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Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Version 3.2.0.0

System Administrator's Guide for the Kernel Patch 1

(HP-UX 10.20)

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Preface

The following conventions have been used in this document:

[HELVETICA FONT]	Used to indicate keys to be pressed. For example, press [RETURN].
`Courier Font`	Used to indicate entries to be typed at the keyboard, operating system commands, titles of windows and dialog boxes, file and directory names, and screen text. For example, execute the following command: `tar xvf /dev/rmt/3mn`
"Quotation Marks"	Used to indicate prompts and messages that appear on the screen.
Italics	Used for emphasis.

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1. Introduction

This document describes general information about the Defense Information Infrastructure (DII) Common Operating Environment (COE) and the system administration utilities of the DII COE kernel.

This guide is divided into the following sections and appendices:

Section/Appendix	Page
Introduction Provides a high-level overview of the DII COE and provides a list of additional sources of information.	3
DII COE Environment Lists hardware components and kernel components.	7
Operating Guidelines Explains startup and shutdown of the hardware.	9
DII COE Kernel and Segment Installation Overview Provides instructions for performing local, remote, and network installations of the DII COE kernel and software segments.	11
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1.1 The DII COE Kernel

The DII COE kernel consists of the DII COE software required on every workstation. The kernel provides the commercial software of X Windows, Motif, and UNIX, as well as the DII COE System Administration, Security Administration, and runtime environment software. Figure 1 illustrates the DII COE kernel and the segment installation process. Refer to the *DII COE Integration and Runtime Specification* for more information about the DII COE. Refer to the *DII COE Kernel Installation Guide (HP-UX 10.20)*for more information about installing the DII COE kernel and segments.

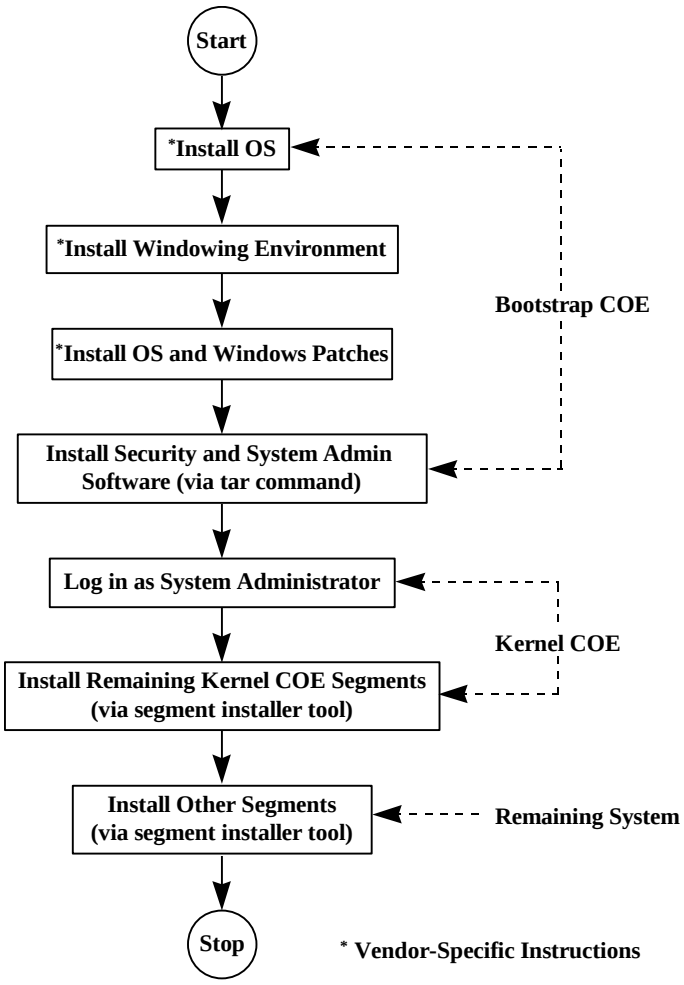

Figure 1. DII COE Kernel and Segment Installation

1.2 Referenced Documents

The following documents are referred to in this manual:

- DII COE I&RTS:Rev 3.0, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification* Version 3.0, January 1997

- DII.3200.HP1020.IG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 Kernel Installation Guide (HP-UX 10.20)*, July 25, 1997

- DII.3200.HP1020.SMG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE)* Version 3.2.0.0 *Security Manager's Guide (HP-UX 10.20)*, July 25, 1997

- UB3.0.2.5:FUM1.0, *Unified Build User's Guide Version 3.0.2.5*, April 14, 1997.

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2. DII COE Environment

This section describes DII COE hardware components and DII COE kernel components.

2.1 Hardware Components

The software may reside on a single disk or across multiple disks.

- HP 9000/7xx with at least 64 megabytes (MB) of random access memory (RAM)
- Hard disk drive with at least 1.2 gigabytes (GB).

2.2 Kernel Components

The DII COE kernel is a suite of applications layered on top of the HP-UX 10.20 Operating System. The DII COE kernel media contains software relating to several areas:

- Operating system
- System and Security Administration software
- X Windows system software
- Motif system software
- Common Desktop Environment (CDE).

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3. Operating Guidelines

This section provides operating guidelines for powering up and powering down the system.

3.1 Power Down

WARNING! Never power down the system without first executing a shutdown, as described in the steps below. Doing so could cause irreparable damage.

STEP 1: **Log in**. Log in with a `sysadmin` account and password at the prompts.

STEP 2: **Shut down the machine**. Select the `Shutdown` option from the `Hardware` pull-down menu and respond to the appropriate prompts.

STEP 3: **Wait until the system is fully down**.

STEP 4: **Turn off the peripherals**. Turn off the peripherals, including the monitor.

STEP 5: **Turn off the computer**.

3.2 Power Up

STEP 1: **Turn on the Uninterruptable Power Supply (UPS)**. Turn on the UPS, if necessary.

STEP 2: **Turn on the peripherals**. Turn on the peripherals, including the monitor.

STEP 3: **Turn on the computer**.

STEP 4: **Log in**. Log in with your assigned account and password at the prompts.

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4. DII COE Kernel and Segment Installation Overview

This section provides an overview of installation procedures for the DII COE kernel tape and one or more application segment tapes (for example, Netscape).

NOTE: Applications are designed to run with specific operating systems. Before installing any operating system or any segment, make sure the tape you are loading is the correct one. This can be verified by checking the label on the tape.

CAUTION! The DII COE is installed using an automated installation procedure that removes previously installed software and overwrites existing data files. This type of installation is called a *destructive installation*. Therefore, back up any data you want to save before beginning any installation procedure.

4.1 Installing the Operating System and Kernel

Refer to the *DII COE Kernel Installation Guide (HP-UX 10.20)* for details on installing the operating system and kernel.

4.2 Installing Segments

Installation of the DII COE and DII COE segments varies depending on the hardware architecture, the processor, and the type or number of segments being loaded.

Segments may be loaded or installed from tape drive or from hard disk. The source can be local, remote, or network:

- Local — From a tape drive physically attached to the machine
- Remote — From a tape drive physically attached to another machine
- Network — From a segment installation server attached to the local area network (LAN).

4.2.1 Local Installation

To install DII COE segments locally, use the segment tapes and a tape drive attached to the machine on which you are installing. The tape drive and the distribution medium must be compatible; for example, a 4mm digital audio tape (DAT) drive cannot be used to load or install an application delivered on a cartridge tape. Installing from a local source is convenient because it does not rely on a network to reach another machine. Refer to Section 6.4.1, *Segment Installer Option*, for more information about installing segments.

4.2.2 Remote Installation

To install DII COE segments from a remote source, the machine being loaded must have network capability. In addition, you need to know the remote machine's system name or IP address. A remote source is used when a local tape drive is unavailable or when the tape drive on the machine on which you are installing is incompatible with the tapes; for example, an HP segment can be loaded or installed from an HP workstation. Refer to Section 6.4.1, *Segment Installer Option*, for more information about installing segments.

4.2.3 Network Installation

To install DII COE segments from a network source, the segments must first be loaded onto one or more segment servers (the hard disk of one or more network machines). Loading a segment is different than installing a segment. Loading a segment on a machine stores the segment on the machine, but does not enable the segment to run. Instead, segments stored on a segment installation server are available for installation without the installation medium because they are located on a server. Segments can then be installed individually on each machine on the network. However, network installations require the system to be configured with networking capabilities. Refer to Section 6.4.2, *Segment Installation Server Option*, for more information about loading segments on a segment installation server.

NOTE: Loading segments on multiple machines is highly recommended because it ensures easy access to the software and does not require you to locate segment installation tapes.

5. Common Desktop Environment

The DII COE kernel is a suite of applications layered on top of the HP-UX Operating System. The Common Desktop Environment (CDE) is one of several software programs that comprise the kernel. The CDE provides a standard environment for managing applications and functions within one or more workspaces. To help organize your desktop, you can place special applications in a particular workspace and name that workspace accordingly.

The CDE has a horizontal window at the bottom of the display called a Front Panel, which is a desktop window that exists in all workspaces. The CDE remains open as different workspaces are opened. Figure 1 is a CDE Front Panel, which includes the following icons: Clock, Calendar, File Manager, Text Editor—Personal Applications, Mailer, Workspace Switch, Lock, Graphical Workspace Manager (GWM), EXIT, Default Printer, Style Manager, Application Manager, Help Manager, and Trash Can. These icons are controls for completing tasks and indicators. The controls and indicators shown in Figure 2 are described in greater detail in the following subsections.

Figure 2. CDE Front Panel

5.1 Subpanels

The default Front Panel contains subpanels. Controls with subpanels have a button with an upward arrow above them. This button is used to display or close the subpanel. For example, the Text Editor—Personal Applications, Personal Printers, and Help Manager controls have subpanels (Figure 3). Subpanels contain an `Install Icon` control, which allows the user or system administrator to customize the Front Panel, an icon that will start the application, and other controls. Dropping a file, folder, or action icon on the `Install Icon` control installs the file, folder, or action item in that subpanel.

To open a subpanel, click the arrow button above the control. To close a subpanel, click the down arrow that appears at the bottom of the subpanel.

> **NOTE**: If you have not moved a subpanel from its initial position, it closes automatically when you choose a control.

Initially, the Text Editor—Personal Applications, Personal Printers, and Help Manager controls have subpanels. In addition, the CDE can be customized: your front panel may contain additional subpanels, and the subpanels may contain additional or different controls. In other words, you can add controls to subpanels, interchange Front Panel and subpanel controls, add subpanels, add or delete workspaces, or rename workspaces.

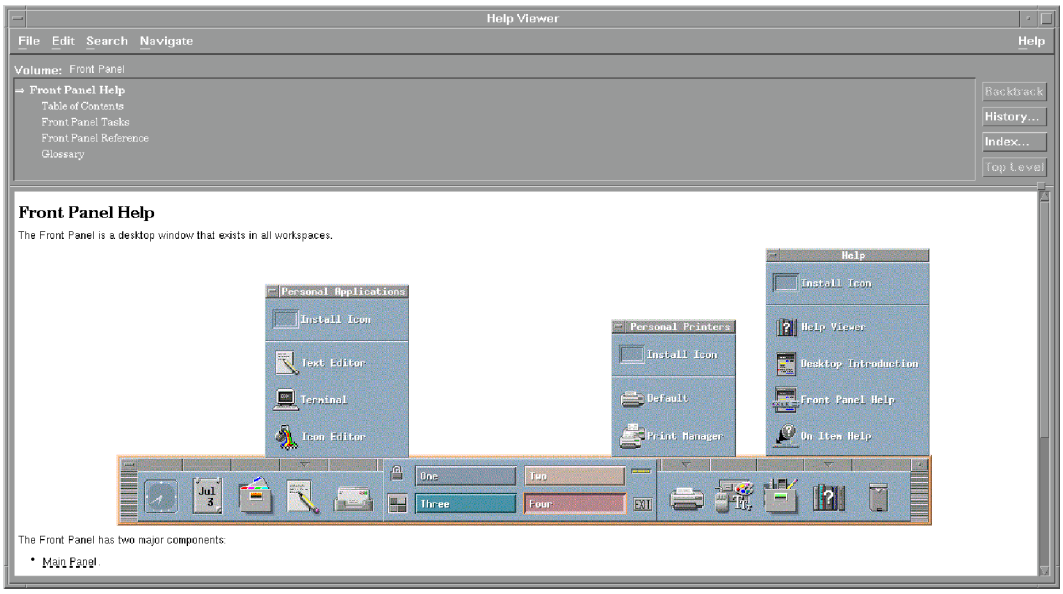

Figure 3. CDE Subpanels

5.1.1 Adding and Removing Subpanels

Follow the steps below to add or remove a subpanel.

STEP 1: **Indicate which subpanel should be added or removed**. Point to the control in the Front Panel whose subpanel you want to add or remove.

STEP 2: **Add or remove the subpanel**. Choose `Add Subpanel` or `Delete Subpanel` from the control's pop-up menu (see subsection 5.3, *Pop-up Menus*, for more information about pop-up menus).

5.1.2 Moving a Subpanel

Follow the steps below to move a subpanel.

STEP 1: **Indicate which subpanel should be moved**. Point to the subpanel's window frame.

STEP 2: **Move the subpanel**. Hold down the left mouse button as you drag the subpanel to its new location.

5.2 Controls and Indicators

The CDE contains controls and indicators. Controls allow you to access applications and utilities. The Calendar, File Manager, Mailer, Workspace Switch, Lock, Graphical Workspace Manager (GWM), Exit, Printer, Style Manager, Application Manager, Help Manager, and Trash Can are controls. Indicators provide information when selected — the Clock and the Busy Light are indicators.

The default indicators and controls that comprise the CDE are described in the following subsections as they appear from left to right on the CDE front panel. Since it can be customized, your Front Panel may contain additional or different controls.

5.2.1 Clock

The Clock is an indicator that displays the current time, which is maintained by the operating system.

5.2.2 Calendar

The Calendar is a control that displays the system date. Click on the Calendar to start the Calendar application. The Calendar application enables scheduling of appointments and creation of To Do lists. Day, week, month, and year calendar views are available. Appointments can be scheduled, deleted, and listed.

5.2.3 File Manager

The File Manager control opens a view of your home folder or of a selected folder. This application is used to manage the files and directories of a system, as well as to create, edit, rename, and delete files and folders. Click on the File Manager control to open a view of your home folder, or drop a file on the File Manager control to open a view of the dropped folder.

5.2.4 Text Editor—Personal Applications

The Text Editor—Personal Applications control is used to edit text. Click on the Text Editor control to start the desktop Text Editor application. Dropping a file on the Text Editor control opens the file in a new Text Editor window.

This control position is reserved for a personal application of your choice. To place an application other than the Text Editor in this control position, install the new application icon in the Personal Applications subpanel. Applications are installed from the Application Manager (see Section 5.2.13, *Application Manager*) by dragging the icon from the Application Manager window to the Install Icon control. Once the application is installed in the Personal Applications subpanel, you can use the control's pop-up menu to place that control in the Front Panel.

NOTE: These icons may not function based on profile selection. For more information about profile selection, see the *DII COE Security Manager's Guide (HP-UX 10.20).*

Using this same installation process, you can store frequently used applications in the Personal Applications subpanel, such as the Terminal control, and the Icon Editor control. These two controls are discussed in the following subsections.

5.2.4.1 Terminal

The Terminal control is used to open a terminal emulator window. Click on the Terminal control to open the window.

NOTE: For security reasons, this option has been removed from the CDE Front Panel for all users except `root`. Root users can access the Terminal control from the Text Editor—Personal Applications control subpanel.

If you are logged in with a System Administration account and want to access a terminal emulator window, follow the steps below:

STEP 1: Double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window.

