of the following steps, which is dependent upon your configuration needs:

- To copy a file from one directory to another on the hard drive (C:), proceed to Step 4.
- To copy a file between the floppy drive (A:) and the hard drive (C:), insert the floppy disk into the drive and proceed to Step 4.

Step 4   Type the filename you wish to copy and press the **Next Field** key.

The cursor moves to the Copy To? field.

Step 5   Type the destination filename and press **Enter**.

The "Copying Files…" message appears while the system copies the specified file. When copying is complete, the "X Files Copied" message appears, where X indicates the number of copied files. The system automatically returns to the Disk Utilities Menu screen after several seconds.

Delete Files

Use the Delete Files option to delete files from either the hard or floppy disk. A system status message shows the number of files deleted. Use of wildcards in specifying filenames is supported as described in the "Filename Conventions" section on page 5-13.

Delete a single file by specifying its filename. The following example specifies to delete the ICC download file from the hard disk:

Filename to delete—C:ICC.DWN

Delete all system log files on the hard disk by specifying the following filename:

Filename to delete—C:/LOG/*.*

Complete the following steps to delete one or more files:

Step 1 Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2 Type **C** and press **Enter**.

The Delete Files screen appears. The cursor is located in the Delete What Files? field—the only field on the screen.

Step 3 Complete one of the following steps, which is dependent upon your configuration needs:

 a. To delete a file from the hard drive (C:), proceed to Step 4.

 b. To delete a file from a floppy disk (A:), insert the floppy disk into the drive and proceed to Step 4.

Step 4 Type the filename you need to delete and press **Enter**.

The screen is refreshed and displays a list of the files to be deleted. The "OK TO DELETE FILES <Y/N>?" message appears.

Step 5 Type **Y** and press **Enter** to delete the files indicated.

✎
Note If you type **N** and press **Enter**, the display to returns to the Disk Utilities Menu screen and the operation is aborted.

When deleting is complete, the "X Files Deleted" message appears, where X signifies the number of files that were deleted. The system automatically returns to the Disk Utilities Menu screen after several seconds.

Rename Files

Use the Rename Files option to change the name of a file. If the device is also changed as part of the rename operation, the source file is deleted.

✎
Note Use of wildcards in specifying filenames is not supported for the Rename Files function.

Complete the following steps to rename a file:

Step 1 Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2 Type **D** and press **Enter**.

The Rename Files screen appears. The Rename From? field and the Rename To? field are displayed on the screen. The cursor is located in the Rename From? field.

Step 3 Complete one of the following steps, which is dependent upon your configuration needs:

 • To rename a file that is located on the hard drive (C:), proceed to Step 4.

 • To rename a file that is on a floppy disk, insert the disk into the A: drive and proceed to Step 4.

Step 4 Type the filename you want to rename, and press the **Next Field** key.

The cursor moves to the Rename To? field.

Step 5   Type the new filename and press **Enter**.

The "Renaming Files…" message appears while the system renames the specified file. When the operation is complete, the "X Files Renamed" message appears, where X indicates the number of renamed files. The system automatically returns to the Disk Utilities Menu screen after several seconds.

Database Store

Use the Database Store option to copy the system database from the hard disk to a floppy disk. This function allows you to make backup copies of the database to protect the system against accidental data loss.

When you access this function, the system automatically copies all files contained in the C:/DBASE directory to the A:/directory. Any files with the same filenames, as the database files that exist on the floppy disk, are overwritten.

Complete the following steps to back up the database from the hard disk (C:) to a floppy disk (A:):

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **E** and press **Enter**.

The Database Store screen appears. The cursor is located in the only field on the screen:

OK To Store Database From C: to A: <Y/N>?

Step 3   Insert a formatted floppy disk into the A: drive.

Step 4   Type **Y** and press **Enter**.

The "Storing Data Base…" message appears. As each database file is copied, its filename appears. When all database files are copied, the "Data Base Stored" message appears.

The system automatically returns to the Disk Utilities Menu screen after several seconds.

Database Retrieve

Use the Database Retrieve option to copy system database files from a floppy disk to the system hard disk. The database files in the C:/DBASE directory are overwritten during this process.

⚠
Caution   Make sure that the data to be copied from the floppy disk is the most current version available. Always verify that the replacement data on the hard disk will not destroy important changes and updates made to the database.

✎
Note   To place new database tables into active system memory, you must reboot the system from the hard disk after retrieving the database from a floppy disk. This process disrupts in-progress calls and removes the system from operation for a period of several minutes.

Complete the following steps to retrieve the database from a floppy disk (A:) and place copy them to the hard disk (C:):

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **F** and press **Enter**.

The Database Retrieve screen appears. The cursor is located in the only field on the screen:

OK To Retrieve Database from A: to C:?

Step 3   Insert the database backup floppy diskette into the drive.

Step 4   Type the **Y** and press **Enter**.

The "Retrieving Data Base…" message appears. As each database file is copied, its filename appears. When all database files are copied, the "Data Base Retrieved" message appears. The system automatically returns to the Disk Utilities menu after several seconds.

Display File

Use the Display File option to display the contents of a file as a raw hex and ASCII file. The exact filename must be specified.

Note   The use of wildcard characters is not allowed with this option.

The Display File screen is divided into three columns:

Address—The beginning address for the data displayed on that line. Addresses are expressed in hex.

Hex data—The hex values of the data contained in the file at the address indicated.

ASCII data—The ASCII values of the data contained in the file at the address indicated.

Twenty rows of data are displayed at a time. Use the **Prev Screen** and **Next Screen** keys to page through the data.

Note   The Display File screen is generally used as a diagnostic tool under the direction of Cisco TAC.

Complete the following steps to display the contents of a file:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **G** and press **Enter**.

The Display File screen appears. The cursor is located in the Display What File? field—the only field that appears on the screen.

Step 3   Complete one of the following steps, which is dependent upon your configuration needs:

•   To display a file that is located on the hard drive, proceed to Step 4.

- To display a file that is located on a floppy drive, insert the floppy disk into the drive and proceed to Step 4.

Step 4   Type the filename (including the device to be displayed) and press **Enter**.

The screen refreshes and displays the file data—similar to that shown in Figure 5-8.

Figure 5-8   File Data Screen Sample

```
00000000: de ad 10 00 00 00 00 36 53 59 53 54 45 4d 20 44  | .......6SYSTEM D
00000010: 41 54 41 20 20 20 20 20 56 45 52 20 35 2e 30 2e  | ATA     VER 5.1.
00000020: 35 30 2e 32 31 00 20 20 20 20 20 20 4a 61 6e 20  | 50.21.      Jan
00000030: 32 32 2c 20 31 39 39 38 20 31 34 3a 33 36 3a 30  | 22, 1998 14:36:0
00000040: 37 00 05 00 32 15 07 ce 01 16 0e 24 07 00 de ad  | 7...2......$....
00000050: 12 00 00 00 00 12 43 41 55 53 45 20 4f 46 20 44  | ......CAUSE OF D
00000060: 55 4d 50 20 20 20 50 52 45 56 20 45 58 43 45 50  | UMP   PREV EXCEP
00000070: 54 49 4f 4e 20 20 05 00 de ad 18 00 00 00 06 5a  | TION  .........Z
00000080: 45 58 43 45 50 54 49 4f 4e 20 44 41 54 41 20 20  | EXCEPTION DATA
00000090: 56 45 52 20 34 2e 31 2e 30 30 2e 30 4f 63 74 20  | VER 4.1.00.0Dec
000000a0: 31 37 2c 20 31 39 39 37 20 20 38 3a 31 33 3a 35  | 17, 1998  8:13:5
000000b0: 33 0a 45 78 63 65 70 74 69 6f 6e 3a 20 4c 69 6e  | 3.Exception: Lin
000000c0: 65 20 31 31 31 31 20 45 6d 75 6c 61 74 6f 72 0a  | e 1111 Emulator.
000000d0: 45 78 63 65 70 74 69 6f 6e 20 56 65 63 74 6f 72  | Exception Vector
000000e0: 20 4f 66 66 73 65 74 3a 20 24 32 43 0a 54 61 73  |  Offset: $2C.Tas
000000f0: 6b 20 49 44 20 4e 75 6d 62 65 72 20 30 78 31 38  | k ID Number 0x18
00000100: 0a 20 20 20 20 53 52 20 3d 20 31 30 30 34 20 20  | .    SR = 1004
00000110: 20 54 72 61 63 65 20 3d 20 4f 46 46 20 41 63 74  |  Trace = OFF Act
00000120: 69 76 65 20 73 74 61 63 6b 20 3d 20 55 53 50 20  | ive stack = USP
00000130: 20 20 49 6e 74 65 72 72 75 70 74 20 6d 61 73 6b  |   Interrupt mask
```

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Step 5   Use the **Prev Screen** and **Next Screen** keys to scroll through the file data.