STEP 2: Double-click on the `DII_APPS` folder in the `Application Manager` window to open the `Application Manager - DII_APPS`folder.

STEP 3: Double-click on the `SA_Default` folder to open the `Application Manager - SA_Default` window. This window contains both a `DTterm` icon and an `XTerm` icon.

STEP 4: Double-click on either the `DTterm` icon or the `XTerm` icon to open the window.

5.2.4.2 Icon Editor

The Icon Editor control is used to create new icons (bitmap and pixmap files) or edit existing icons. Click on the Icon Editor control to open the Icon Editor application.

5.2.5 Mailer

The Mailer control is used to create, send, and receive electronic messages and attachment files. Click on the Mailer control to start the Mailer application. To mail one or more files, select the file(s) in File Manager, drag the file(s) from File Manager and drop them on the Mailer control, type the subject and destination address(es) into the `New Message` dialog box, and click on the `Send` button.

The Mailer control includes an indicator, which indicates the arrival of new mail. Dropping a file on the Mailer control opens the file's contents in the Mailer's New Message window.

5.2.6 Workspace Switch

The Workspace Switch allows you to change workspaces. To help organize your desktop, you can place special applications in a particular workspace and name that workspace accordingly. Each workspace, therefore, contains only those applications and functions you want to group together. The Workspace Switch is located in the center of the CDE Front panel. It contains buttons with the words "`One`", "`Two`", "`Three`", and "`Four`", which are controls used to select one of four workspaces. The button for the current workspace is “pushed in” (that is, inset from the other three). To change the name of the current workspace, click its button and edit the name in the button.

5.2.7 Lock Control

The Lock icon locks the display and keyboard, thereby preventing unauthorized input. No input from your keyboard or mouse will be allowed until you unlock the display with your password. Click on the Lock control to lock the display.

5.2.8 GWM Control

The GWM control is used to start the Graphical Workspace Manager (GWM), which provides a visual representation of the application windows available in all of the workspaces. The GWM is used to control the size, placement, and operation of windows within multiple workspaces, as well as maintain a depiction of the windows as you create, move, and otherwise manipulate them. Click on the GWM control to start the GWM application.

5.2.9 Busy Light Indicator

The Busy Light indicator blinks to indicate that the system is running an action.

5.2.10 EXIT Control

The EXIT control is used to log out of the desktop and end the desktop session. Click on the EXIT control to end the current session.

5.2.11 Personal Printers Control

The Personal Printers control displays the status of the default printer and allows cancellation of print jobs on that printer. Click on the Printer control to open the `Print Manager` window, which shows the status of print jobs on the default printer and other printers. Drag files from the Application Manager of the File Manager and then drop them onto the Printer control to print them on the default printer.

The Personal Printers subpanel contains the following applications: Install Icon, Default, and Print Manager. Install Icon is used to install an icon dragged from File Manager or Application Manager onto the subpanel. Print Manager is used to print a file on the default printer, open or close a printer’s queue, set a printer as default, or move jobs within a printer’s queue.

5.2.12 Style Manager

The Style Manager is used to customize the appearance and behavior of your desktop session. Specifically, the Style Manager control allows customization of the backdrop, keyboard, screen, fonts, colors, mouse, startup, beep, and window. Click on the Style Manager control to start the Style Manager application. If the application is already running, its window is raised to the top of the window stack.

5.2.13 Application Manager

The Application Manager is a container for the applications registered on your system. Click on the Application Manager control to open an `Application Manager` window. This window contains folders of application groups, such as tools and applications. These folders contain icons that, when selected, start applications.

5.2.14 Help Manager

The Help Manager control lists information about CDE topics. Click on the Help Manager control to open a `Help Viewer` window displaying the top level of help information. The help available on your system is organized hierarchically. The top level lists all the help “families” on your system. When you click on a family to open it, you will see a list of all the help “volumes” in that family. The Index feature in the `Help Viewer` window is used to search for topics.

The Help Manager subpanel contains the following applications: Desktop Introduction, which provides an introduction to the desktop; Front Panel Help, which provides an introduction to the front panel of the CDE; and On-Item Help, which provides information on a selected control.

5.2.15 Trash Can

The Trash Can stores files for deletion. Click on the Trash Can control to open the `Trash Can` window. Dropping a file or folder on the Trash Can control moves the file or folder to the Trash Can. The Trash Can is emptied by opening the Trash Can, selecting files to be deleted, choosing `Shred` from the `File` menu or from the `Trash Can` pop-up menu, and then clicking `OK` in the confirmation window.

5.3 Pop-up Menus

CDE Front Panel controls include pop-up menus. The contents of a control’s pop-up menu depends on the behavior of the control and its location. To display a Front Panel pop-up menu, point to the control and press the right mouse button.

5.3.1 Pop-up Menus for Front Panel Controls

If the control starts an application, the first entry in the menu is a command that starts the application. Choosing the menu option has the same effect as clicking on the control. If the Front Panel control does not have a subpanel, clicking on the control with the right mouse button will display the following pop-up menu options: `[Name of the control]`, `Add Subpanel`, and `Help`.

`[Name of the control]`
Starts the application (if the control starts an application).

`Add Subpanel`
Adds a subpanel to the control.

`Help`
Displays on-line help for the control.

5.3.2 Pop-up Menus for Front Panel Controls with Subpanels

If the Front Panel control has a subpanel, clicking on the control with the right mouse button will display the following pop- up menu: `[Name of the control]`, `Remove Subpanel`, and `Help`.

`[Name of the control]`
Starts the application (if the control starts an application).

`Remove Subpanel`
Removes the subpanel and its contents.

`Help`
Displays on-line help for the control.

5.3.3 Pop-up Menu for the Switch Area

The switch area is the portion of the workspace switch not occupied by other controls or workspace buttons. The pop-up menu contains the following options: `Add Workspace` and `Help`.

`Add Workspace`
Adds a workspace.

`Help`
Displays help for the workspace switch.

5.3.4 Pop-up Menu for Workspace Buttons

Workspace buttons are used to change workspaces. Each button has its own menu, which contains the following options: `Add Workspace`, `Delete`, `Rename`, and `Help`.

`Add Workspace`
Adds a workspace.

`Delete`
Deletes the workspace.

`Rename`
Turns the button label into a text field for editing the name.

`Help`
Displays help for the workspace switch buttons.

5.3.5 Pop-up Menu for Subpanel Controls

The pop-up menu for subpanel controls includes a command for making a particular control the current Front Panel control. The pop-up menu contains the following options: `Copy to Main Panel`, `Remove`, and `Help`.

`Copy to Main Panel`
Duplicates the control in the Front Panel, replacing the current Front Panel control.

`Remove`
Removes the control from the subpanel.

`Help`
Displays on-line help for the control.

6. System Administration Utilities

This section describes the DII COE System Administration application, which provides options for DII COE maintenance and management. To access utilities, log in with a system administration user account.

Options are grouped according to their functionality and are located on pull-down menus or as icons within the application manager. Some options may have a cascading menu. Availability of specific menu options depends on two criteria:

- Hardware type (for example, HP)
- Access assigned to the user account profile.

The System Administration application has the following pull-down menus: `SA System`, `Hardware`, `Software`, and `Network`. In addition, some system administration tasks may be performed from the command line. These system administration utilities are described in the following sections.

System Administration Functionality	Page
DII COE Printer Subsystem Describes the additional printing functionality.	22
SA System Menu Describes how to select and configure printers, manage print jobs, and close windows.	26
Hardware Menu Describes how to reboot or shut down the system, mount file systems, format hard drives, and initialize floppy disks.	37
Software Menu Describes how to load or install segments.	44
Network Menu Describes how to change the machine ID, edit host information, set the system time, configure a workstation as a Domain Name Server (DNS), set routing configuration, configure mail on a workstation, and configure Network Information Service (NIS).	53
Removing Global Data Describes how the system administrator can use the COERemoveGlobal command line tool to remove global data, thereby making a segment accessible only to the local machine.	66
Changing Workstation Security Levels Describes how to change the security level of a workstation.	68
Auditing Describes how to enable and disable auditing.	69
Changing the `sysadmin` Password Describes how to change the `sysadmin` password.	72

6.1 The DII COE Printer Subsystem

The DII COE Printer subsystem provides a simple, common way to configure, manage, and use printer services from a DII workstation. It provides a common graphical user interface across all supported platforms and provides for centralized management of local printer resources, as well as access to remote printers.

The COE Printer subsystem manages printers in what are known as *administrative domains.* An administrative domain is a set of workstations within the same LAN that are configured (for printer services) as a single unit. A local printer created on any workstation within an administrative domain is immediately visible to all other workstations on the system. Any changes in the configuration of a printer are also effective immediately on all printers in the domain. If a workstation is down when a printer is added or deleted, that change is automatically detected when the workstation is restarted.

Each printer used by DII workstations should have a single COE Print Server designated to handle print requests for that printer. This workstation is responsible for maintaining the configuration for the printer, managing the print queue, and distributing information about the printer to other workstations within the administrative domain.

The COE Printer subsystem provides remote access to COE Print Servers in other administrative domains. A remote printer is still managed by a single COE Print Server in the remote domain, but to users in the local domain it appears identical to a locally managed printer.

The COE Printer subsystem provides support for directly attached printers, such as those with serial or parallel port interfaces, as well as network printers that use the LP (Line Printer) protocol (LP protocol is a standard used for printing in UNIX systems). A printer handled by an LP server can be configured as a local printer, just as a directly attached printer would be. In this case, the LP server is the ultimate controller for the printer, because it may receive jobs from non-DII workstations *and* the COE Print Server. However, all jobs from DII workstations are still managed by the COE Print Server, allowing for the full use of the DII COE Printer capabilities.

6.1.1 Printing

The first time you drag and drop a file to print in the DII COE Printer subsystem, you use a three-part process: selecting a file, accessing the `Print Selector` window, and selecting a printer. This process is described in the following steps:

STEP 1: **Access the `File Manager` window**. Click on the `File Manager` control in the CDE front panel. The `File Manager` window appears.

STEP 2: **Move the file you wish to print to the `Printer` control**. In the `File Manager` window, highlight the file you wish to print, drag it (hold down the middle mouse button) to the `Printer` control in the CDE front panel, and drop it (release the mouse button). The `Print Selector` window appears (Figure 4), unless you have previously selected a “Specified” printer for easy access (see Section 6.2.1.2.2, *Creating a Specified Printer on the CDE Front Panel*).

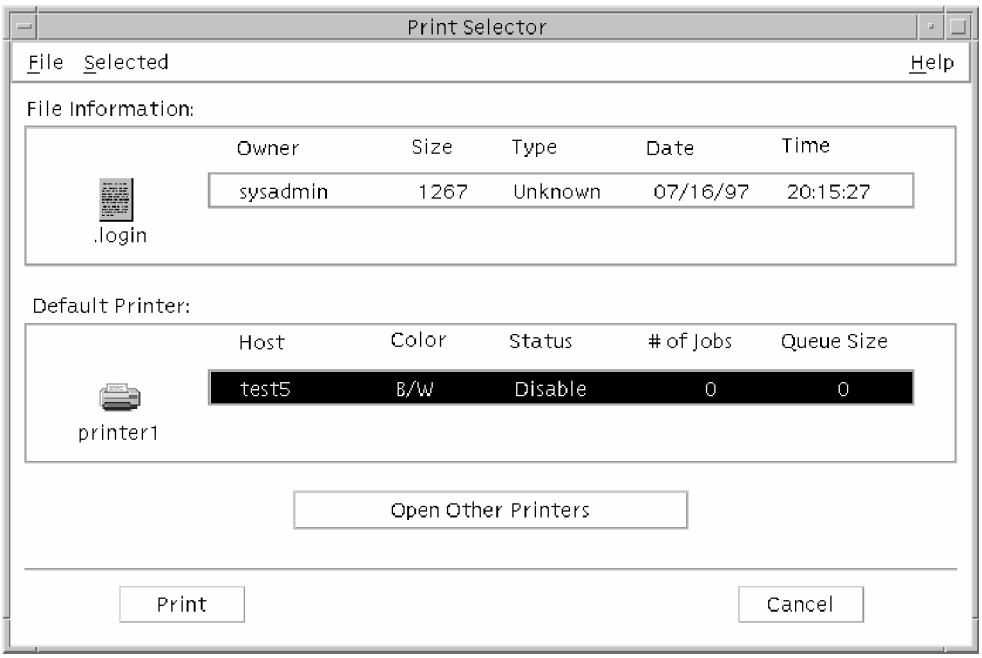

Figure 4. Print Selector Window

STEP 3: **Print the file**. Notice that your file is listed at the top of the `Print Selector` window under `File Information`, along with information pertaining to that file. To print the file to the default printer, click on the `Print` button. The `Print Selector` window closes. To print with another printer, continue on to Step 4.

STEP 4: **Print with another printer**. Click on the `Open Other Printers` button to view information for all other printers on the system. The window expands to accommodate the list. Drag the file icon, using the middle mouse button, down to any printer you choose and drop it there. The file prints to the selected printer and the `Print Selector` window closes.

6.1.2 The Print Selector Window

The `Print Selector` window shows file information, default printer information, and information about other printers on the system (see Step 4 above). To change the default printer, click on the `Open Other Printers` button, click on a printer icon to highlight a printer other than the default printer, and select `Set as User Default` from the `Selected` menu. A message window appears with the message `Default Printer Set to [Printer Name]` Click on the `Close` button to close the message window. The newly selected printer now appears as the default printer in the `Print Selector` window.

NOTE: When you set a printer as the default printer on the `Print Selector` window or the `Print Manager` window, this becomes your *personal* default printer. When you set a printer as the default printer on the `Printer Administrator` window, this becomes the *system* default printer. The personal default printer overrides the system default printer.

Print Selector Pull-down Menus

The `Print Selector` window contains the following pull-down menus: `File`, `Selected`, and `Help`. These pull-down menus are described below.

`File`
The `File` pull-down menu contains the following options: `Print`, `Update Window`, and `Exit`.

`Print`
Prints the file to the highlighted printer.

`Update Window`
Refreshes data displayed in the `Print Selector` window.

`Exit`
Closes the `Print Selector` window.

`Selected`
The `Selected` pull-down menu contains the following option: `Set as User Default`.

`Set as User Default`
Sets the highlighted printer as the default printer.

`Help`
The `Help` pull-down menu is not yet implemented.

Print Selector Window Fields

The `File Information` portion of the `Print Selector` window has the following fields: `Owner`, `Size`, `Type`, `Date`, and `Time`. Each printer item in the `Print Selector` window has the following fields: `Host`, `Color`, `Status`, `# of Jobs`, and `Queue Size`. These fields are described below.

`File Information:`

`Owner`
Shows the name of the user who owns the file.

`Size`
Shows the size of the file.

`Type`
Shows the file type (this functionality is not currently supported, so this field reads type `Unknown`).

`Date`
Shows the date associated with the creation of the file.

`Time`
Shows the time associated with the creation of the file.

`Default Printer` (and **`Other Printers`**):

`Host`
Shows the host on which the printer resides.

`Color`
Shows the color capability of the printer. Because this functionality is not currently supported, the field displays `B/W` (black & white).

`Status`
Shows the status of the printer (for example, `Idle`, `Printing`, `Disabled`).

`# of Jobs`
Shows the number of print jobs currently in the print queue.

`Queue Size`
Shows the total size of all the print jobs currently in the queue.

Print Selector Window Buttons

The `Print Selector` window has the following buttons: `Open/Close Other Printers`, `Print`, and `Cancel`. These buttons are described below.

`Open/Close Other Printers`
Used to show/not show information about other printers available in the `Print Selector` window. To show information about printers other than the current default printer, click on the `Open Other Printers` button. The window extends to include a list of other available printers and information about each printer, and the `Open Other Printers` button becomes the `Close Other Printers` button. To collapse this portion of the window and view only default printer information, click on the `Close Other Printers` button.

`Print`
Used to print the file to the currently selected (highlighted) printer.

`Cancel`
Used to close the `Print Selector` window.

6.2 SA System Menu

The `SA System` menu contains the following options: `Printer` and `Close All`. These options are described in subsections 6.2.1, *Printer Option*, and 6.2.9, *Close All Option*.

6.2.1 Printer Option

The `Printer` option is used to manage many of the DII COE printing functions. The `Printer` option has a cascading menu that contains three options: `Printer Manager`, `Printer Administrator`, and `Printer Domain Config`. These three options are described in detail in the following sections.

6.2.1.1 Printer Manager Option

The `Printer Manager` option allows you to view and affect the print jobs stored in the local printers' queues. Select the `Printer Manager` option from the `SA System` menu to open the `Print Manager` window (Figure 5).

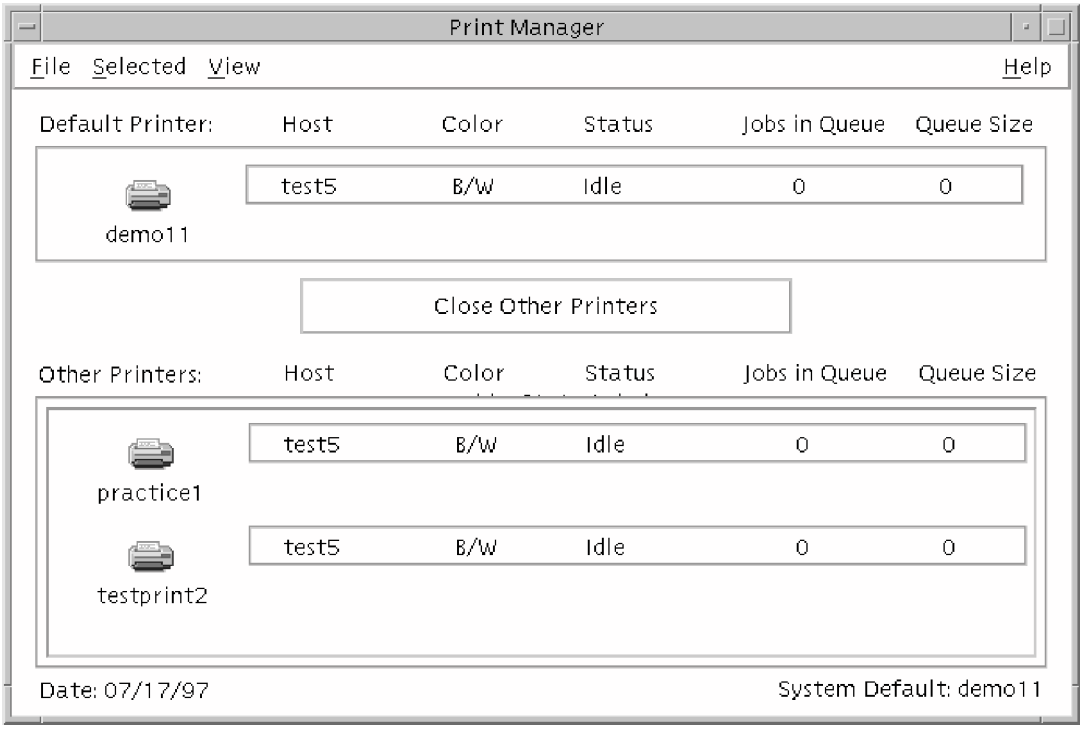

Figure 5. Print Manager Window

Print Manager Pull-down Menus

The `Print Manager` window contains the following pull-down menus: `File`, `Selected`, `View`, and `Help`. These pull-down menus are described below.

`File`
The `File` pull-down menu contains the following options: `Update Window` and `Exit`.

`Update Window`
Refreshes data displayed in the `Print Manager` window.

`Exit`
Closes the `Print Manager` window.

`Selected`
The `Selected` pull-down menu contains the following options: `Open Queue`, `Close Queue`, `Set as User Default`, `Move Job to Front`, and `Remove Job`. To use the `Selected` menu options, you must first highlight a printer.

`Open Queue`
Expands the view of the selected printer to include the jobs currently in the printer's queue. You can also double-click on the Printer icon to open the queue.

`Close Queue`
Collapses the view of the selected printer's queue. You can also double-click on the Printer icon to close the queue.

`Set as User Default`
Sets the highlighted printer as the default printer.

`Move Job to Front`
Moves the highlighted print job to the front of the queue. However, if the first job is currently printing, the selected job will move to second in the queue.

NOTE: You can also move jobs around in the print queue by dragging and dropping them:

1. Click on a print job icon to highlight it.
2. Hold down the second mouse button.
3. Drag the icon to the desired position in the queue.
4. Release the mouse button to drop the print job.

Jobs will appear in the new order. Again, if a job is currently running and you try to place the selected job to the first position, the selected job will be bumped to second in the queue.

`Remove Job`
Deletes a print job.

`View`
The `View` pull-down menu contains the following option: `Job Info`.

`Job Info`
Displays specific information about the selected print job. You can also view job information by double-clicking on the job.

`Help`
The `Help` pull-down menu is not yet implemented.

Print Manager Fields

Each printer item in the `Print Manager` window has the following fields: `Host`, `Color`, `Status`, `Jobs In Queue`, and `Queue Size`. These fields are described below.

`Host`
Shows the host system for the printer.

`Color`
Shows the color status of the printer. Because this functionality is not currently supported, the field displays `B/W` (black & white).

`Status`
Shows the status of the printer (for example, `Idle`, `Printing`, `Disabled`, `Down`).

`Jobs In Queue`
Shows the number of print jobs currently in the print queue.

`Queue Size`
Shows the total size of all the print jobs currently in the queue.

6.2.1.1.1 Viewing Print Jobs

To view the print jobs for a specific printer (including the default printer) on the `Print Manager` window, click on the desired printer to highlight it, then select the `Open Queue` option from the `Selected` menu. You can also double-click on the printer to open the queue. The selected printer item expands to show print jobs in the queue (Figure 6). The `Close Queue` option closes the expanded view of the queue.

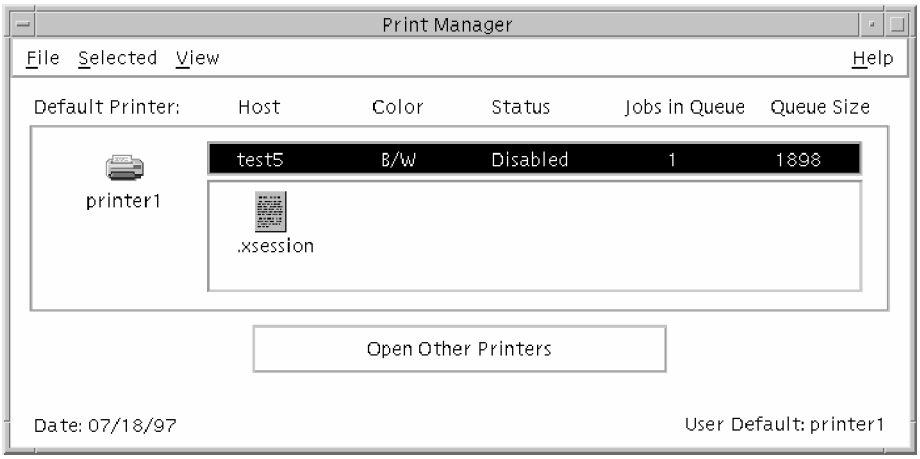

Figure 6. Print Manager Window with Open Queue

6.2.1.1.2 Viewing Print Job Information

You can view information about a print job by following one of these two methods: 1) highlight a print job and select the `Job Info` option from the `View` menu; or 2) double-click on a job. The `Job Information` window (Figure 7) appears.

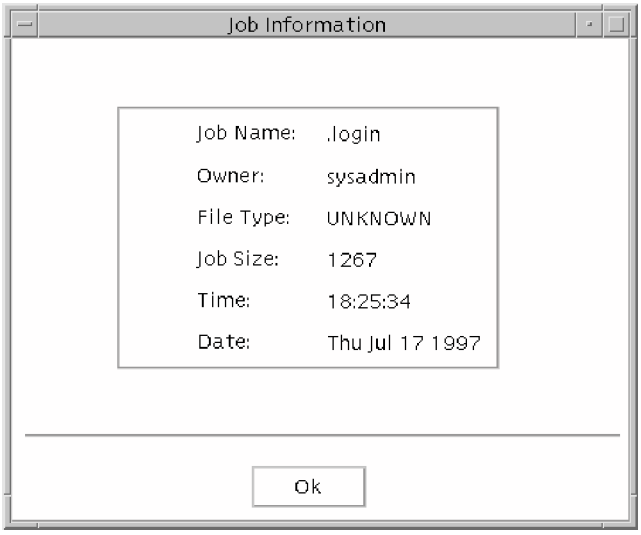

Figure 7. Job Information Window

The `Job Information` window contains information specific to the print job you have highlighted in the `Print Manager` window: `Job Name`, `Owner`, `File Type`, `Job Size`, and the `Time` and `Date` at which the server received the job. Click on the `Ok` button to close this window.

Print Manager Window Buttons

The `Print Manager` window has one button. This button changes, depending on the status of the window. See `Open/Close Other Printers` below.

`Open/Close Other Printers`
Used to show/not show information about other printers available in the `Print Manager` window. To show information about printers other than the current default printer, click on the `Open Other Printers` button. The window enlarges to include a list of other available printers and information about each printer, and the `Open Other Printers` button becomes the `Close Other Printers` button. To collapse this portion of the window and view only default printer information, click on the `Close Other Printers` button. Figure 5 shows the expanded `Print Manager` window.

6.2.1.2 Printer Administrator Option

The `Printer Administrator` option is used to add, modify, and delete printers, and to add remote printer access. The `Printer Administrator` option also allows you to enable or disable a printer queue, printer function, and the banner for a selected printer, and to set a printer as the default printer. Select the `Printer` option, then the `Printer Administrator` option under the `SA System` menu to open the `Printer Administrator` window (Figure 8).

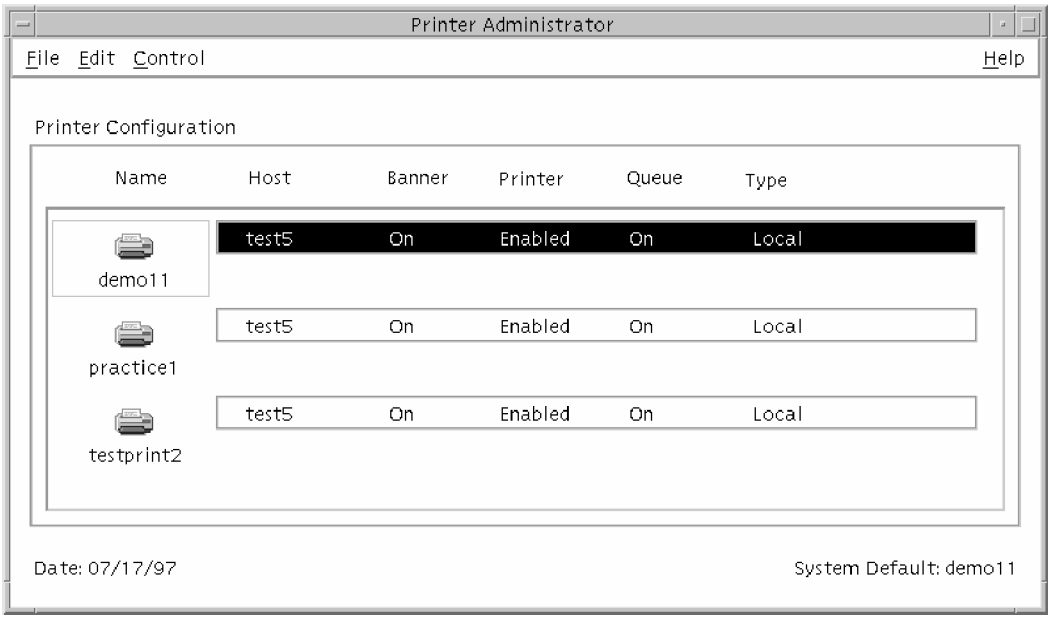

Figure 8. Printer Administrator Window

Printer Administrator Pull-Down Menus

The `Printer Administrator` window contains the following pull-down menus: `File`, `Edit`, `Control`, and `Help`. These pull-down menus are described below.

`File`
The `File` pull-down menu contains the following options: `Update Window`, `Print Log Report`, `Print Test Page`, and `Exit`.

`Update Window`
Refreshes the data in the `Printer Administrator` window.

`Print Log Report`
Prints a log report. This functionality is not currently supported.

`Print Test Page`
Prints a test page on the selected printer. This functionality is not currently supported.

`Exit`
Closes the `Printer Administrator` window.

`Edit`
The `Edit` pull-down menu contains the following options: `Add Printer`, `Add Remote Printer Access`, `Modify Printer`, and `Delete Printer`.

`Add Printer`
Adds a printer.

`Add Remote Printer Access`

Obtains access to a printer not in the local domain.

`Modify Printer`
Modifies the configuration of a printer in the local domain.

`Delete Printer`
Deletes a selected printer.

`Control`
The `Control` pull-down menu contains the following options: `Enable Queue`, `Disable Queue`, `Enable Printing`, `Disable Printing`, `Enable Banner`, `Disable Banner`, and `Set as Default`.

`Enable Queue`
Enables entry of print jobs to the selected printer's queue.

`Disable Queue`
Disables entry of print jobs to the selected printer's queue.

`Enable Printing`
Enables the printing of jobs in the selected printer's queue.

`Disable Printing`
Disables the printing of jobs in the selected printer's queue.

`Enable Banner`
Enables printing the banner of the selected printer.

`Disable Banner`
Disables printing the banner of the selected printer.

`Set as Default`
Sets the selected printer as the system default printer.

`Help`
The `Help` pull-down menu is not yet implemented.

Printer Administrator Fields

The `Printer Administrator` window has the following fields: `Name`, `Host`, `Banner`, `Printer`, `Queue`, and `Type`. These fields are described below.

`Name`
Lists the names of available printers.

`Host`
Shows the host to which each printer is attached.

`Banner`
Shows the status of the printer's banner — `On` or `Off`.

`Printer`
Shows the printer status — `Enabled` or `Disabled`.

Queue
Shows the queue status — `On` or `Off`.

Type
Shows the type of printer — `Remote` (outside domain) or `Local` (inside domain).

6.2.1.2.1 Adding a Local Printer

To add a local printer, or a printer within your domain, select the `Add Printer` option from the `Edit` menu on the `Printer Administrator` window (Figure 8). The `Add Printer` window (Figure 9) appears.