Step 6   Press **Enter** to return to the Disk Utilities menu

Show Free Space on Disk

Use the Show Free Space on Disk option to view the amount of free space on either the hard drive or a floppy disk. Free space is shown in the number of bytes available.

Complete the following steps to display the amount of free space:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **H** and press **Enter**.

The Show Free Disk Space screen appears. The cursor is located in the Show Space On What Drive? field—the only field that appears on the screen.

Step 3   Complete one of the following steps, which is dependent upon your configuration needs:

- To display a file that is located on the hard drive (C:), proceed to Step 4.

- To display a file that is located on a floppy disk, insert the floppy disk into the drive and proceed to Step 4.

Step 4   Type the device name (either **C:** or **A:**) and press **Enter**.

The "xxx Bytes Free on X:" message appears, where xxx signifies the number of bytes of free space available on the device X. The system automatically returns to the Disk Utilities Menu screen after several seconds.

Format Disk

Use Format Disk option to perform the following functions:

- Format the hard disk.

- Assign a volume label to the disk being formatted.

⚠
Caution   Formatting a disk erases all data contained on it. Use of the Format Disk function is not recommended for the system hard disk; if formatting and initial software installation is required, use of the Software Installation Utilities is recommended.
To protect information on floppy diskettes from accidental erasure, use the diskette's write protect tab.

Complete the following steps to format a disk:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **I** and press **Enter**.

The Format Disk screen appears (seeFigure 5-9).

Figure 5-9   Format Disk Screen

```
                    F O R M A T    D I S K




       Format What Drive? _____



       Disk Volume Label? _____



       Do Bad Sector Scan During Format <Y/N>?
```

The cursor is located in the Format What Drive? field.

Step 3   Type the device that corresponds to the disk you wish to format (**C:** or **A:**) and press the **Next Field** key.

The cursor moves to the Disk Volume Label field.

Step 4   Type the volume label for the disk being formatted (if a volume label is being used) and press the **Next Field** key.

The cursor moves to the Do Bad Sector Scan During Format <Y/N>? field.

Step 5   Type **Y** or **N** (**Y** is recommended) and press **Enter**.

The screen is refreshed and displays the disk to be formatted and the "OK TO FORMAT DISK <Y/N>?" message appears. The cursor is located in data entry field.

Step 6   Type **Y** and press **Enter** to format the indicated disk.

✎
Note   Typing any other character followed by **Enter** causes the display to return to the Disk Utilities Menu screen and abort the operation.

The "Formatting Disk…" message appears.

When formatting is complete, the "Device X: Formatted" message appears, where X indicates the formatted disk. The system automatically returns to the Disk Utilities Menu screen after several seconds.

Create Directory

Use the Create Directory option to create a directory on either the hard drive (C:) or a floppy disk (A:).
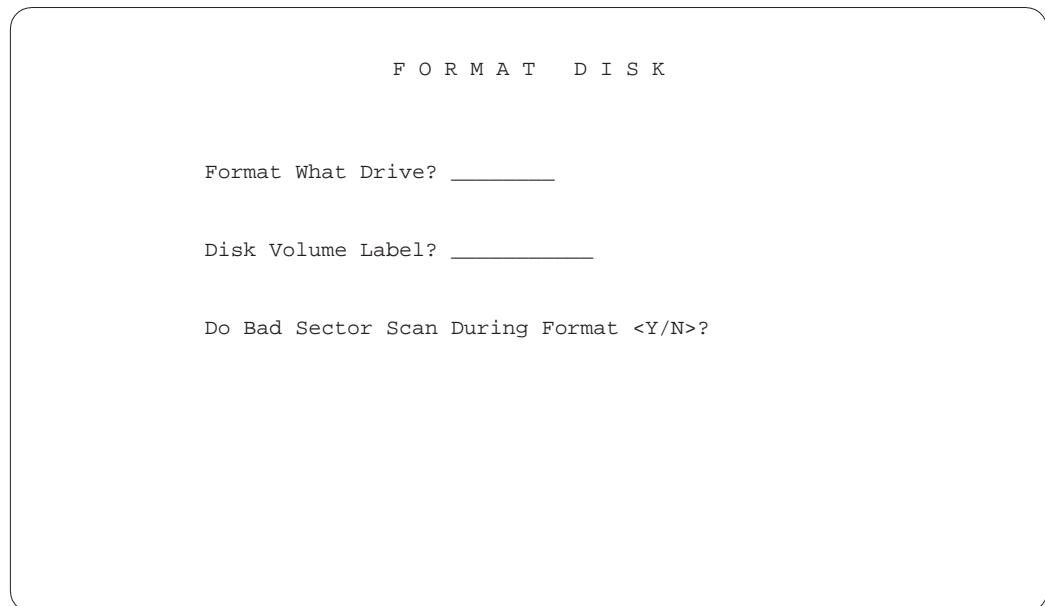
Complete the following steps to create a directory:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **J** and press **Enter**.

The Create Directory screen appears. The cursor is located in the Create Which Directory? field—the only field on the screen.

Step 3   Complete one of the following steps, which is dependent upon your configuration needs:

   •   To create a directory on the hard drive, type **C:/<directory name>** and press Enter.

   •   To create a directory on the floppy drive, insert the floppy disk in the drive and type **A:/<directory name>** and press Enter.

Step 4   Press the **Prev Menu** key to see the directory listed.

The Disk Utilities Menu screen appears.

Step 5   Type **A** and press **Enter**.

The Disk Directory screen appears. The cursor is located in the What Directory? field.

Step 6   Depending on the drive in which you created the directory, type **C:/** or **A:/** and press **Enter**.

The new directory appears in the directory listing.

Step 7   To return to the Disk Utilities menu, press **Enter** or press the **Prev Menu** key twice.

Delete Directory

Use the Delete Directory option to delete a directory from either the hard drive (C:) or a floppy disk (A:).

Complete the following steps to delete a directory:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **K** and press **Enter**.

The Delete Directory screen appears. The cursor is located in the Delete Which Directory? field—the only field on the screen.

Step 3   Complete one of the following steps, which is dependent upon your configuration needs:

- To delete the directory from the hard drive, type **C:/<directory name>** and press **Enter**.
- To delete the directory from a floppy disk, insert the floppy diskette into the drive, type **A:/<directory name>** and press Enter.

Step 4   Press the **Prev Menu** key to verify that the directory was deleted.

The Disk Utilities Menu screen appears.

Step 5   Type **A** and press **Enter**.

Step 6   The Disk Directory screen appears. The cursor is located in the What Directory? field.

Step 7   Depending on the drive in which you deleted the directory, type **C:/** or **A:/** and press **Enter**.

Step 8   Verify that the directory was deleted from the directory listing by reading the display.

Step 9   To return to the Disk Utilities menu, press **Enter** or press the **Prev Menu** key twice.

Rename Directory

Use the Rename Directory option to rename a directory on the hard drive (C:).

Complete the following steps to rename a directory on the hard drive:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **L** and press **Enter**.

The Rename Directory screen appears (see Figure 5-10). The cursor is located in the Rename From? field.

Figure 5-10   Rename Directory Screen

```
                        R E N A M E    D I R E C T O R Y


        Rename From?

        _____

        Rename To?

        _____
```

Step 3   Type **C:/<original directory name>**, where <original directory name> is the current name of the directory.

Step 4   Press the **Next Field** key.

The cursor moves to the Rename To? field.

Step 5   Type a new directory name: **C:/<new directory name>**, where <new directory name> is the directory's new name).

Step 6   Press **Enter**.

The directory has a new name.

Compress File

Use the Compress File option to decrease the size of a file without losing information. You may want to compress a file to facilitate a file transfer, or to copy a file to another device. Consider the following when decreasing the size of a file:

- The name of the file to be compressed cannot contain a file extension. If the filename contains an extension, rename the file before compressing.

- When a file is compressed, the filename is the same as the original file with an extension of .Z.

- Any file compressed on the VCO/4K can be uncompressed on a UNIX workstation or any other computer with a utility based on the BSD 3.2 UNIX implementation.

Complete the following steps to decrease the size of a file:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **M** and press **Enter**.

The Compress File screen appears. The cursor is located in the Compress What File? field—the only field displayed on the screen.

Step 3   Enter the drive and name of the file to be compressed on the blank line. For example, **C:core1**.

Step 4   Press **Enter**.

The size of the file has been decreased.

Uncompress File

Use the Uncompress File option to expand a compressed file to its original size and content. Refer to the previous section, "Compress File" section on page 5-26 for information on compressing files. Consider the following when uncompressing files:

- The file to be uncompressed must have a .Z filename extension). If the file to be compressed does not have a .Z extension, rename the file.
- When a file is uncompressed, the filename is the same as the compressed filename but without the .Z extension. You can rename the file with an extension.
- Any file compressed on the VCO, on a UNIX workstation, or other computer with a utility based on the BSD 3.2 UNIX implementation, can be uncompressed on the VCO/4K.

Complete the following steps to uncompress a file:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **N** and press **Enter**.

The cursor is located at the Uncompress What File? field—the only field displayed on the screen.

Step 3   Enter the drive and filename of the file to be uncompressed. For example, **C:core1**.

> **Note**   You can enter the filename with or without the .Z extension. If you enter the filename without an extension, the software assumes the .Z extension.

Step 4   Press **Enter**.

The file is uncompressed.

Split File

Use the Split File option to split a large file into a series of smaller files. This may be required if you need to copy a large file on to a floppy disk.

All files accessible to the VCO switch can be split into a series of smaller files. The algorithm used requires an output filename and the number of bytes for each segmented file. The split function then produces the required number of file parts, each a segment of the original file. The sum of the files produced from the split comprises the total size of the original file.

Consider the following when splitting files:

- The recommended split size for floppy disks is 1,440,000 bytes.

- There is a maximum of 512 files that may result through the split operation. This should be taken into consideration when indicating the split file size.

Complete the following steps to split a large file into a series of smaller files:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **O** and press **Enter**.

The Split File screeen appears (see Figure 5-11).

Figure 5-11   Split File Screen

The cursor is located at the Split What File? field.

Step 3   Type the drive (C:/ or A:/) and filename of the file to be split.

Step 4   Press the **Next Field** key to move the cursor to the Split File Size field.

Step 5   Type the size (number of bytes) of each split file segment.

Step 6   Press **Enter**.

The file has been split into several smaller files.

An example of a split file is described as follows:

- File drive and filename—C:core1

- Size of files to create—1440000

The resulting file segments are each 1,440,000 bytes. The total of the file segments in bytes equals the original file size. The last file segment may be less than the indicated size, depending on the size of the original file.

The output of the Split File operation results in a series of files with the designated output filename and an extension, as shown below.

- filename.xaa
- filename.xab
- filename.xac
- filename.xad

The file extensions increase in alphabetic order as necessary to accommodate the full contents of the original file. For example, if the original core1 file to be split is 8.4 MB, the following split filenames and sizes would result:

- core1.xaa—1440000
- core1.xab—1440000
- core1.xac—1440000
- core1.acd—1440000
- core1.xae—1440000
- core1.xaf—1200000

The total of all split files, core.xaa through core.xaf, is 8,400,000 bytes (or 8.4 MB) which is the size of the original core file.

Join Files

Use the Join Files option to reassemble split files back into the original file. Refer to the "Split File" section on page 5-27 for information on splitting files. Joining files requires you to understand the concepts of source and destination files. Refer to the "Joining Files—Source and Destination Files" section on page 5-29.

Joining Files—Source and Destination Files

The source files (the files associated with the Join From? field) are the files that will comprise the new file. The source files are the file segments that resulted from the split file operation.

You can specify the source file by filename with no extension. If the filename is designated without an extension, all files with that filename are joined. The files are joined as if the extension was designated with the multicharacter (*) wildcard. The order is based on the alpha character ordering of the file's extension.

The join operation supports alphabetic ordered wildcard symbols. You can specify the source file with the single-character wildcard—the question mark (?), or the multi-character wildcard—the asterisk (*). The join operation automatically appends the split files in alphabetic order to the destination file.

You may also initiate the join operation for each individual split file by indicating the specific filename with the full extension. Note however, that if this method is used, you must specify the files in the correct order by file extension (alphabetic order) to accurately reproduce the original file.

The destination file (the file associated with the Join To? field) is the file which is to be the composite of all the split files. After joining all file segments, the destination file is identical to the original file before the split process occurred.

Note   If the destination filename already exists, the source files are appended to it.

Complete the following steps to join split files:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **P** and press **Enter**.

The Join Files screen appears (see Figure 5-12).

Figure 5-12   Join Files Screen

```
                      J O I N   F I L E S




        Join From?

        _____


        Join To?

        _____
```

The cursor is located in the Join From? field.

Step 3   Enter the drive and filename of the source file. Consider the following when entering data into this field:

Note   Enter the complete source file path name and filename, with extension, in the Join From? field.
Only one filename can be specified in the Join From? field. However, wildcard characters can be used to join several files. Refer to the next section, *Source Files* for information on the use of wildcard characters.

Step 4   Press the **Next Field** key to move the cursor to the Join To? field.

Step 5   Enter the desired name of the destination file—the file which is to contain all source file(s).

Step 6   Press **Enter**.

The files are joined.

Tone Files Installation/Removal

Use the Tone Files Installation/Removal option to install and remove tone plans associated with the multiple tone plan feature. The multiple tone plan feature enables you to install and administratively configure several tone plans in a single VCO/4K switch. You may also select and configure tone plans from several extended mode host application commands and from inpulse/outpulse rule configuration. Refer to the *Cisco VCO/4K Extended Programming Reference* for information on selecting and configuring tone plans with extended mode commands. Contact Cisco TAC for a list of available tone plans.
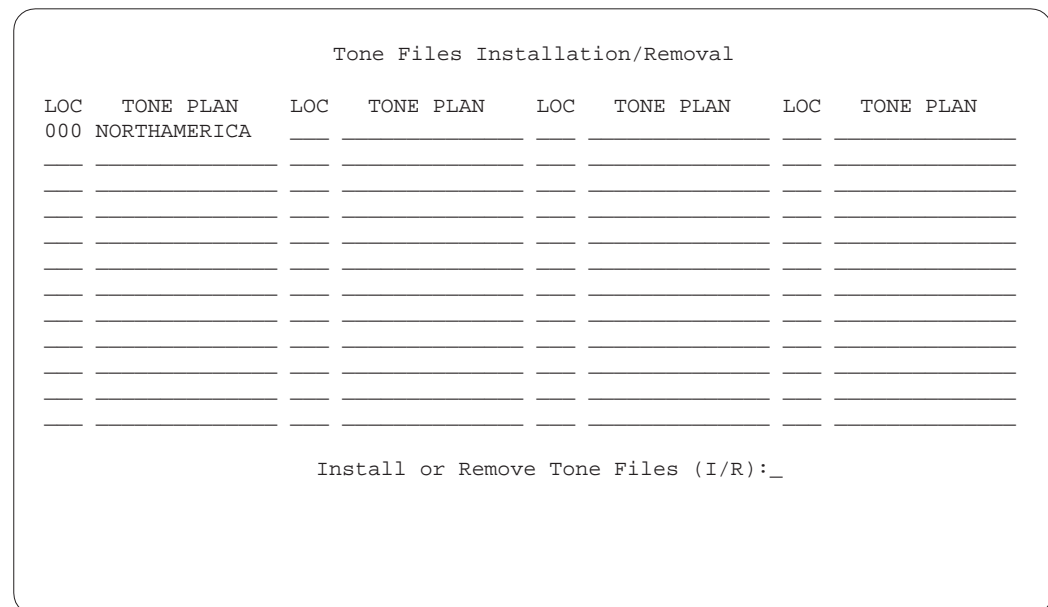
Accessing the Tone Files Installation/Removal Screen

Complete the following steps to access the Tone Files Installation/Removal screen:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **Q** and press **Enter**.

The Reading Next Format message is displayed briefly at the lower right of the Disk Utilities Menu screen and the Tone Files Installation/Removal screen appears (see Figure 5-13).

Figure 5-13   Tone Files Installation/Removal Screen

```
                    Tone Files Installation/Removal

LOC    TONE PLAN     LOC    TONE PLAN     LOC    TONE PLAN     LOC    TONE PLAN
000 NORTHAMERICA     ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____
___ _____    ___ _____    ___ _____    ___ _____

              Install or Remove Tone Files (I/R):_
```

Tone Files Installation/Removal Screen Field Definitions

The Tone Files Installation/Removal screen fields are arranged in eight columns and twelve rows in the center of the screen and a single field at the bottom of the screen. The eight columns form four pairs; each pair consists of a Loc column and a Tone Plan column. Each Loc field is associated with the Tone Plan field directly to its right. The Tone Files Installation/Removal screen fields are described below.