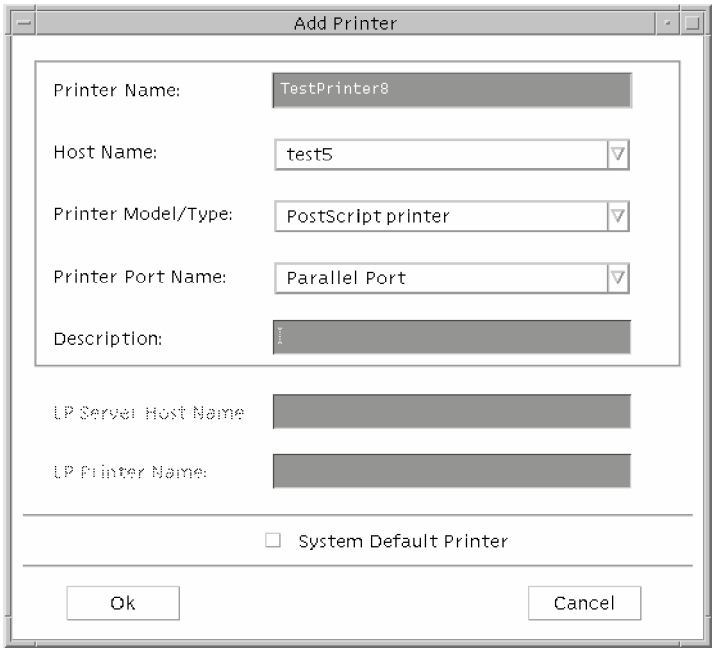

Figure 9. Add Printer Window

STEP 1: Click on the `Host Name` drop-down list box and select a host from the list.

STEP 2: Enter the printer name in the `Printer Name` field (maximum of 14 characters, no special characters) and an appropriate description in the `Description` field.

STEP 3: Click on the `Printer Model/Type` drop-down list box and select a model/type from the list.

STEP 4: Click on the `Printer Port Name` drop-down list box and select a printer port from the list. If you select `LP Print Server` from the `Printer Port Name` list, you must then enter the appropriate information in the `LP Server Host Name` and `LP Printer Name` fields below.

NOTE: Select `LP Print Server` from the `Printer Port Name` list when the desired printer's host is not attached to a DII COE machine but is on your network. The `LP Server Host Name` must be contained in the network list (for example, DNS, NIS+, host table).

STEP 5: Click on the `System Default Printer` check-box if you wish to select this printer as the default.

STEP 6: Click on the `Ok` button to accept all of your choices and close the `Add Printer` window, or click on the `Cancel` button to disregard all of your selections.

When you click on `Ok` to close the `Add Printer` window, the `Printer Administrator` window reappears. The printer you just added is now included in the list of available printers.

6.2.1.2.2 Creating a Specified Printer on the CDE Front Panel

To create a specified printer, or add an option for a frequently used printer, on the CDE Front Panel's `Printer` control, perform the following steps:

STEP 1: **Open the `Printer` menu**. Click the a symbol above the `Printer` icon on the Front Panel. The `Printer` menu opens (Figure 10). Note the specified printer at the bottom of the menu.

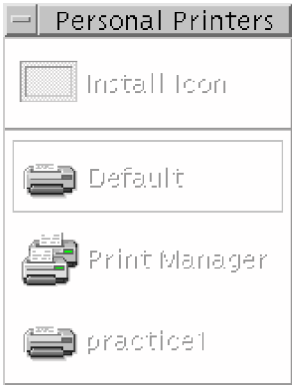

Figure 10. Printer Menu

STEP 2: **Access the `Printer Manager` window**. Select the `Printer Manager` option from the `Printer` menu. The `Printer Manager` window appears. The `Printer` menu remains open in the CDE Front Panel.

STEP 3: **Select a printer to be the specified printer**. Highlight and drag the printer you want to be the specified printer to the `Install Icon` option on the `Printer` menu and drop it. A printer icon, along with the name of the printer you've just specified, appears as a new option on the `Printer` menu (see Figure 10).

NOTE: To set the specified printer as the default printer so that when you drag a file to the printer control to be printed it will automatically print to this printer, right click on the specified printer's icon and select the `Copy to Main Panel` option from the sub-menu. To return to the previous default printer, right click on the default printer's (`Default`) icon and select `Copy to Front Panel` from the sub-menu.

6.2.1.2.3 Modifying Printer Information

To modify printer information, highlight the appropriate printer and select the `Modify Printer` option from the `Edit` menu of the `Printer Administrator` window. (You can only modify information for a local printer; you cannot modify the information for a remote printer.) The `Modify Printer` window (Figure 11) appears.

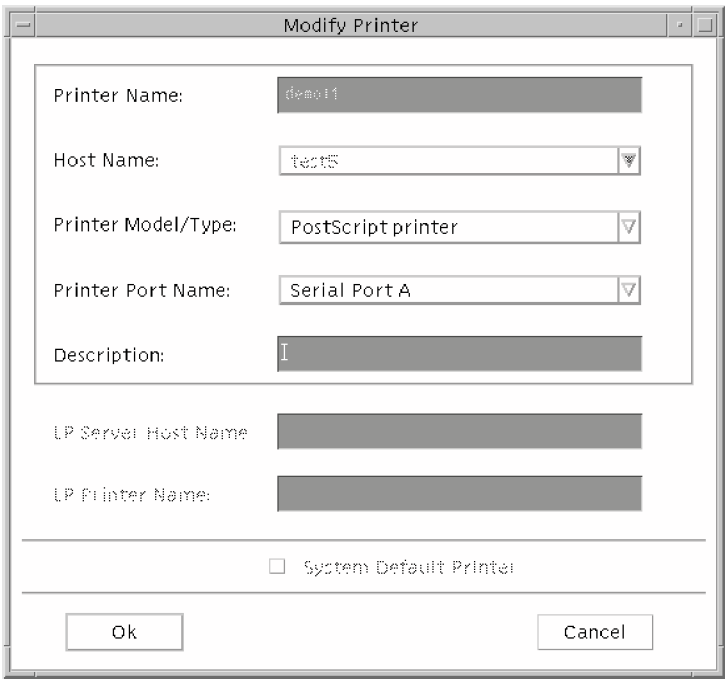

Figure 11. Modify Printer Window

The `Modify Printer` window allows you to change information in the `Printer Model/Type`, `Printer Port Name`, `Description`, `LP Server Host Name`, and `LP Printer Name` fields. When you are finished making changes, click on the `Ok` button to close the window and accept the changes or click on the `Cancel` button to close the window and disregard the changes. The `Printer Administrator` window reappears.

6.2.1.2.4 Deleting a Printer

To delete a printer, highlight the appropriate printer and select the `Delete Printer` option from the `Edit` menu on the `Printer Administrator` window. Click on `Ok` or `Cancel` when asked, `Are You Sure You Want to Delete Printer [printer name]?`

6.2.1.2.5 Adding a Remote Printer

To obtain access to a remote printer (a printer located outside your local domain), select `Add Remote Printer Access` from the `Edit` menu on the `Printer Administrator` window. The `AddRemotePrinter` window (Figure 12) appears.

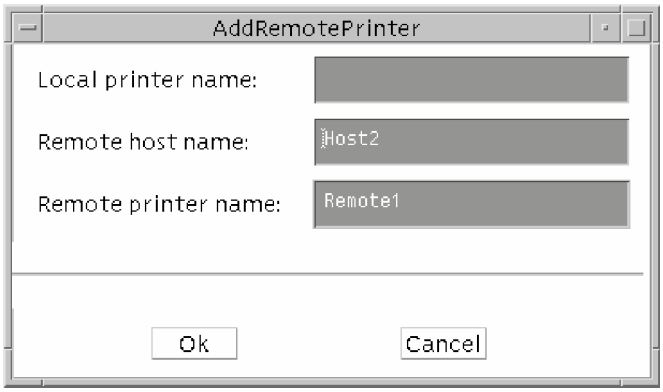

Figure 12. AddRemotePrinter Window

STEP 1: Enter the printer name as you wish it to appear in your local domain into the `Local printer name` field.

STEP 2: Enter the name of the remote host machine in the `Remote host name` field.

STEP 3: Enter the name of the remote printer that you wish to access in the `Remote printer name` field.

STEP 4: Click on either the `Ok` or `Cancel` button to close the window.

6.2.1.2.6 Enabling and Disabling Printer Functions

The `Printer Administrator` window allows users to enable or disable three printer functions: queue, print, and banner.

STEP 1: Select a printer and then open the `Control` menu to view the enabling or disabling options.

STEP 2: Choose one of the following options to disable:

- Select `Disable Queue` to restrict print jobs from entering the queue.
- Select `Disable Print` to restrict jobs in the queue from being printed (new jobs may still be added to the queue if the queue is enabled).
- Select `Disable Banner` to turn off the page preceding a print job, which identifies the security level of the machine.

The `Enable Queue`, `Enable Print`, and `Enable Banner` options simply turn the functions back on (enable them). When you enable or disable a function for a printer, the status of that function is updated in the printer's status line.

6.2.1.2.7 Selecting a System Default Printer

You can select a *system* default printer on the `Printer Administrator` window by highlighting a printer and then selecting `Set as Default` from the `Control` menu. The system default printer is listed in the status line at the lower right corner of the window.

6.2.1.3 Printer Domain Config Option

The `Printer Domain Config` option in the `Printer` menu is used to configure the workstation on which you are currently working to the domain name of your choice. Follow these steps to configure a printer domain:

STEP 1: From the `SA System` menu, select `Printer`, then select the `Printer Config Domain` option. A dialog box appears with the following message: `Current domain is [domain name]. New Printer domain name:`

STEP 2: Enter a name for the new printer domain and click on the `OK` button.

> **NOTE:** If you have printers configured to the machine you are configuring, an informational message appears. This message states that the domain configuration has failed. To configure this machine you must delete all printers using the `Print Administrator` window.

STEP 3: Reboot the system when the confirmation message appears stating that the new printer domain has been configured.

6.2.2 Close All Option

The `Close All` option is used to close all the windows launched from the menu bar or from the `DII_APPS` folder. To access the `DII_APPS` folder, double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window. The `DII_APPS` folder is located in this window.

> **NOTE**: The `Close All` option does not close windows opened from the CDE Front Panel. Refer to Section 5, *Common Desktop Environment*, for more information about CDE.

6.3 Hardware Menu

The `Hardware` menu contains the following options: `Shutdown System`, `Reboot System`, and `Disk Manager`. These options are described in the following subsections.

6.3.1 Shutdown System Option

The `Shutdown System` option is used to shut down the system safely before powering down the machine.

WARNING! Never power down the system without first executing a shutdown. Doing so could cause irreparable damage. Powering down the system is described in the steps below.

Follow the steps below to shutdown the system.

STEP 1: **Select the `Shutdown System` option**. The `Shutdown` dialog box appears with the following message: `Do you want to shutdown the computer?`

STEP 2: **Shut down the system**. Click on the `OK` button to continue the shutdown process.

STEP 3: **Turn off the system**. Turn off the machine when the system is completely down. System messages appear that indicate the system is ready to power down.

6.3.2 Reboot System Option

The `Reboot System` option is used to reboot the system. Follow the steps below to reboot the system.

STEP 1: **Select the `Reboot System` option**. The `Reboot` dialog box appears with the following message: `Do you want to shutdown and reboot the computer?`

STEP 2: **Reboot the system**. Click on the `OK` button to reboot the machine. When the reboot is complete, the DII COE Login window appears.

6.3.3 Disk Manager Option

The `Disk Manager` option provides the following file system management functionality:

- Mounts file system partitions
- Formats hard drives
- Displays hard disk space availability
- Initializes floppy diskettes.

After selecting the `Disk Manager` option, the `Disk Manager` window appears (Figure 13).

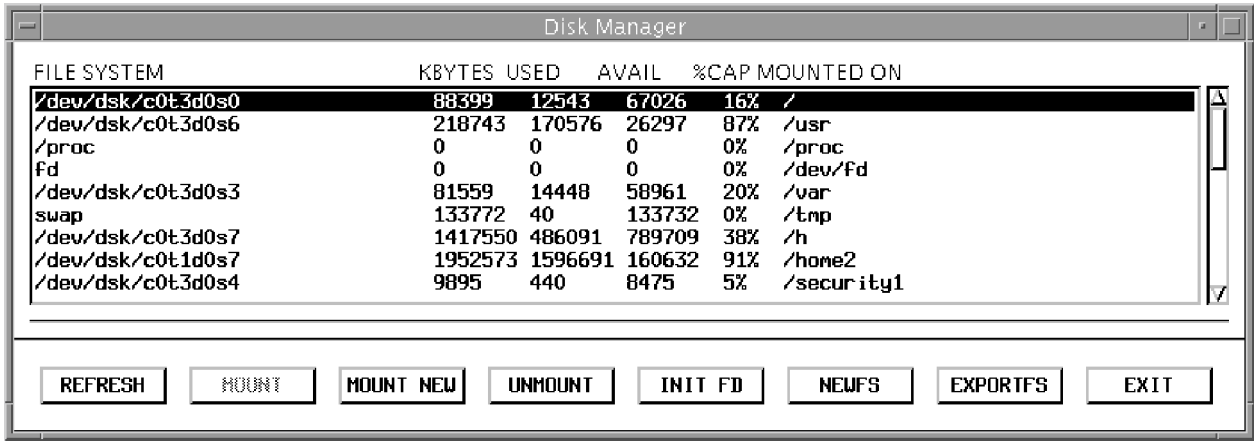

Figure 13. Disk Manager Window

A mounted file system can be accessed for read and write operations. Mounted file systems are highlighted in yellow.

Disk Manager Window Buttons

The `Disk Manager` window has the following buttons: `REFRESH`, `MOUNT`, `MOUNT NEW`, `UNMOUNT`, `INIT FD`, `NEWFS`, `EXPORTFS`, and `EXIT`. These buttons are described below.

`REFRESH`
Used to update file system entries in the `Disk Manager` window.

`MOUNT`
Used to attach an existing file system listed in the `Disk Manager` window to a directory, thereby making the files available to the user. Follow the steps below to mount a file system.

STEP 1: **Select a file system to be mounted**. Click on a file system in the `Disk Manager` window to highlight it.

STEP 2: **Click on the `MOUNT` button**. The `MOUNT FILE SYSTEM` window appears (Figure 14).

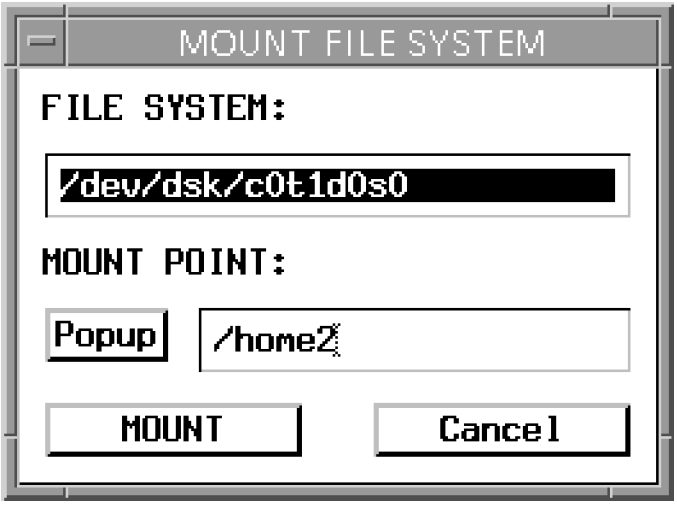

Figure 14. MOUNT FILE SYSTEM Window

STEP 3: **Select an unused location as a mount point for the file system**. Enter a mount point in the `MOUNT POINT` field. Enter a mount point in one of two ways:

(a) Type the location, if known, in the `MOUNT POINT` field. OR

(b) Toggle on the `Popup` checkbox, located to the left of the `MOUNT POINT` field, to open the `CHOOSE MOUNT POINT` window (Figure 15). Click on a mount point from the scroll list to select it. The `MOUNT FILE SYSTEM` window reappears with the new mount point in the `FILE SYSTEM` field.