Loc—*Display only.* Describes the location of the installed tone plan listed in the associated Tone Plan field. Locations are defined as follows:

> 000—The VCO/4K system C:/BOOT directory; default tone plan location.

> 001 to 047—The VCO/4K system C:/TONE directory.

Tone Plan—*Display only.* Contains the name of the installed tone plan listed in the associated Loc field.

Install or Remove Tone Files (I/R)—*Data entry via main keyboard.* Allows you to install or remove a tone plan. Valid options are as follows:

> I—Install a tone plan.

> R—Remove a tone plan.

Multiple Tone Plan File Installation via Disk Utilities

Complete the following steps to install multiple tone plans with the VCO/4K system software Disk Utilities administration screens:

Step 1   Insert a tone plan diskette into the VCO/4K system active side.

Step 2   Access the Tone Files Installation/Removal screen (refer to the "Accessing the Tone Files Installation/Removal Screen" section on page 5-31.

The Tone Files Installation/Removal screen is displayed (see Figure 5-13). The cursor is located in the Install or Remove (I/R) field.

Step 3   Type **I** and press **Enter**.

The "Enter Path of Tone Files To Install" message appears.

> **Note**   If you type an invalid character, the "Invalid Operation Specified" message appears and the screen is refreshed. Repeat Step 3.

Step 4   Type **A:/** and press **Enter**.

The tone plan files are copied from the diskette to the VCO/4K system C:/TONE directory. The cursor moves to the Install or Remove Tone Files (I/R) field and the following message appears at the bottom right of the Tone Files Installation/Removal screen:

```
Tone Files for CHINA3 Are Installed
```

> **Note**   If you type an invalid path name, the "Tone Files Not Found" message appears and the screen is refreshed. Repeat Step 3.

The tone plan copied in Step 4 is installed in a subdirectory of the VCO/4K system C:/TONE directory and assigned a fixed number between 001 and 047.

Step 5   Repeat Step 3 and Step 4 to install the tone plans needed to meet your configuration requirements.

Step 6   If you have a nonredundant system or if all required tone plans have been installed to meet your configuration requirements, the multiple tone plan installation procedure is complete. If you have a redundant system, log in to the standby side and proceed to Step 7. Refer to the *Cisco VCO/4K Administrator's Guide* for instructions on changing the active side.

Step 7   Repeat Step 1 through Step 6 on the standby side.

The multiple tone plans are installed.

Multiple Tone Plan File Installation via FTP

You may also install multiple tone plan via file transfer protocol (FTP). Complete the following steps to install multiple tone plan files via FTP:

Step 1   Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2   Type **J** and press **Enter** to access the Create Directory screen.

The Create Directory screen is displayed. The cursor is located at the beginning of the blank line.

Step 3   Type **C:/TEMP** and press **Enter** to create a temporary directory on the VCO/4K hard drive.

The TEMP directory is created on the active side of the VCO/4K system.

Step 4   Start an FTP client.

Step 5   Type **mkdir temp** and press **Enter** to create a temporary directory within the FTP client.

Step 6   Type **cd temp** and press **Enter** to access the newly created directory within the FTP client.

Step 7   Type **bin** and press **Enter** to set the FTP client to binary mode.

Step 8   Type **mput *.*** and press **Enter** to transfer the tone plan files to the VCO/4K C:/TEMP directory created in Step 3.

Step 9   Close the FPT client.

Step 10   From the Administrator Main Menu screen, type **C** and press **Enter**.

The Maintenance Menu screen is displayed.

Step 11   Type **B** and press **Enter**.

The Disk Utilities Menu screen is displayed. The cursor is located at the Enter Selection prompt.

Step 12   Type **Q** and press **Enter**.

The Reading Next Format message appears briefly at the lower right of the Disk Utilities Menu screen and the new Tone Files Installation/Removal screen is displayed (see Figure 5-13).

Note   Default tone plans are preinstalled on VCO/4K systems. Figure 5-13 lists North America as the preinstalled default tone plan at location 000 (the C:/BOOT directory). Your default tone plan may be different.

The cursor is located in the Install or Remove Tone Files (I/R) field.

Step 13   Type **I** and press **Enter**.

The "Enter Path of Tone Files To Install" message appears.

> **Note** If you type an invalid character, the "Invalid Operation Specified" message appears and the screen is refreshed. Repeat Step 13.

Step 14 Type **C:/TEMP** and press **Enter**.

The tone plan files are copied from the VCO/4K system C:/TEMP directory to the C:/TONE directory. The cursor moves to the Install or Remove Tone Files (I/R) field, and messages similar to the following appear at the bottom right of the Tone Files Installation/Removal screen:

```
Tone Files for CHINA3 Are Installed.
```

> **Note** If you type an invalid path name, the "Tone Files Not Found" message appears and the screen is refreshed. Repeat Step 14.

Step 15 Repeat Step 1 through Step 14 on the standby side.

The multiple tone plans are installed.

Multiple Tone Plan File Removal

Complete the following steps to remove a tone plan associated with the multiple tone plans feature:

Step 1 Access the Disk Utilities Menu screen (refer to the "Accessing the Disk Utilities Menu Screen" section on page 5-14).

Step 2 Type **Q** and press **Enter**.

The Tone Files Installation/Removal screen is displayed. The cursor is located in the Install or Remove Tone Files (I/R) field.

Step 3 Type **R** and press **Enter**.

The "Enter LOC# of Tone Files to Remove" message appears.

> **Note** If you type an invalid character, the "Invalid Operation Specified" message appears and the screen is refreshed. Repeat Step 3.

Step 4 Type the Loc field number of tone plan you want to remove from the VCO/4K configuration.

Step 5 Press **Enter**.

The "Tone Files For xxx Is Removed" message appears, where xxx represents the tone plan Loc number.

> **Note** If you type an invalid Loc number, the "Tone Files Not Found!" message appears. Repeat Step 3 through Step 5.

Step 6 Repeat Step 3 through Step 5 for all other tone plans you want to remove from the VCO/4K configuration.

The removal of multiple tone plan associated tone plans is complete.

Select (Print/Display) System Log File

Use the Print/Display System Log File function to view or obtain a hard copy of the system event and error log. This log may contain status and error messages generated by the system. Specify, by date, the portion of the log you want to print or display.

In a redundant system, the system keeps log files for both the active and standby controller. You can specify either log for printing or viewing. Refer to "System Log Files" section on page 1-7 the for an overview of the system log. System status and error messages are listed in *Cisco VCO/4K System Messages*.

Log files are stored according to month and date. Up to 31 log files can be stored on the system's hard disk. If you use the Ethernet communications option, log files can be stored on a remote disk drive with the Ethernet Network File System (NFS) facility. Specify the device on which the log files are stored via the File System Configuration screen; refer to Chapter 4, "System Configuration," for more information. The Ethernet communications option is discussed in the *Cisco VCO/4K Ethernet Guide*.

⚠️
Caution   The system may delete log files in an attempt to free up hard disk space. Refer to the "Available Disk Space Monitored on Switch Hard Drive" section on page 1-8 for detailed information.

Accessing the Select System Log File Screen.

Complete the following steps to access the Select System Log File screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Type **C** and press **Enter**.

The Select System Log File screen appears (see Figure 5-14). The cursor is located in the OPERATION field.

Figure 5-14   Select System Log File Screen

```
        S E L E C T    S Y S T E M    L O G    F I L E


                   OPERATION: Display


                   DATE OF LOG FILE:

                        MONTH: Apr   DAY: 7



                   FOR REDUNDANT SYSTEMS

                        A-SIDE OR B-SIDE: a
```

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The System Log File screen consists of one screen. Use the **Print Screen** key to obtain a hard copy of this screen.

Printing a System Log File

Complete the following steps to print a system log:

Step 1   Access the Select System Log File screen (refer to the "Accessing the Select System Log File Screen." section on page 5-35).

Step 2   Use the **Select** key to scroll through the values until the Print selection is displayed.

Step 3   Press the **Next Field** key.

Step 4   Use the **Select** key to scroll through the values until the month for which you want to print the log file is displayed.

Step 5   Press the **Next Field** key.

Step 6   Type the date for which you want to print the log file.

Step 7   Complete one of the following steps, which is dependent upon your system's configuration:

•   If your system is redundant, press the **Next Field** key.

The cursor moves to the A-SIDE or B-SIDE field.

Use the **Select** key to scroll through the values to specify the system controller for which you want to print the log file and press **Enter**.

•   If your system is nonredundant, proceed to Step 8.

Step 8   Press **Enter**.

The "Printing Log File For..." message appears.

✎

Note   To abort printing, press the **Stop Print** key.

Step 9   Press the **Exit** key to return to the Maintenance Menu screen.

Displaying a System Log File

Complete the following steps to display a system log file:

Step 1   Access the Select System Log File screen (refer to the "Accessing the Select System Log File Screen." section on page 5-35).

Step 2   Use the **Select** key to scroll through the values until the Display selection is displayed.

Step 3   Press the **Next Field** key.

Step 4   Use the **Select** key to scroll through the values until the month for which you want to display the log file is displayed.

Step 5   Press the **Next Field** key.

Step 6   Type the date for which you want to display the log file.

Step 7   Complete one of the following steps, which is dependent upon your system's configuration:

• If the system is redundant, press the **Next Field** key.

The cursor moves to the A-SIDE or B-SIDE field.

Use the **Select** key to scroll through the values to specify the system controller for which you want to display the log file and press **Enter**.

• If the system is nonredundant, proceed to Step 8.

Step 8   Press **Enter**.

The log file appears.

Step 9   Use the **Prev Screen** and **Next Screen** keys to page through the listings. If you press the **Prev Screen** key at the first screen, the screen displays the message listings at the end of the log file.

Step 10   Press **Prev Menu** twice to return to the Maintenance Menu screen.

Select (Print/Display) System Trace File

Use the Print/Display System Trace File function to view or obtain a hard copy of the system trace file. This file contains all messages that were sent across the host communication interfaces for which tracing was enabled. In systems equipped with the TeleRouter software overlay, messages generated by that software are also printed if enabled for the internal interface. Tracing is enabled from the Host Configuration screens; refer to Chapter 4, "System Configuration," for more information. You can specify the portion of the file to print or display by date.

Trace files are time-stamped and stored sequentially according to month and date. Up to 31 trace files can be stored on the system's hard disk. When the Ethernet communications option is used, trace files can be stored on a remote disk drive by using the Ethernet Network File System (NFS) facility. Specify the device on which the trace files are stored via the File System Configuration screen; refer to Chapter 4, "System Configuration," for more information. The Ethernet communications option is discussed in the *Cisco VCO/4K Ethernet Guide*.

> **Note** The system opens a trace file when tracing is enabled and closes the file when tracing is disabled. If tracing is left in enable mode over a period of days, all of the data in the file is date stamped using the date from the day when the file was first opened.
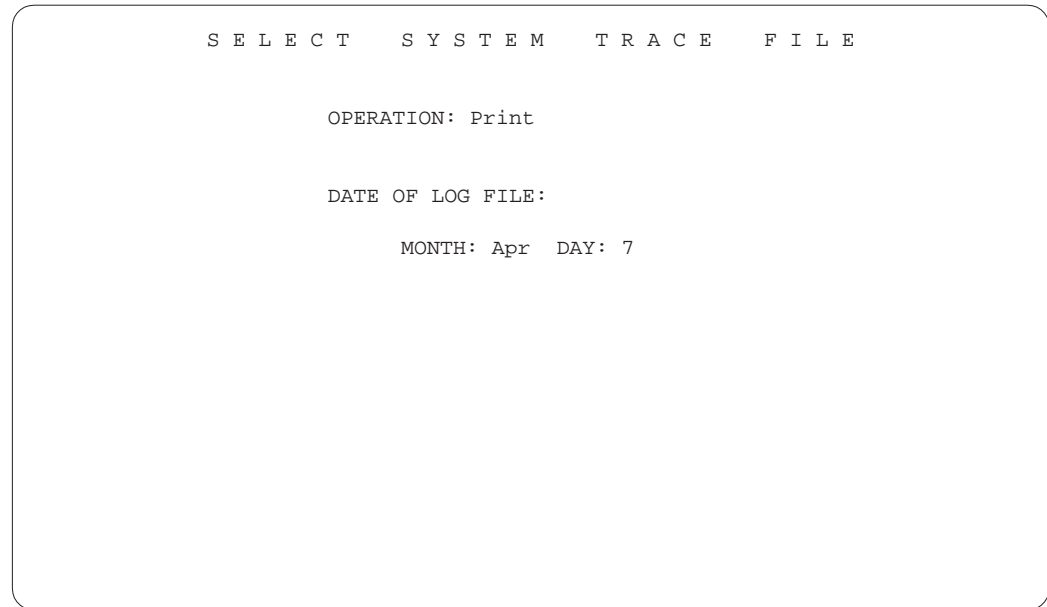
> **Caution** The system may delete trace files in an attempt to free up hard disk space. Refer to the "Available Disk Space Monitored on Switch Hard Drive" section on page 8 for detailed information.

Accessing the Select System Trace File Screen

Complete the following steps to access the Select System Trace File screen:

Step 1 Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Type **D** and press **Enter**.

The Select System Trace File screen appears (see Figure 5-15). The cursor is located in the OPERATION field.

Figure 5-15   Select System Trace Screen

```
          S E L E C T    S Y S T E M    T R A C E    F I L E


                      OPERATION: Print


                      DATE OF LOG FILE:

                         MONTH: Apr   DAY: 7
```

The Select System Trace File screen consists of one screen. Use the **Print Screen** key to obtain a hard copy of this screen.

Printing a Trace File

Complete the following steps to print a system trace file:

Step 1   Access the Select System Trace File screen (refer to the "Accessing the Select System Trace File Screen" section on page 5-38).

Step 2   Use the **Select** key to scroll through the values until the Print selection is displayed.

Step 3   Press the **Next Field** key.

Step 4   Use the **Select** key to scroll through the values until the month for which you want to print the trace file is shown.

Step 5   Press the **Next Field** key.

Step 6   Type the date for which you want to print the trace file.

Step 7   Press **Enter**.

The "Printing Trace File For..." message appears.

✎

Note   To abort printing, press the **Stop Print** key.

Step 8   Press the **Exit** key or press the **Prev Menu** key twice to return to the Maintenance Menu screen.

Displaying a Trace File

Complete the following steps to display a system trace file:

Step 1 Access the Select System Trace File screen (refer to the "Accessing the Select System Trace File Screen" section on page 5-38).

Step 2 Use the **Select** key to scroll through the values until the Display selection is shown.

Step 3 Press the **Next Field** key.

Step 4 Use the **Select** key to scroll through the values until the month for which you want to display the trace file is shown.

Step 5 Press the **Next Field** key.

Step 6 Type the date for which you want to display the trace file.

Step 7 Press **Enter**.

The trace file appears.

Step 8 Use the **Prev Screen** and **Next Screen** keys to page through the listings. Press the **Prev Screen** key at the first screen displays to display the message listings at the end of the trace file.

Step 9 Press the **Prev Menu** key once or the **Exit** key twice to return to the Maintenance Menu screen.

Switch ACT (Active) System to SBY (Standby)

The Switch ACT System to SBY option applies to redundant system configurations only. It allows you to switch control from the current active side to the standby side. In order for this function to have any effect on system operation the following conditions must be met:

- The master console must be connected to the active controller.

- The Select switch on the Alarm Arbiter Card (AAC) must be set to AUTO.

You can switch control with this function or the Change Active Controllers ($C0 01) command; refer to *Cisco VCO/4K Standard Programming Reference* and *Cisco VCO/4K Extended Programming Reference* for more information. When this function is used, switchover does not occur until the standby side controller is booted and has successfully completed file synchronization with the active side controller.

Switching an Active System To Standby

Complete the following steps to switch an active system to standby from the master console:

Step 1 Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2 Type **E** and press **Enter**.

The "ENTER to Confirm Switchover" message appears.

Step 3 Press **Enter**.

The "System Switch Initiated" message appears.

No other on-screen indication of switchover is provided. Log file messages to the system printers show the progress of the switchover. Figure 5-16 and Figure 5-17 show sample log files for a switchover from the A side to the B side.

Figure 5-16 System Switchover Log FIle - A Side

```
          #01 30-MAR-1999 13:48:27 A-ACT
FRM088: NBC Status Set To Inactive
          #01 30-MAR-1999 13:48:27 A-SBY
FRM007: Transition From Active To Standby
          #DF 30-MAR-1999 13:48:17 B-SBY
FRM087: NBC Status Set To Active
          #DF 30-MAR-1999 13:48:17 B-ACT
FRM006: Transition From Standby to Active
```

Figure 5-17 System Switchover Log File - B Side

```
          #DF 30-MAR-1999 13:48:27 B-SBY
FRM087: NBC Status Set To Active
          #DF 30-MAR-1999 13:48:27 B-ACT
FRM006: Transition From Standby To Active
          #01 30-MAR-1999 13:48:17 A-ACT
FRM088: NBC Status Set To Inactive
          #01 30-MAR-1999 13:48:17 A-SBY
FRM007: Transition From Active to Standby
```

Master Timing Link Selection

Use the Master Timing Link Selection option to select the system T1 or PRI timing source. Timing can be derived from system internal clocking or from an incoming T1 or PRI bit stream. If, when incoming timing is used, the incoming reference is lost, the system automatically tries to resynchronize using the internal clock. Synchronization is discussed further in Appendix B, "T1/PRI Synchronization to Master Timing Link."