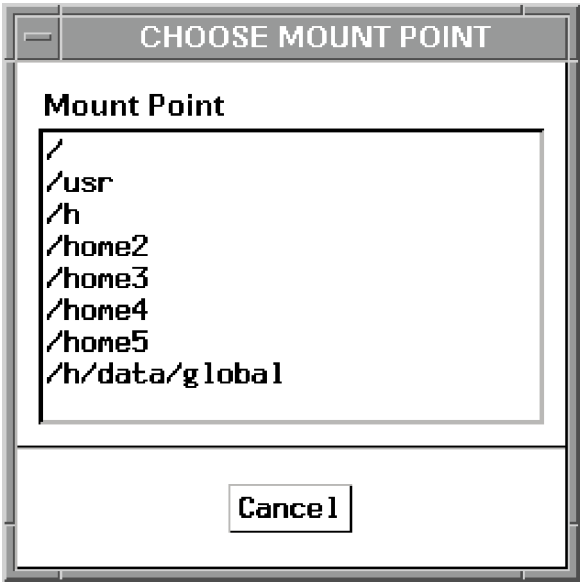

Figure 15. CHOOSE MOUNT POINT Window

STEP 4: **Mount the file system**. Click on the `MOUNT` button in the `MOUNT FILE SYSTEM` window.

STEP 5: **Determine if the file system should be mounted each time the system is rebooted**. Select `YES` or `NO` at the following prompt: `Do you want to permanently mount the file system?`If you select `NO`, then that data will not be available to the user the next time the machine is rebooted.

`MOUNT NEW`

Used to identify a new file system and attach it to a directory, thereby making that directory structure available to the user. Once mounted, the file system is listed in the `Disk Manager` window. Follow the steps below to identify a new file system:

STEP 1: **Click on the `MOUNT NEW` button**. The `MOUNT FILE SYSTEM` window appears (Figure 14).

STEP 2: **Select the new file system to be created**. Enter the new file system name in the `FILE SYSTEM` field.

STEP 3: **Select an unused location as a mount point for the file system**. Enter a mount point in the `MOUNT POINT` field to select an unused location to mount the file system. Enter a mount point in one of two ways:

(a) Type the location, if known, in the `MOUNT POINT` field.

OR

(b) Toggle on the `Popup` checkbox to the left of the `MOUNT POINT` field to open the `CHOOSE MOUNT POINT` window (Figure 15).Click on a mount point from the scroll list to select it. The `MOUNT FILE SYSTEM` window reappears with the new mount point in the `FILE SYSTEM` field.

STEP 4: **Mount the new file system**. Click on the `MOUNT` button in the `MOUNT FILE SYSTEM` window.

STEP 5: **Determine if the file system should be mounted each time the system is rebooted**. Select `YES` or `NO` at the following prompt: `Do you want to permanently mount the file system?`If you select `NO`, then that data will not be available to the user the next time the machine is rebooted.

UNMOUNT

Used to detach a file system listed in the `Disk Manager` window to a directory. When a file system is unmounted, the files become unavailable to the user, yet they remain intact.

> **NOTE**: A file system that is in use cannot be unmounted.

Follow the steps below to unmount a file system.

STEP 1: **Select a file system to be unmounted**. Click on a file system in the `Disk Manager` window to highlight it.

STEP 2: **Click on the `UNMOUNT` button**.

STEP 3: **Determine if the file system should be permanently unmounted**. Select `YES` or `NO` at the following prompt: `DO YOU WANT TO PERMANENTLY UNMOUNT THE FILESYSTEM?` If you select `NO`, then that data will be available to the user the next time the machine is rebooted.

INIT FD

Used to format a floppy diskette. Follow the steps below to format a floppy diskette.

> **WARNING**: The `INIT FD` option erases the entire contents of the floppy diskette.

STEP 1: **Click on the `INIT FD` button**.

STEP 2: **Confirm that the floppy diskette should be formatted**. Click on the `OK` button in the `INITIALIZE FLOPPY` window to initialize the disk, or click on the `CANCEL` button to return to the `Disk Manager` window.

NEWFS

Used to reformat a selected device to create a new file system. Follow the steps below to create a new file system.

> **WARNING**: All data on the selected device will be deleted. No partitions are protected from NEWFS. Therefore, it is advised that you back up any data you want to save before beginning any NEWFS procedure.

STEP 1: **Click on the `NEWFS` button**. The `New File System` window appears (Figure 16).

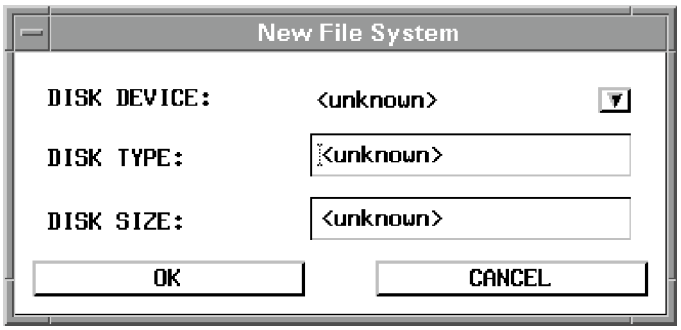

Figure 16. New File System Window

STEP 2: **Select the disk device to be reformatted**. Select the device in one of two ways: Type the name of the disk device in the `DISK DEVICE` field or click on the arrow and then click on a disk device from the list to select it.

STEP 3: **Reformat the selected device.** Click on the `OK` button to reformat the selected device.

STEP 4: **Confirm that the new file system should be created**. Click on the `CONTINUE` button in the `WARNING` window to format the device, or click on the `CANCEL` button to discard the process.

`EXPORTFS`

Used to export or unexport a file system in order to allow or deny file system sharing. Select the `EXPORTFS` option to open the `Export/Unexport File Systems` window (Figure 17).

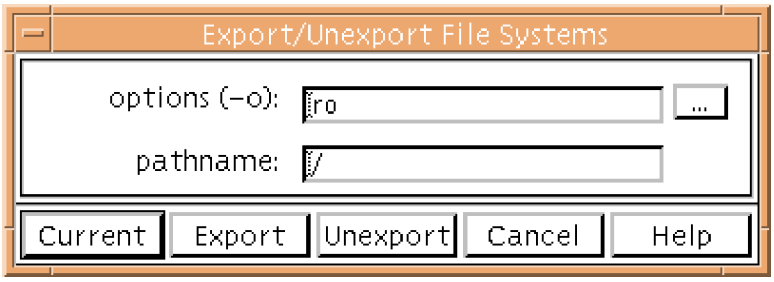

Figure 17. Export/Unexport File Systems Window

Export/Unexport File Systems Window Buttons

`Current`
Used to show the file systems that are currently exported (shared).

`Export`
Used to export (share) a selected file system permanently.

`Unexport`
Used to unexport (deny file system sharing to) a selected file system permanently.

`Cancel`
Used to close the `Export/Unexport File Systems` window.

`Help`
Used to show a manual page for the `EXPORTFS` option.

Follow the steps below to export a file system.

STEP 1: **Select a file system**. Click on a file system in the list in the `Disk Manager` window to highlight it and then click on the `EXPORTFS` button. The `Export/Unexport File Systems` window appears (Figure 17).

STEP 2: **Enter options**. Click on the `options` field toggle to view a list of options. Click on one or more options from the list (for example, `read only`, `read/write`) to select them. The options then appear in the `options` field.

STEP 3: **Enter a pathname**. Enter the actual pathname of the directory you want to share in the `pathname` field.

STEP 4: **Export the file system**. Click on the `Export` button.

STEP 5: **Determine if the file system should be exported or unexported permanently**. Click on the `Yes` or the `No` button when the following prompt appears: `Do you want to permanently export the file system?` The window closes.

STEP 6: **Confirm that the file was exported**. Click on the `Current` button in the `Disk Manager` window. The shared directory should appear in the list of exported file systems.

NOTE: Refer to the EXPORTFS manual page for more information about the `EXPORTS` option. Click on the `Help` button in the `Export/Unexport File Systems` window to view the EXPORTFS manual page.

`EXIT`
Used to close the `Disk Manager` window and exit the `Disk Manager` option.

6.4 Software Menu

The `Software` menu contains two options: `Segment Installer` and `Segment Installation Server`. These options are described in the following subsections.

6.4.1 Segment Installer Option

The `Segment Installer` option is used to install segments. Select the `Segment Installer` option to open the `Installer` window (Figure 18).

NOTE: Ensure that you can see the whole window by clicking on the bottom right edge of the window and dragging the trackball or mouse outward to enlarge the window.

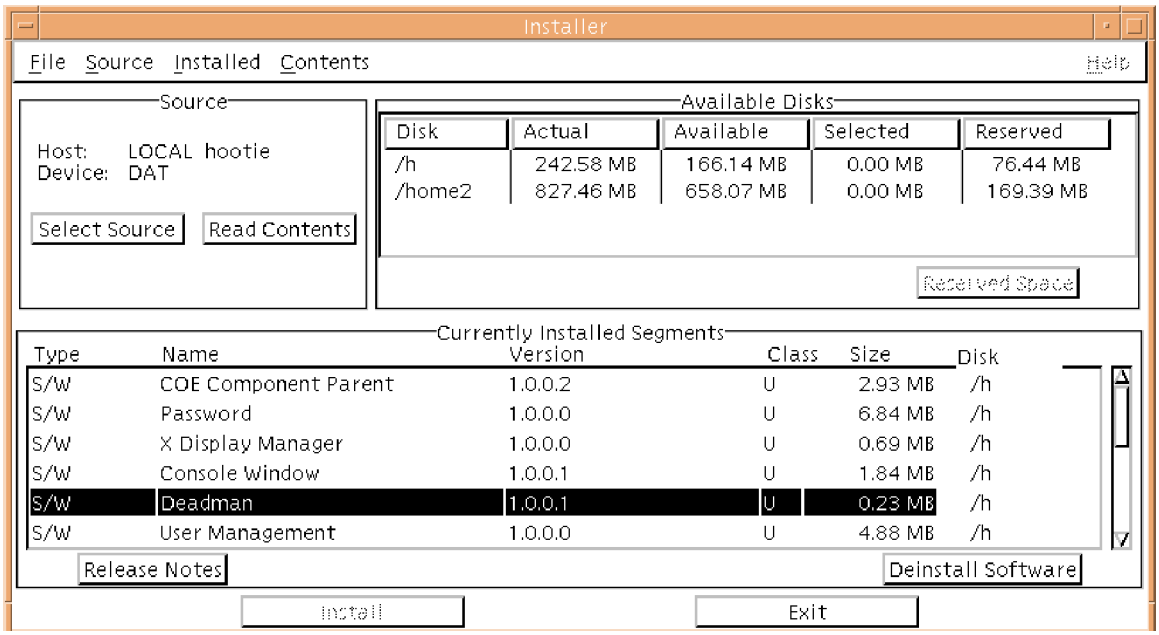

Figure 18. Installer Window

6.4.1.1 Installer Window Pull-down Menus

The `Installer` window has the following pull-down menus: `File`, `Source`, `Installed`, and `Contents`. These pull-down menus are described below.

`File`
The `File` pull-down menu contains the following options: `Install` and `Exit`.

`Install`
Allows you to install selected segments. (This option is not available if a segment has not yet been installed.) Performs the same functionality as clicking on the `Install` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Install` button.

`Exit`
Closes the `Installer` window. Performs the same functionality as clicking on the `Exit` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Exit` button.

`Source`
The `Source` pull-down menu contains the following options: `Select Source` and `Read Contents`.

`Select Source`
Displays the currently selected installation media. Performs the same functionality as clicking on the `Select Source` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Select Source` button.

`Read Contents`
Allows you to read the table of contents of the selected installation device. Performs the same functionality as clicking on the `Read Contents` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Read Contents` button.

`Installed`
For installed segments only. The `Installed` pull-down menu contains the following options: `Release Notes`, `Deinstall Software`, and `View Installation Log`.

`Release Notes`
Displays release notes information for any selected segment. Performs the same functionality as clicking on the `Release Notes` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Release Notes` button.

`Deinstall Software`
Allows you to deinstall segments highlighted in the `Currently Installed Segments` panel. Performs the same functionality as clicking on the `Deinstall Software` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Deinstall Software` button.

`View Installation Log`
Displays a detailed log of the installation process.

`Contents`
For available segments only. The `Contents` pull-down menu contains the following options: `Release Notes`, `Required Software`, and `Conflicting Software`.

`Release Notes`
Displays release notes information for any selected segment. Performs the same functionality as clicking on the `Release Notes` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Release Notes` button.

Required Software
Lists segments that need to be installed in order to install the segment selected in the `Select Segment To Install` panel. Performs the same functionality as clicking on the `Requires` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Requires` button.

Conflicting Software
Lists the segments that cannot be installed with the segment selected in the `Select Segment To Install` panel. Performs the same functionality as clicking on the `Conflicts` button. Refer to Subsection 6.4.1.2, *Installer Window Panels*, for more information about the `Conflicts` button.

6.4.1.2 Installer Window Panels

The `Installer` window has the following panels: `Source`, `Available Disks`, `Currently Installed Segments`, and `Select Software To Install`. The `Select Software To Install` panel does not appear in the `Installer` window shown in Figure 18 — it only appears after the `Read Contents` button has been selected in the `Source` panel. The `Installer` window panels are described below.

Source
Displays the name of the host machine, the name of the installation device, and the table of contents of that installation device. The `Source` panel has two buttons: `Select Source` and `Read Contents`.

Select Source
Used to display the currently selected installation media. Click on the `Select Source` button to open the `Select Source` window (Figure 19). This window allows you to select the installation source device. The device selection defaults to the DAT drive on the local machine (the `LOCAL` option in the `Host` panel and the `DAT` option in the `Device` panel).

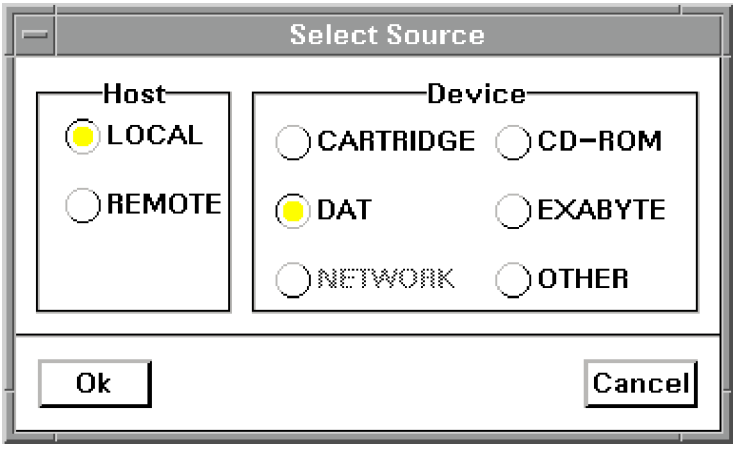

Figure 19. Select Source Window

Read Contents

Used to read the table of contents of the selected installation device. Click on the `Read Contents` button. The media will be scanned for the segments that it contains, and then the `Installer` window will add the `Select Software To Install`panel, which lists the segments that the media contains (Figure 20). Any number of segments may be selected in this panel for installation. See Section 6.4.1.3, *Installing Segments*, for additional information about the segment installation process.