You can change T1 synchronization from the Master Timing Link Selection screen or by using the T1 Synchronization Control ($C0 02) command; refer to the *Cisco VCO/4K Standard Programming Reference* and the *Cisco VCO/4K Extended Programming Reference* for more information. Both methods allow you to do the following:

- Switch to internal synchronization
- Switch to external synchronization
- Change Master Timing Link for incoming synchronization
  - Primary only
  - Secondary only
  - Both primary and secondary

If you select incoming synchronization from the Master Timing Link Selection screen, you must enter the primary and secondary link values. The link values correspond to the hardware address of the digital trunk card to be used as the timing reference. (If you use the host command, specify a port address residing on that card.) The system verifies that the card specified is on-line, a digital trunk card, and that the primary and secondary values are not the same card. If these conditions are met, the database is updated on both the active and standby sides before the system attempts to synchronize to the new values. Refer to Appendix B, "T1/PRI Synchronization to Master Timing Link," for a flowchart detailing the synchronization process.

Accessing the Master Timing Link Selection Screen

Complete the following steps to access the Master Timing Link Selection screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **F** and press **Enter**.

The Master Timing Link Selection screen appears (see Figure 5-18). The cursor is located in the Change Timing Source To field.

Figure 5-18   Master Timing Link Selection Screen

```
        M A S T E R    T I M I N G    L I N K    S E L E C T I O N


              Current Timing Source: Primary

              Change Timing Source To: Internal



                 Incoming E1/T1/PRI Links:

                 Primary     R,L,S  1 1 11-3
                 Secondary   R,L,S  1 1 13-4
```

Master Timing Link Selection consists of one screen. Use the **Print Screen** key to obtain a hard copy of this screen.

Master Timing Link Selection Screen Field Definitions

The Master Timing Link Selection screen contains the following fields:

Current Timing Source—*Display only.* Shows the source of the reference signal currently used for T1 synchronization. Valid values are:

Internal—Use clocking supplied by NBC for synchronization.

External—Use external network synchronization.

Primary/Secondary—Derive clocking from incoming digital stream.

Change Timing Source To—*Data entry via Select key.* Specifies the source to use as the reference signal for synchronization. Valid values and the additional data required, if necessary, are:

Internal—Use clocking supplied by NBC for synchronization.

External—Use external network synchronization.

Incoming—Derive clocking form incoming digital stream; primary link value required, secondary link value optional.

Primary R,L,S—*Data entry via main keypad.* This field is displayed only if Incoming timing is specified. Specifies the Rack-Level-Slot/Group/Span hardware address (physical location) of the card from which clocking should be derived. The hardware address must correspond to an on-line digital trunk card. For Four Span T1/E1, MVDC T1, and ICC T1/E1 cards, you must specify the span as well as the slot or the "Interface Required" message appears.

Secondary R,L,S—*Data entry via main keypad.* This field is displayed only if Incoming timing is specified. Specifies the Rack-Level-Slot/Group/Span hardware address (physical location) of the card from which clocking is derived if the primary signal is lost. The hardware address must correspond to an on-line digital trunk card other than that specified as the primary link value.

Note   Cisco Systems recommends that you do not select two spans from the same programmable trunk card as Primary and Secondary links.

Changing the Master Timing Link

Complete the following steps to change the master timing link:

Note   To exit the Master Timing Link Selection screen without making any changes, press the **Exit**, **Prev Menu**, or **Main Menu** key before you press **Enter** the first time (Step 3 and Step 4). To abort the operation after pressing **Enter** the first time, press any key; the screen reverts to the original values and remains displayed. No changes are made to the database unless you press **Enter** twice.

Step 1   Access the Master Timing Link Selection screen (refer to the "Accessing the Master Timing Link Selection Screen" section on page 5-42).

Step 2   Use the **Select** and **Reverse Select** keys to scroll through the values until the correct timing source is shown.

Step 3   Complete one of the following options, which depends upon your selection in Step 2.

   • If the selection is Internal or External, press **Enter**. The database is automatically updated and the synchronization change is made. Proceed to Step 6.

   • If the selection is Incoming, the Primary R,L,S and Secondary R,L,S fields are displayed. Press the **Next Field** key.

The cursor moves to the primary rack field.

Step 4   Type the physical location of the digital trunk card, or press the **Next Field** key to leave the primary value unchanged:

    a.   Type the Rack/Cabinet number and press the **Next Field** key.

    b.   Type the Level number and press the **Next Field** key.

    c.   Type the Slot/Group/Span number and press the **Next Field** key.

Step 5   Type the physical location of the digital trunk card if a secondary value is to be specified, or press **Enter** if there is no secondary value:

    a.   Type the Rack/Cabinet number and press the **Next Field** key.

    a.   Type the Level number and press the **Next Field** key.

    a.   Type the Slot/Group/Span number and press the **Next Field** key.

Step 6   Press **Enter**.

The "Press ENTER to Change Master Timing Link" message appears.

Step 7   Press **Enter**.

The system verifies the link values, if any. When verification is complete, the database is automatically updated and the timing change is made.

Step 8   Press the **Exit** key to return to the Maintenance Menu screen.

Card Alarm Display

Use the Card Alarm Display option to view a listing of the current alarm conditions for all network interface and internal service circuit cards, or a specific card. Alarm conditions shown on this display result in system alarms; the appropriate alarm messages are output to the system printer and the log file.

Alarm conditions are automatically set and cleared at system reboot. These alarm conditions generate messages to the host in the form of Alarm Condition ($F0) reports. You can disable the generation of this report at system initialization from the System Feature Configuration screen. More information about alarm messages is contained in *Cisco VCO/4K System Messages*.

Accessing the Card Alarm Display Screen

Complete the following steps to access the Card Alarm Display screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **G** and press **Enter**.

The Card Alarm Display screen appears (see Figure 5-19). The cursor is located in the CARD TO DISPLAY field. Up to 30 current alarm conditions are listed in the RLS field.

Figure 5-19   Card Alarm Display Screen

```
               C A R D   A L A R M   D I S P L A Y

    MA = MAJOR   MI = MINOR              CARD TO DISPLAY: _ _ ____

R  L  S       ALARM STATE                    R  L  S     ALARM STATE
1  1  5    MI Card Failure (Comm)
1  1  7    MA PRI/T1 Carrier Failure
1  1  11   MI Card Failure (Comm)
```

The Card Alarm Display screen can consist of one or more screens. Each screen lists 30 messages, ordered according to hardware address. The number of screens depends on the number of alarm conditions currently in force. Use the **Prev Screen** and **Next Screen** to page through the listings. Use the **Print Screen** key to obtain a hard copy of any of these screens. This screen does not get updated automatically. To update the display to show the most recent alarms, press the **Redraw** key.

Card Alarm Display Screen Field Definitions

The Card Alarm Display screen consists of the following fields:

CARD TO DISPLAY—*Data entry via main keyboard*. Type in the Rack-Level-Slot/Group/ Span of the card you want to display.

R L S—*Display only*. Shows the Rack-Level-Slot/Group/Span hardware address (physical location) of the card for which an alarm exists.

ALARM STATE—*Display only*. Shows the alarm condition that exists for the card at the corresponding hardware address. MA indicates a major alarm, MI indicates a minor alarm. Valid values and their meanings are:

MA PRI/T1 Carrier Failure—Loss of carrier. A carrier loss greater than 2 seconds is detected.

MA PRI/T1 Card Failure (Comm)—PRI/T1 card was removed from service or NBC can no longer communicate with the card.

MA PRI/T1 Out of Frame—Out-of-Frame (OOF) condition for a PRI/T1 card exists.

MI Card Failure (Comm)—Failure of all ports on a card, card was removed from service, or NBC can no longer communicate with the card.

MI Port Failure—Single port failure; currently unused.

MI PRI/T1 Remote Alarm Present—Remote failure (yellow alarm).

MI PRI/T1 Out of Frame Mtn Lmt—Maintenance threshold for PRI/T1 Out-of-Frame (OOF) conditions is reached. For PRI, this threshold is set from the PRI Card Configuration screen. For T1, this threshold is fixed at 4.

MI PRI/T1 Slip Mtn Limit—Maintenance threshold for PRI/T1 slips is reached. For PRI, this threshold is set from the PRI Card Configuration screen. For T1, this threshold is fixed at 255.

No Alarm Conditions Present—No alarm conditions for any card.

Displaying Alarms for a Specific Card

Complete the following steps to locate and display alarm messages for a specific card:

Step 1   Access the Card Alarm Display screen (refer to the "Accessing the Card Alarm Display Screen" section on page 5-44).

Step 2   Type the physical location in the CARD TO DISPLAY field.

Step 3   Type the Rack/Cabinet number and press the **Next Field** key.

Step 4   Type the Level number and press the **Next Field** key.

Step 5   Type the Slot number and press the **Next Field** key.

Step 6   Press the **Exit** key to return to the Maintenance Menu screen.

System Alarms Display

The System Alarms Display option displays a list of the types of alarms present on the system. If the alarm is caused by a card-related failure, use the Card Alarm Display screen to determine its exact cause. From this screen, you can also silence the external alarm contact on the AAC.

System alarms fall into seven categories: Fatal, Critical, Major, Minor, Aux 1, Aux 2, and Non-Alarmed Events. The specific alarm is identified by ALM messages. These same messages are output to the system printer and log file. A count of occurrences for each alarm is maintained on this screen. This counter is reset at system initialization.

Accessing the System Alarms Display Screen

Complete the following steps to access the System Alarms Display screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **H** and press **Enter**.

The System Alarms Display screen appears (see Figure 5-20). The cursor is located in the Alarm Severity field. All current alarm conditions, if present, are listed.

Figure 5-20   System Alarms Display Screen

```
                 S Y S T E M    A L A R M S    D I S P L A Y

Alarm Severity:  _____          Audible Cutoff ( Y/N ) _

                      Alarm Description              Occurrences

            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
            _____           ____
```

The System Alarm Display can consist of multiple screens. Each screen lists up to 14 messages. Use the **Print Screen** key to obtain a hard copy of this screen. This screen does not get updated automatically. Use the **Redraw** key to update the display to show the most recent alarms.

System Alarms Display Screen Field Definitions

The System Alarms Display screen contains the following fields:

Alarm Severity—*Data entry via Select key.* Specifies the type of system alarms to display. Valid values and their meaning are

Fatal—Condition has caused a system reset or control switchover in a redundant system. Immediate corrective action is required.

Critical—Condition is severe and service affecting. Escalation to a Fatal condition is likely. Immediate corrective action is required.

Major—Condition is service affecting, although not as urgent as a Critical condition. Immediate corrective action is recommended.

Minor—Condition does not have a serious affect on system operation.

Aux 1—Host has set an AUX 1 alarm using the Set/Reset Host Alarms ($C0 03) command.

Aux 2—Host has set an AUX 2 alarm using the Set/Reset Host Alarms ($C0 03) command.

Non-Alarmed Events—Condition is non-service affecting, such as system printer off-line.

Audible Cutoff (Y,N)—*Optional. Data entry via main keypad.* Specifies whether to disable the AAC alarm contact to stop any external CO alarms tied to the switch.

Alarm Descriptions—*Display only.* Shows the alarm conditions present for the system. Possible values and their meaning are listed in *Cisco VCO/4K System Messages*.

Occurrences—*Display only.* Shows the number of times this error has occurred.

Displaying Alarm Conditions

Complete the following steps to display current system alarm conditions:

Step 1   Access the System Alarms Display screen (refer to the "Accessing the System Alarms Display Screen" section on page 5-46).

Step 2   Use the **Select** and **Reverse Select** keys to scroll through the values until the correct alarm severity is shown.

Step 3   Press **Enter**.

The display is updated to show all alarms and occurrences for the severity level chosen.

Step 4   Press **Exit** to return to the Maintenance Menu screen.

To exit the System Alarms Display screen, press the **Exit**, **Prev Menu**, or **Main Menu** screen.

Disabling the Audible Alarm

Complete the following steps to disable the external alarm contacts on the AAC:

Step 1   Access the System Alarms Display screen (refer to the "Accessing the System Alarms Display Screen" section on page 5-46).

Step 2   Press the **Next Field** key.

The cursor moves to the Audible Cutoff (Y/N) field.

Step 3   Type **Y** and press **Enter**.

The "Press ENTER to Clear Alarms" message appears.

Step 4   Type **Y** and press **Enter**.

The "Alarms Cleared by System Administrator" message appears. The alarm contact on the AAC is opened, turning the external alarm off.

> Note   Alarm LEDs on the AAC are disabled when the Audible Cutoff option is chosen. Refer to the *Cisco VCO/4K Technical Descriptions* for more information.

Step 5   Press the **Exit** key to return to the Maintenance Menu screen.

To exit the System Alarms Display screen, press the **Exit**, **Prev Menu**, or **Main Menu** key.

Shutdown System

Use the Shutdown System option to reset the system controller from the master console. When you select this option, the system closes all open system files, terminates host communication, and resets the system controller.

In a nonredundant system, selecting this option tears down all calls being carried by the system. If the system is redundant, control is passed to the standby system controller and all stable calls are maintained. Calls that have not reached a stable state are torn down.

Complete the following steps to shut down the system and reset the system controller:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **I** and press **Enter**.

The Shutdown System screen with the "ENTER To Confirm Shutdown" message appears.

Step 3   Press **Enter**.

The following messages appear:

FRM528: System Shutdown Performed By System Administrator.

PRM024: File System Closed Successfully.

All host links are disabled and the system controller is rebooted. The Maintenance Menu screen and the "PRM024: File System Closed Successfully" message are displayed until system initialization begins.

Prompt Library Maintenance

Use the Voice Prompt Maintenance option to display the Prompt Library Maintenance screen which allows you to access multiple prompt libraries. The fields within the upper portion of the screen allow you to define a logical name for a library, assign a default directory to a library, and display the total prompt usage for a library.

The main area of the screen displays up to ten prompt entries in a library. The prompt ID, filename, version, description, encoding method (A-law, Mu-law), and duration (in seconds), are displayed for each prompt.

The lower portion of the screen allows you to add, delete, update, and test prompts, edit prompt attributes, and update the IPRC supporting a library. Procedures for each of these options are described in this section.

The prompt library configuration information (library name and directory) are maintained automatically on both sides of a redundant controller. You must add the prompt files separately to both sides of a redundant system; the disk utilities do not provide a means for copying files from one controller to another.

Refer to the *Cisco VCO/4K IPRC User's Supplement* for procedures pertaining to this screen.

Accessing the Prompt Library Maintenance Screen

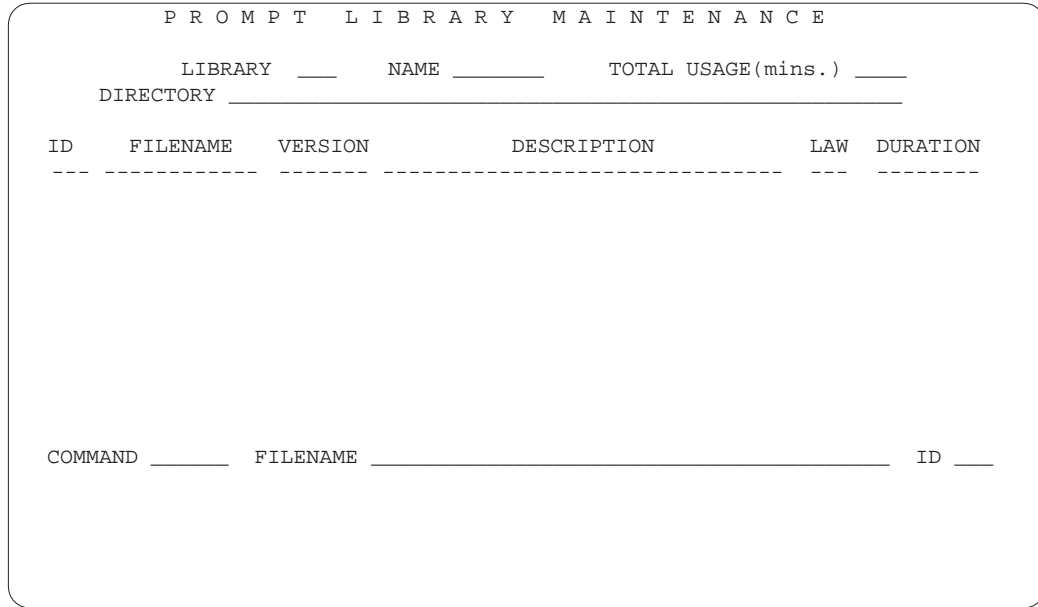Complete the following steps to access the Prompt Library Maintenance screen:

Step 1   Access the Maintenance Menu screen (refer to the "Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **J** and press **Enter**.