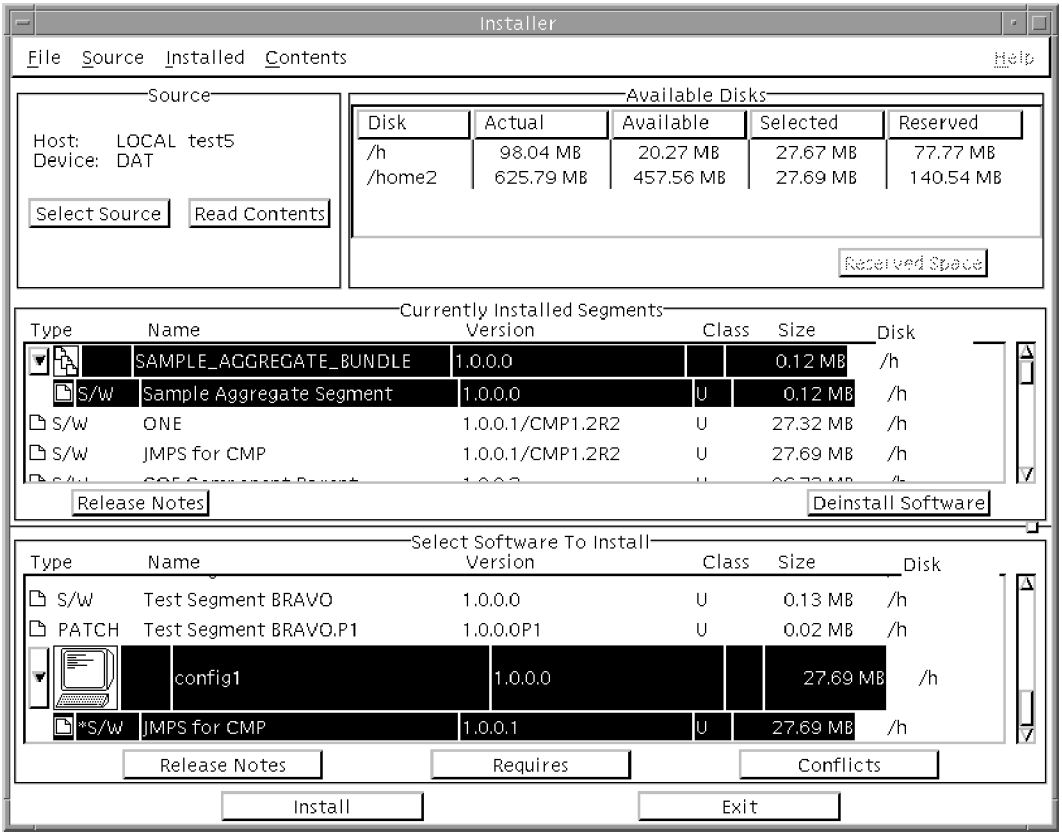

Figure 20. Installer Window with Select Software To Install Panel

`Available Disks`

Displays the mounted disk drives on the system and the remaining available disk space. The amount of available disk space decreases as segments are selected for installation. This panel has five fields: `Disk`, `Actual`, `Available`, `Selected`, and `Reserved`.

`Disk`

Shows each available disk.

`Actual`

Shows the total size of each disk.

`Available`

Shows the free space that is available on each disk for installing segments.

Selected
Shows the size of the segment(s) you want to add or remove based on your selection of one or more segments in the `Currently Installed Segments` panel.

Reserved
Shows the amount of space on each disk that is already in use or pre-allocated (reserved) by previously installed segments.

The `Available Disks` panel has the following button: `Reserved Space`. The system automatically reserves a certain amount of space on each available disk to allow for segment growth. The `Reserved Space` button allows the reserved disk space to be modified for a particular installation. To modify reserved disk space for a particular installation, click on a disk in the list to highlight it and then click on the `Reserved Space` button to open the `Override Disk Space Allocation` window (Figure 21). The `Override Disk Space Limits` pop-up menu allows you to choose between 80 percent and 100 percent of space to install the segment.

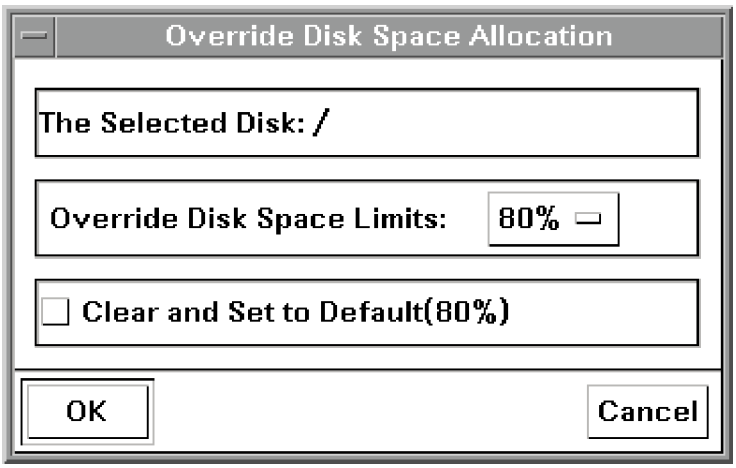

Figure 21. Override Disk Space Allocation Window

Currently Installed Segments
Lists the segments that are currently installed. The `Currently Installed Segments` panel lists the type, name, version number, classification, size, and disk (mount point) of each currently installed segment. This panel has two buttons: `Release Notes` and `Deinstall Software`.

Release Notes
Displays release notes information for any selected segment. Click on a segment to highlight it and click on the `Release Notes` button to open the `RELEASE NOTES` window (Figure 22). Click on the `PRINT` button to print the release notes.

Deinstall Software
Allows you to deinstall segments highlighted in the `Currently Installed Segments` panel.

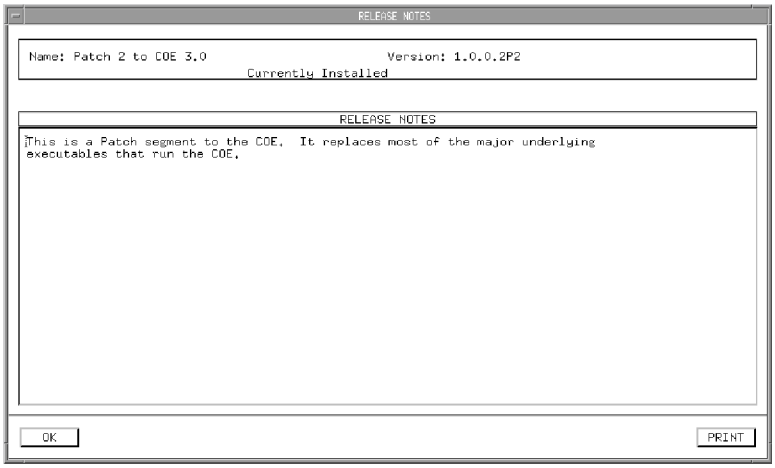

Figure 22. RELEASE NOTES Window

Select Software To Install

Lists the segments contained on the selected media that are not currently installed. The `Select Software To Install` panel lists the type, name, version number, classification, size, and mount point (disk) of each segment contained on the media. This panel has five buttons: `Release Notes`, `Requires`, `Conflicts`, `Install`, and `Exit`.

Release Notes

Displays release notes information for any selected segment. Click on a segment to highlight it and click on the `Release Notes` button to open the `RELEASE NOTES` window (Figure 22). Click on the `PRINT` button to print the release notes.

Requires

Lists segments that need to be installed in order to install the segment selected in the `Select Segment To Install` panel. Click on a segment to highlight it and click on the `Requires` button to open the `REQUIRED SEGMENTS` window (Figure 23).

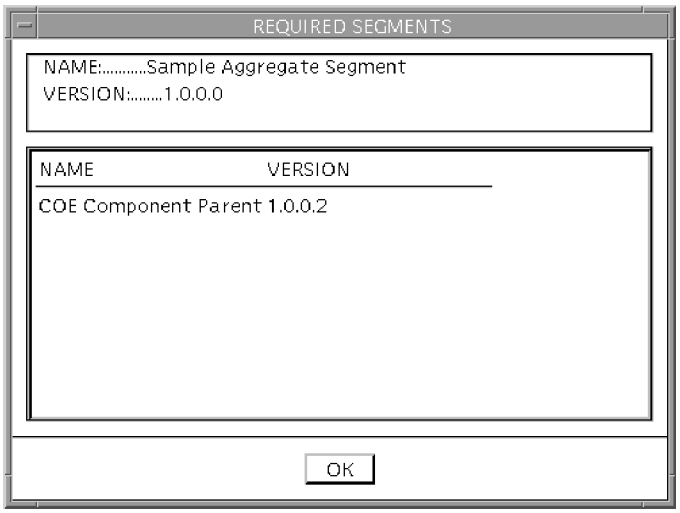

Figure 23. REQUIRED SEGMENTS Window

`Conflicts`
Lists the segments that cannot be installed with the segment selected in the `Select Segment To Install` panel. Click on a segment to highlight it and click on the `Conflicts` button to open the `CONFLICTING SEGMENTS` window (Figure 24).

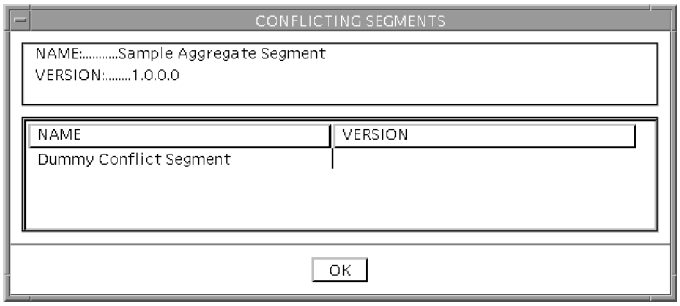

Figure 24. CONFLICTING SEGMENTS Window

`Install`
Allows you to install selected segments.

`Exit`
Closes the `Installer` window.

6.4.1.3 Installing Segments

Follow the steps below to install segments using the `Segment Installer` option.

STEP 1: **Select the installation device**. Click on the `Select Source` button in the `Source` panel to open the `Select Source` window (Figure 19). Select the device to use as the installation source device. Select `NETWORK` if you are installing a segment from the segment installation server. Refer to Section 6.4.2, *Segment Installation Server Option*, for information about loading segments on the segment installation server.

STEP 2: **Read the table of contents of the selected installation device**. Click on the `Read Contents` button in the `Source` panel. The media selected on the `Select Source` window will be scanned for the segments it contains, and then the `Installer` window will add the `Select Software To Install`panel, which lists the segments that the media contains (Figure 20). Any number of segments may be selected in this panel for installation.

STEP 3: **Select the segments that you want to install**. Click on one or more segments in the `Select Software To Install`panel. The `Available Disks` panel then displays the mounted disk drives on the system and the remaining available disk space as segments are selected. Click on a segment again to de-select it.

NOTE: The Segment Installer installs more than just segments. You can also install *bundles* and *configurations*. A bundle is a list of installable segments. A configuration is a list of bundles and/or segments that can be installed on a single machine. Only one configuration can be installed on a single machine, because there may be conflicts within the segments that comprise two different configurations. In Figure 20, the highlighted installed segment is a configuration.

STEP 4: **Begin the installation process for the selected segments**. Click on the `Install` button once all desired segments are selected. The `Installer Status` window appears, which shows the number of segments to be installed and the size of each segment being installed. This window also shows a `Percent Complete` status bar, which shows the status of the installation.

STEP 5: **Display a detailed log of the installation process**. Select the `Installation Log` option from the `Installed` pull-down menu once installation has completed.

6.4.2 Segment Installation Server Option

The `Segment Installation Server` option is used to load segments onto a segment server. Loading a segment is different than installing a segment. Loading a segment on a machine stores the segment on the machine, but does not enable the segment to run. Instead, segments stored on a segment installation server are available for installation without the installation media because they are located on a server. Segments can, then, be installed individually on each machine on the network.

Click on the `Segment Installation Server` option to open the `Segment Installation Server` window (Figure 25). This window is identical to the `Installer` window, with the following exceptions:

- The `Load` option in the `File` pull-down menu replaces the `Install` option.
- The `Load` button replaces the `Install` button.
- The `Segments Currently Loaded On This Network Server` panel replaces the `Currently Installed Segments` panel.

NOTE: Ensure that you can see the whole window by clicking on the bottom right edge of the window and dragging the trackball or mouse outward to enlarge the window.

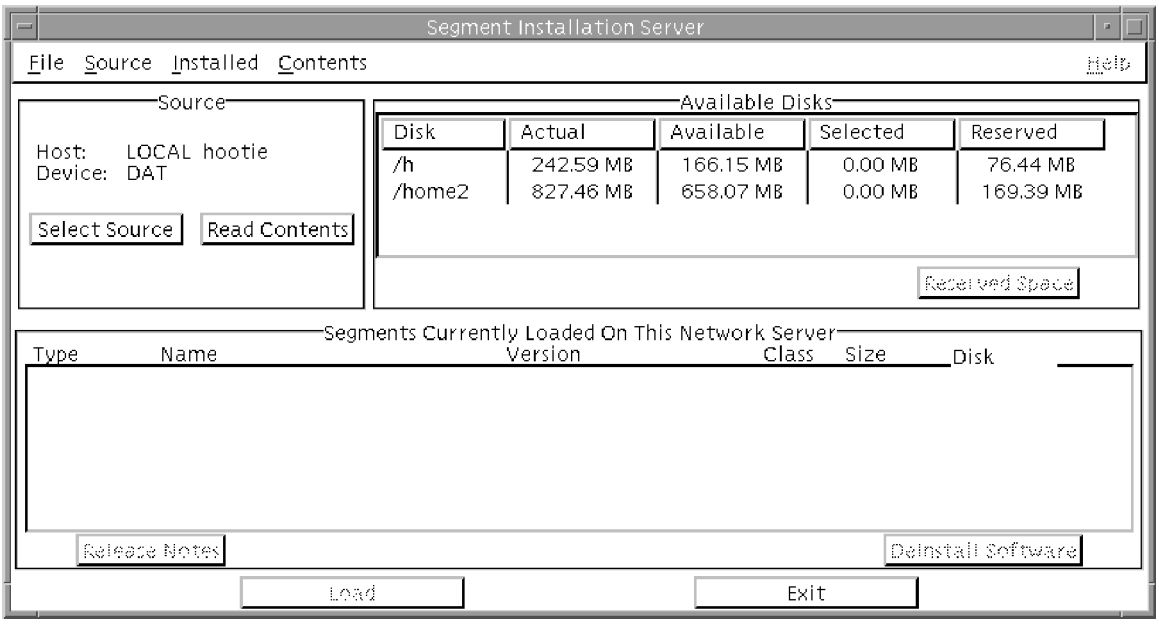

Figure 25. Segment Installation Server Window

6.4.2.1 Loading Segments on the Segment Installation Server

NOTE: The following must be done for the network installation to be successful:

- The `/h/data/global` directory must be mounted to a common machine. If `/h/data/global` is not mounted, use the `Disk Manager` option from the `Hardware` pull-down menu to mount it (see Subsection 6.3.3, *Disk Manager Option*).
- Segments installed from a segment installation server must have been loaded on `/home2` or on any other exported file system on the server machine; if they are not, the COEInstaller will not be able to access the segments. The machine from which the segments are being installed must be in the target machine's host file or, if running DNS, then the host must be in the DNS file.

Follow the steps below to load a segment on the segment installation server.

STEP 1: **Select a server on which to load segments**. Select a disk in the `Available Disks` panel. A list of segments, which can be installed from the `Installer` window, is created automatically in the `/h/data/global` directory and is updated each time a segment is loaded using this option.

STEP 2: **Select the installation device**. Click on the `Select Source` button in the `Source` panel to open the `Select Source` window (Figure 19). Select the installation source device and then click on the `OK` button.

STEP 3: **Select the segments that you want to load**. Click on one or more segments in the `Select Software To Install` panel. The `Available Disks` panel then displays the mounted disk drives on the system and the remaining available disk space as segments are selected.

STEP 4: **Begin the load process for the selected segments**. Click on the `Load` button once all desired segments are selected. The `Installer Status` window appears, which shows the number of segments to be loaded and the size of each segment being loaded. This window also shows a `Percent Complete` status bar, which shows the status of the load.

STEP 5: **Display a detailed log of the load process**. Select the `Installation Log` option from the `Installed` pull-down menu once the load has completed.

Follow the steps in Section 6.4.1.3, *Installing Segments*, to install one or more segments on a machine.

6.5 Network Menu

The `Network` menu contains the following options: `Change Machine ID`, `Edit Local Hosts`, `Set System Time`, `Servers`, and `DCE`. These options are described in the following subsections.

6.5.1 Change Machine ID Option

Use the `Change Machine ID` option to select a name and IP address for a machine. Click on this option to open the `CHANGE MACHINE ID` window (Figure 26). The machine's current name and IP address appear in the `MACHINE NAME` and `MACHINE ADDRESS` fields.

NOTE: A machine's name (ID) and IP address are selected initially during system installation.

NOTE: All machines must have unique names and addresses—the system does not permit two machines to have the same name and address.

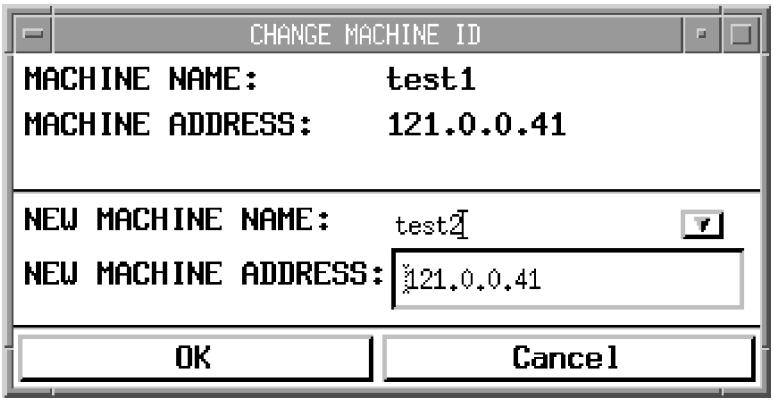

Figure 26. CHANGE MACHINE ID Window

Follow the steps below to change the machine ID.

STEP 1: **Select a new machine**. Click on the arrow to the right of the `NEW MACHINE NAME` field to display a pop-up list of valid IDs.

STEP 2: **Select an ID.** Click on an ID to select it.

NOTE: User-defined names may be assigned to each machine using the `Edit Local Hosts` option before changing the machine ID (see Subsection 6.5.2, *Edit Local Hosts Option*).

STEP 3: **Click on the `OK` button**. The `MACHINE NAME` and `MACHINE ADDRESS` fields update to reflect the new machine name and address.

STEP 4: **Reboot the machine**. Reboot the machine after changing the name for the change to take effect.

NOTE: Do not modify the `NEW MACHINE ADDRESS` field. Machine addresses are predefined for each ID.

6.5.2 Edit Local Hosts Option

The `Edit Local Hosts` option lists the machines that can be accessed from a user's machine. This option can only be used on local workstation files. Use this option to do the following:

- Add or remove machines from the list of machines that can be accessed
- Modify machine information, such as machine name, IP address, or aliases.

Select the `Edit Local Hosts` option to open the `EDIT HOSTS` window (Figure 27).

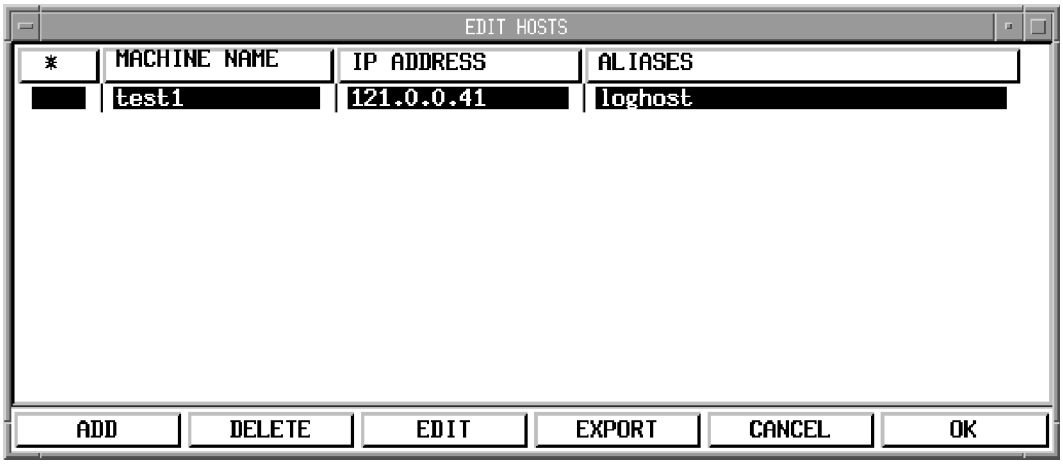

Figure 27. EDIT HOSTS Window

Follow the steps below to modify machine information. These steps must be performed for each machine you want to modify.

STEP 1: **Modify host file information**. Use the `Edit Local Hosts` option to add or remove machines from the list or to modify machine information. Once you have completed the selected action, the machine remains in the `EDIT HOSTS` window labeled with `A` (add), `M` (modify), or `D` (delete) in the `*` column. Click on the `OK` button to accept the changes, or click on the `CANCEL` button to discard the changes.

STEP 2: **Assign the machine a new machine name**. Assign the machine a new machine name using the `Change Machine ID` option (see Subsection 6.5.1, *Change Machine ID Option*).

STEP 3: **Reboot the machine**. Reboot the machine at the prompt if you modified the current hostname in order for changes to take effect.

6.5.2.1 EDIT HOSTS Window Fields

The `EDIT HOSTS` window has the following fields: `*` (asterisk), `MACHINE NAME`, `IP ADDRESS`, and `ALIASES`. These fields are described below.

`*` (asterisk)
Shows pending changes made to the machine. Labels include `A` (add), `D` (delete), `M` (modify), and `T` (trusted).

The label `T` indicates a trusted machine. A trusted machine can be accessed from another machine on the same LAN (for example, to access a tape drive for remote installation). A trusted machine is one that can access the user's disk and perform remote shell commands.

`MACHINE NAME`
Shows the name of the machine. The machine name can be system or user defined.

`IP ADDRESS`
Shows a unique IP address.

`ALIASES`
Shows other names by which a machine is also known, if applicable.

6.5.2.2 EDIT HOSTS Window Buttons

The `EDIT HOSTS` window has the following buttons: `ADD`, `DELETE`, `EDIT`, `EXPORT`, `CANCEL`, and `OK`. These buttons are described below.

ADD

Used to add a machine to the local host table to make it available to the local machine. Follow the steps below to add a machine to the local host table.

STEP 1: **Click on the ADD button**. The ADD MACHINE window appears (Figure 28).

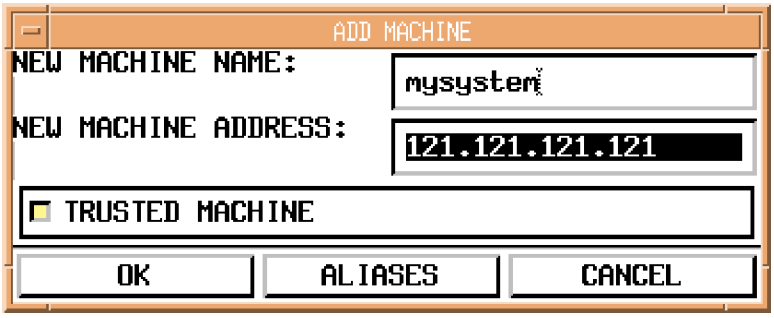

Figure 28. ADD MACHINE Window

STEP 2: **Enter the new machine name**. Type a name in the NEW MACHINE NAME field. Allowable characters are alphanumeric and the underscore symbol (_). In addition, the first character of the machine name must be a letter.

STEP 3: **Enter the machine's IP address**. Type the IP address of the new machine in the NEW MACHINE ADDRESS field.

STEP 4: **Define the new machine as a trusted machine**. Click on the TRUSTED MACHINE checkbox toggle.

STEP 5: **Add aliases for a machine, if desired**. Click on the ALIASES button in the ADD MACHINE window to open the ALIASES window (Figure 29).

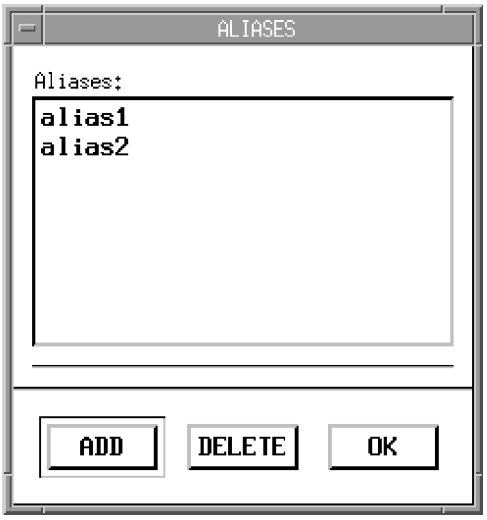

Figure 29. ALIASES Window

To add an alias, click on the `ADD` button. The `ADD ALIAS` window appears (Figure 30). Type a new alias in the `NEW ALIAS` field and then press [`RETURN`] to accept the new alias. Allowable characters are alphanumeric and the underscore symbol (_). In addition, the first character of the machine name must be a letter. The `ALIASES` window reappears.

Figure 30. ADD ALIAS Window

STEP 6: **Close the `ALIASES` window and save the changes**. Click on the `OK` button. The `ADD MACHINE` window returns to the forefront.

STEP 7: **Determine if the machine should be added to the list of available machines**. Click on the `OK` button to mark the machine as an addition to the list of available machines on the local host table, or click on the `CANCEL` button to discard the changes. The `ADD MACHINE` window closes.

`DELETE`

Used to delete a machine from the local host table. Follow the steps below to delete a machine from the local host table.

STEP 1: **Select a machine**. Click on a machine in the list to highlight it.

STEP 2: **Click on the `DELETE` button**. The `DELETE MACHINE` dialog box appears with the following prompt: `Mark machine [machine name] for deletion?`

STEP 3: **Confirm whether or not the machine should be deleted**. Click on the `YES` button to confirm that the machine should be deleted, or click on the `NO` button to cancel the deletion.

`EDIT`

Used to edit a machine name. Click on a machine name to highlight it and click on the `EDIT` button to open the `EDIT MACHINE` window (Figure 31). The `EDIT MACHINE` window functions the same as the `ADD MACHINE` window (described in **`ADD`**).

`EXPORT`

Used to export machine information to other workstations on the local host table. (Not currently implemented.)

`CANCEL`

Used to close the `EDIT HOSTS` window without saving changes.

OK
Used to save changes and close the window.

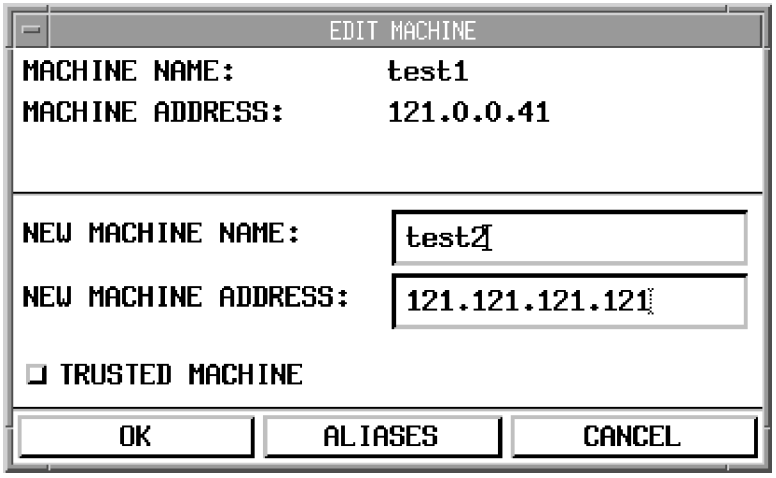

Figure 31. EDIT MACHINE Window

6.5.3 Set System Time Option

The `Set System Time` option is used to set the system time for the machine. Click on the `Set System Time` option to open the `SYSTEM TIME` window (Figure 32).

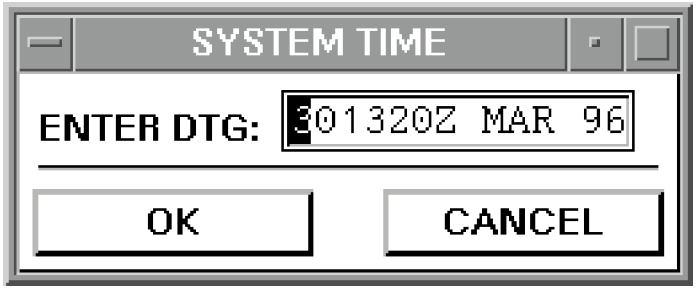

Figure 32. SYSTEM TIME Window

The system time is written as ddhhmmZ MON YR, where

dd	=	day of the month
hh	=	hour
mm	=	minute
Z	=	a constant (for Zulu time)
MON	=	three-letter month abbreviation
YR	=	final two digits of the year.

For example, October 15, 1996, 8:19 Zulu time would read: 150819Z OCT 96.

To set the system time, follow the steps below:

STEP 1: **Enter the new system time**. Enter the new system time in the `ENTER DTG` field in the format ddhhmmZ MON YR.

STEP 2: **Set the new system time for the machine**. Click on the `OK` button to accept the new entry, or click on the `CANCEL` button to discard the entry.

6.5.4 Servers Option

The `Servers` option is a cascading menu that has four options: `Set DNS`, `Set Routes`, `Set Mail`, and `Set NIS`. These options are described in the following subsections.

6.5.4.1 Set DNS Option

The `Set DNS` option allows the system administrator to configure a workstation as either a Domain Name Server (DNS) client or a DNS server if DNS, rather than the local host table, is used to store host name IP address information. Figure 33 shows the `DNS Setup` window. The `Set DNS` option creates the nameserver configuration file upon a positive response. If the `This system is primary DNS server`toggle is checked, the `Set DNS` option installs a set of DNS template files to `/var/nameserver`. The `DNS` option allows the system administrator to enter the IP address of the primary and secondary name servers. Selecting the toggle also allows the system administrator to specify suffixes of machine names instead of IP addresses, as well as specify domain name suffixes of machines for the local domain instead of IP addresses.

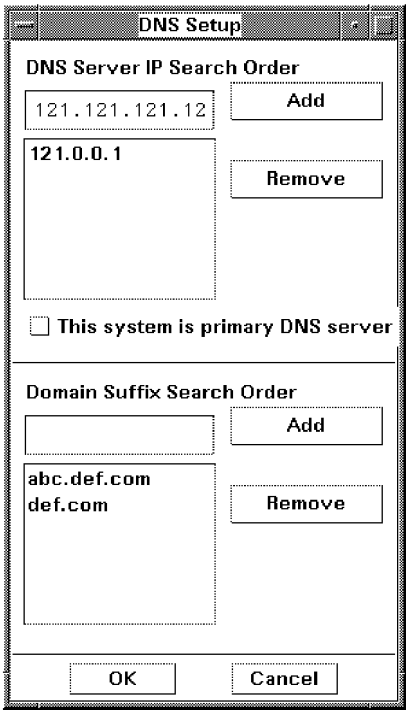

Figure 33. DNS Setup Window

NOTE: The system administrator must edit the `/var/nameserver` DNS template files manually for proper name server configuration.

NOTE: For the HP-UX 10.20 Operating System, a new `/etc/resolv.conf` file will be installed that includes the DNS name server list and the domain search list.

Enter the IP address of the DNS server in the `DNS Server IP Search Order` field. If your workstation is acting as the primary DNS server, click on the `This system is primary DNS server` toggle. Then click on the `Add` button in the upper half of the window. You can also enter the IP address of a backup DNS server in the `DNS Server IP Search Order` field and then click on the `Add` button in the upper half of the window.