The Prompt Library Maintenance screen appears (see Figure 5-21).

Figure 5-21   Prompt Library Maintenance Screen

```
             P R O M P T   L I B R A R Y   M A I N T E N A N C E

          LIBRARY  ___     NAME _____     TOTAL USAGE(mins.) ____
       DIRECTORY _____

     ID    FILENAME   VERSION          DESCRIPTION          LAW  DURATION
     --- ------------ ------- -------------------------------  ---  --------







       COMMAND _____   FILENAME _____   ID ___
```

Prompt Library Maintenance Screen Field Definitions

The Prompt Library Maintenance screen contains the following fields:

LIBRARY—*Data entry via administration keypad.* Type a valid entry, from 1 to 16, to specify the library number to display.

NAME—*Data entry via main keypad.* Assign a logical name to the prompt library. This field accepts up to ten alphanumeric characters for the library name.

TOTAL USAGE (mins.)—*Display only.* Shows the total minute usage of all prompts in the library.

DIRECTORY—*Data entry via main keypad.* Assign a default device and directory for the prompt library. This field accepts up to 31 characters for the directory specification. The directory specification must include a device identifier (C: or F:) and a directory path (/boot/voice0).

ID—*Display only.* Shows the prompt ID assigned to this prompt file. Valid prompt IDs are 1 to 255.

FILENAME—*Display only.* Shows the filename for this prompt file entry.

VERSION—*Display only.* Shows the version of this prompt entry. The version is extracted from the prompt file.

DESCRIPTION—*Display only.* Shows the prompt file description for this prompt entry. The description is extracted from the prompt file.

LAW—*Display only.* Shows the encoding method (A-law or Mu-law) for the prompt file entry. The law is extracted from the prompt file. This field is an information only field; it does not examine the prompt data to determine the encoding method.

DURATION—*Display only.* Displays the duration, in seconds, for the prompt entry. The duration is calculated according to the length of the prompt file data.

COMMAND—*Data entry via Select key.* Specify a prompt maintenance action. When you press the **Select** key, the following options cycle through this field:

ADD—Use to add a prompt file to the library.

DELETE—Use to delete a prompt file from the library.

EDIT—Use to edit prompt attributes in a prompt file. When you select EDIT, additional fields appear at the bottom of the screen:

VERSION—*Data entry via administration keypad.* Specify or modify the version for a prompt file entry. Valid values are 1 to 255.

DESCRIPTION—*Data entry via administration keypad.* Specify or modify the description for a prompt file entry. Valid values are 1 to 999.

LAW—*Data entry via Select key.* Specify or modify the encoding method for a prompt file entry. This entry is an information field. Valid law entries are A (A-law) and M (Mu-law).

TEST—Use to test a string of prompts. When you select TEST, additional fields appear at the bottom of the screen:

MONIT RLSP—*Data entry via main keypad.* Specify a line or trunk port to play a list of voice prompts as part of a test announcement. The line/trunk port specified by these fields must be deactivated from the Card Maintenance screen or Change Port Status ($90) command before it can be used for prompt testing.

PROMPTS—*Data entry via main keypad.* Group of 12 fields used to specify a string of voice prompts to play to a line/trunk for testing.

Refer to the *Cisco VCO/4K IPRC User's Supplement* for procedures for each of these functions.

ID—*Data entry via administration keypad.* Use this field as part of the EDIT maintenance action. Specify or modify the prompt ID for a prompt file entry. Valid values are 1 to 255.

FILENAME—*Data entry via main keypad.* Define the prompt filename, source device, and directory. Filename is used for the Add, Delete, Edit, Test, and Update maintenance actions. Filename is a valid DOS filename (8 characters and 3 character extension). You can use a wildcard (*) to identify a group of prompt files for the Add, Delete, and Update actions.

UPDATE—Use to update all IPRCs supporting this prompt library.

Core Dump

The Core Dump option results in the automatic storage of detailed information following a system failure, or at your request (see Figure 5-22).

The information in the core file contains data sets with information regarding the reason(s) the file is being created and why the system failed. The core file contains the following information:

- System version, revision, field service release (FSR) number, and PUN number.

- Failure mode.

- Context of failed task.

- Register information.

- Time and date.

- Memory image (volatile and nonvolatile).

Core Dump Functionality

The system automatically creates a core file when there is an exception, a watchdog timeout, or at your request.

Note the following considerations with automatically created core files:

- The core file includes the reason for failure, system data, context data (if appropriate), and memory contents.

- Exception data includes system and stack data at the time of the failure.

- Failure data is not written to the log file.

- A watchdog enhancement allows for the specification of which task failed in the event of a watchdog time-out.

- There is a switchover in the case of a shutdown (redundant systems only) at which time the core file is created.

Initiating a Core Dump

Complete the following steps to initiate a core dump:

Step 1   Access the Maintenance Menu screen ("Accessing the Maintenance Menu Screen" section on page 5-2).

Step 2   Type **K** and press **Enter**.

The Core Dump options does not present you with a new screen. The Maintenance Menu screen remains displayed, and the "SHUTDOWN following Core Dump (Y/N)?" message appears at the bottom right of the screen (see Figure 5-22).

Figure 5-22   Maintenance Menu Screen—Core Dump Option Selected

```
                    M A I N T E N A N C E     M E N U

          A) Card Maintenance
          B) Disk Utilities
          C) Print/Display System Log File
          D) Print/Display System Trace File
          E) Switch ACT System To SBY
          F) Master Timing Link Selection
          G) Card Alarm Display
          H) System Alarm Display
          I) Shutdown System
          J) Voice Prompt Maintenance
          K) Core Dump
          L) Live Upgrade Control Menu


             Enter Selection: K




  #DF Fri Apr  30, 1999 15:04 A-SBY B-ACT SHUTDOWN following Core Dump (Y/N)?
```

48334

Step 3   Complete one of the following options, which is dependent upon your needs:

- To shut down the system after a core dump type **Y** and press **Enter**.

    The "ENTER To Confirm Core Reboot" message appears. Press **Enter** to confirm the shutdown.

- To be keep the system in operation after a core dump type **N** and press **Enter**. This is the default option.

    ✎
    Note   If you press Enter and do not indicate a SHUTDOWN option, the system remains in operation after a core dump.

The core file is generated after you press **Enter** in response to the "SHUTDOWN following Core Dump (Y/N)?" message.

The system automatically writes the core file to the C:/ directory. When a system is initialized, it checks to make certain there is enough disk space for the largest core file. If there is not enough space, a message is issued indicating a problem. Refer to *Cisco VCO/4K System Messages* for a description of messages related to the core dump feature.

When a core file is generated, the file is named core1. Note that core1 is the *current* core file. If an older core file already exists in the directory, the existing (older) file's name is increased by one and is saved with the new filename. For example, if a core1 file exists, the file is renamed to core2 and the new core file is named core1. If there is a core1 and a core2 file on the system, the core1 file is renamed core2, and the core2 file is renamed core3. The new core file is named core1. The system maintains up to four core files.

Sending a Core Dump File for Analysis

You may be asked to send a core dump file to Cisco for analysis. Use one of the following methods that to copy the file from the VCO/4K. A Cisco TAC representative can assist you with copying and sending the file to Cisco.

1. Use FTP, the Remote File Transfer feature, on your VCO/SDS system and transfer the file to a workstation. Refer to the "FTP Password Configuration" section on page 4-45 for information on FTP.

2. Split the core dump (core1) file and copy the resulting file segments on to floppy disks, and mail them to Cisco Systems. Refer to the "Split File" section on page 5-27 for more information on splitting files.

3. If you have the Ethernet option and NFS, mount the F: drive (the network drive) and move the file to the F: drive. After the file is on the network drive, use one of the following methods to send the file to Cisco:

    – A file transfer method with which you are familiar.

    – Contact a Cisco TAC representative to assist you.

Live Upgrade Control

Use the Live Upgrade Control option to update software on a redundant system without loss of calls, and with a minimum reduction in capacity. The process consists of converting the system controller to a new release, then switching over the port and service cards that need to be upgraded.

Refer to the *Cisco VCO/4K Software Installation Guide* for detailed information regarding the Live Upgrade procedure.