You also must add one or more domain suffixes in the `Domain Suffix Search Order` field and click on the `Add` button in the bottom half of the window. A domain suffix is a list of suffixes appended to a system name that are used to help locate the system. Click on the `OK` button when finished. The DNS domain name must match the DNS domain for the name server.

6.5.4.2 Set Routes Option

The `Set Routes` option allows the system administrator to configure a workstation with the appropriate default routing configuration. Select this option to open the `Default Router Setup` window (Figure 34). If your workstation is acting as the default router, enter the IP address of the default router in the `Default Router IP Address` field and click on the `This system is default router` toggle. If your workstation is not acting as the default router, enter the IP address of your workstation in the `Default Router IP Address` field. Do NOT click on the `This system is default router` toggle. Click on the `OK` button when finished.

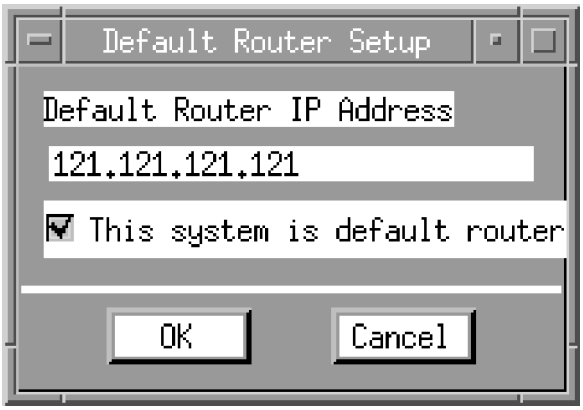

Figure 34. Default Router Setup Window

NOTE: The default router only needs to be configured for access to networks other than the LAN. The default router may also be configured during kernel installation.

6.5.4.3 Set Mail Option

NOTE: The `Set Mail` option is not available on HP workstations.

The `Set Mail` option allows the system administrator to configure mail on a workstation as either a client or a server. Select the `Set Mail` option to open the `Mail Setup` window (Figure 35). This option creates the `/etc/lib/sendmail.cf` file, which is a configuration file used for sending mail. Clicking on the `OK` button adds an entry into the operating system-specific mount configuration table.

If your workstation is acting as the mail server, enter your workstation's IP address in the `Mail Server IP Address` field and click on the `This system is mail server` toggle. If your workstation is not acting as the mail server, enter the mail server IP address in the `Mail Server IP Address` field. Do NOT click on the `This system is mail server` toggle. Click on the `OK` button when finished.

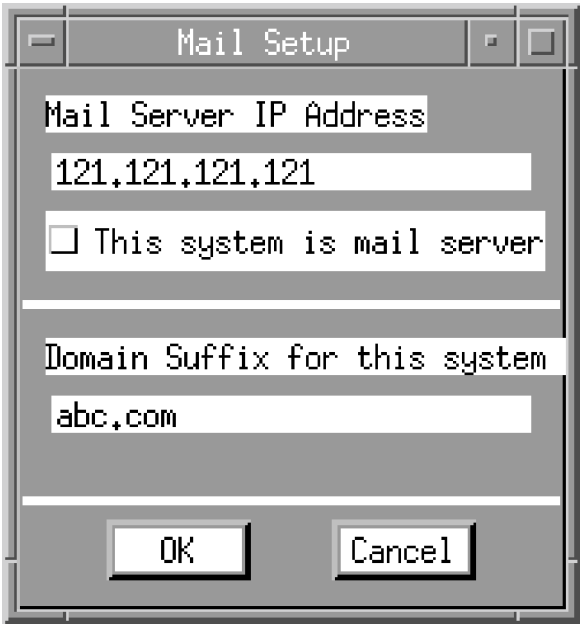

Figure 35. Mail Setup Window

6.5.4.4 Set NIS Option

Network Information Service (NIS) allows user accounts to be shared across all workstations on the same domain. The `Set NIS` option is used to initialize a machine as a NIS server and disable NIS. The `Set NIS` option is a cascading menu that has two options: `Initialize NIS` and `Remove NIS`.

Before NIS can be initialized, DNS should be configured on the master server and on the client machine. Refer to Section 6.5.4.1, *Set DNS Option*, for information on configuring DNS. The NIS master workstation must export `/h/USERS/global` with `anon=0` permission to allow `root` access, as described in the next subsection. After initializing the NIS client, the NIS client must mount `/h/USERS/global` using the `Disk Manager` option from the `Hardware` pull-down menu. Refer to Section 6.3.3, *Disk Manager*, for more information on mounting file systems.

Before an HP workstation can be initialized as a client to a Solaris NIS+ master server, the `AUTOMOUNT` option in the `/etc/rc.config.d/nfsconf` must be set to `AUTO_OPTIONS:"-m -f $AUTOMASTER"`. Otherwise, the HP client will not boot.

To initialize NIS as a client, you need to know the NIS domain name and the NIS server host name. Your system administrator should provide you with this information.

Adding an Entry to Export the Global Users Directory on the Master

Follow the steps below to add an entry to export the global users directory.

STEP 1: **Open the `Disk Manager` window**. Select the `Disk Manager` option from the `Hardware` pull-down menu. The `Disk Manager` window appears (Figure 13).

STEP 2: **Select `EXPORTFS`**. Click on a file system in the list to highlight it and then click on the `EXPORTFS` button. The `Export/Unexport File Systems` window appears (Figure 17).

STEP 3: **Enter the appropriate options**. Type `anon=0` in the `options` field to export the global users directory.

STEP 4: **Enter the appropriate pathname**. Type `/h/USERS/global` in the pathname field.

STEP 5: **Export the file system**. Click on the `Export` button to export the file system.

STEP 6: **Confirm that the file was exported**. Click on the `EXPORTFS` button in the `Disk Manager` window and then click on the `Current` button in the `Export/Unexport File Systems` window. The `/h/USERS/global` directory should appear in the list of exported file systems.

NOTE: Refer to Subsection 6.3.3, *Disk Manager Option*, for more information on mounting and exporting file systems.

Initializing NIS on the Master or the Client Machine

Follow the steps below to initialize NIS on the master or the client machine.

NOTE: On an HP workstation, C2 must be disabled before initializing NIS. This can be done by disabling the auditing monitor daemon from the `/etc/rc.config.d/auditing` file. To do this, change `AUDITING=1` to `AUDITING=0`. Then, run `/etc/tsconvert -r`.

NOTE: The master server should be initialized before any client machines are initialized.

STEP 1: **Configure DNS.** If DNS is not already configured, set it up using the `Set DNS` option as described in Section 6.5.4.1, *Set DNS Option*.

STEP 2: **Initialize NIS**. Select the `Initialize NIS` option from the `Set NIS` cascading menu option. If NIS is already configured, a `NIS Verify Status` window appears to confirm that you want to continue with reconfiguring NIS.

STEP 3: **Enter the NIS domain name**. A `NIS Initialize` window appears (Figure 36). In the `NIS Domain Name` field, enter the name of the domain that will include the master and client machines.

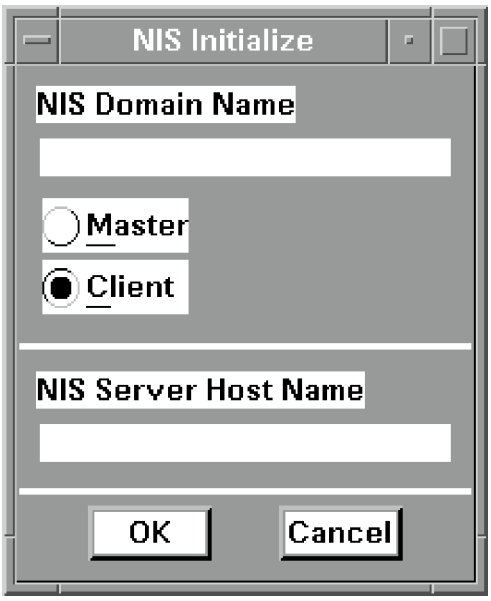

Figure 36. NIS Initialize Window

NOTE: The NIS domain name must contain two parts separated by a "." (period).

STEP 4: **Set the machine as the master server or as a client**. In the `NIS Initialize` window, click the knob for either `Master` or `Client` to designate your workstation as either a NIS master or a NIS client.

If the machine is a client to a NIS+ master, proceed to STEP 5.

If the machine is a client to a NIS master, proceed to STEP 6.

If the machine is the server, the `NIS Server Host Name` field will be unavailable (Figure 37). Click `OK` and proceed to STEP 7.

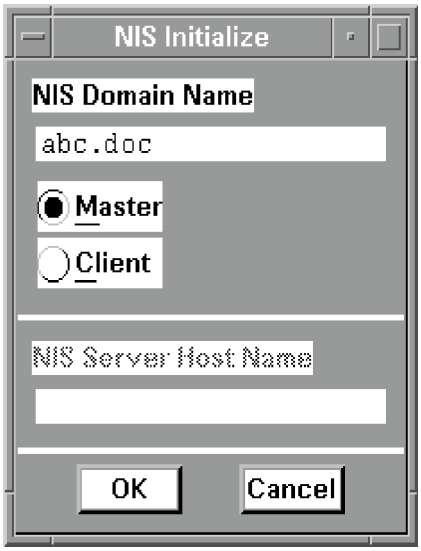

Figure 37. NIS Initialize (Master) Window

STEP 5: **Set the /etc/rc.config.d/nfsconf AUTOMOUNT option, if appropriate.** If the NIS client will be initialized to a Solaris NIS+ master server, set the `/etc/rc.config.d/nfsconf AUTOMOUNT` option. In a terminal emulator window, vi the `/etc/rc.config.d/nfsconf AUTO_OPTIONS` line to read:

```
AUTO_OPTIONS:"-m -f $AUTOMASTER"
```

STEP 6: **Enter the NIS server host name**. In the `NIS Server Host Name` field of the `NIS Initialize` window, enter the name of the machine designated as the NIS server and click `OK` (Figure 38).

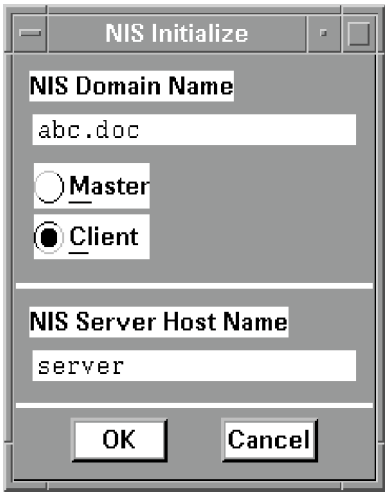

Figure 38. NIS Initialize (Client) Window

STEP 7: **Acknowledge the task complete instructions**. A `Task Complete` window appears to indicate several steps that a system administrator must take to use global accounts and profiles (Figure 39). Click on the `OK` button to close this window.

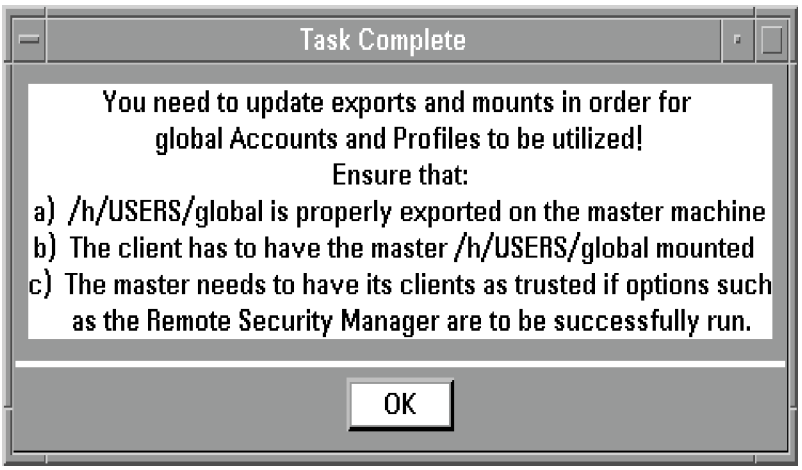

Figure 39. Task Complete Window

STEP 8: **Acknowledge that the machine needs to be rebooted**. A `Done` window prompts you to reboot the workstation. Click on the `YES` button to automatically reboot the system.

When the reboot is complete, the `DII COE Login` window appears. NIS is configured.

Removing NIS

The `Remove NIS` option disables NIS from the system, which removes the domain name and, upon reboot, does not start NIS processes. Follow the steps below to disable and remove NIS.

STEP 1: **Select the `Remove NIS` option**. Select the `Remove NIS` option from the `Set NIS` cascading menu option.

STEP 2: **Disable and remove NIS**. The `RESPOND TO THE QUESTION` window appears with the following message: `Do you wish to disable NIS?` Click on the `No` button to close the window, or click on the `Yes` button to disable NIS.

STEP 3: **Acknowledge that the machine needs to be rebooted**. The `RESPOND TO THE QUESTION` window indicates that NIS has been disabled and prompts you to reboot the machine. Click on the `Yes` button to automatically reboot the system.

The system reboots to the `DII COE Login` screen.

6.6 Removing Global Data

The `COERemoveGlobal` command line tool is a security management tool that allows the system administrator to remove global segment data on the global users/profile workstation. Global segment data should be removed only if all segments referring to this profile first have been deinstalled. The specified segment must be available currently on the local workstation. When removing an Account Group segment, the whole directory will be removed (for example, `h/USERS/global/Profiles/SampleAcctGrp`). Refer to the *DII COE Security Manager's Guide (HP-UX 10.20)* for more information on security management capabilities.

Follow the steps below to use the `COERemoveGlobal` command line tool.

STEP 1: **Log in as `sysadmin`**. Type `sysadmin` at the `Name` prompt and press [`RETURN`].

STEP 2: **Enter the `sysadmin` password**. Type the `sysadmin` password at the `Password` prompt and press [`RETURN`]. The System Administration software appears.

STEP 3: **Open a terminal emulator window**.

NOTE: Command line tasks are performed in terminal emulator windows. Follow the steps below to access a terminal emulator window.

STEP 1: Double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window.

STEP 2: Double-click on the `DII_APPS` folder in the `Application Manager` window to open the `Application Manager - DII_APPS`folder.

STEP 3: Double-click on the `SA_Default` folder to open the `Application Manager - SA_Default` window. This window contains both a `DTterm` icon and an `XTerm` icon.

STEP 4: Double-click on either the `DTterm` icon or the `XTerm` icon to open the window.

STEP 4: **Log in**. Log in as `sysadmin` at the terminal emulator login prompt and press [RETURN].

STEP 5: **Enter the appropriate password**. Enter the `sysadmin` password at the password prompt and press [RETURN].

STEP 6: **Remove global data for the specified segment**. Type the following at the prompt:

```
COERemoveGlobal [flags] segment[RETURN]
```

NOTE: If you need help, type `COERemoveGlobal` without any parameters. The following message appears:

```
Usage: COERemoveGlobal [flags] segment
The usable flags are:
-h, H, ?:   Display the help message
-V:         Display the tool's version number
-p <path>   Use Path to Establish path for subsequent file names.

This tool will remove global data for the specified segment

NOTE: If no Path is specified, /h will be used.
```

STEP 7: **Determine if global data has been deleted for the specified segment**. If the command was successful, the following message appears:

```
Successful Removal of Global Data for Segment [segment name]
```

If the command was not successful, the following message appears:

```
Unsuccessful Removal of Global Data for Segment [segment name]
```

The prompt then reappears.

6.7 Changing Workstation Security Levels

The `COESecLevel` command line tool is a security management tool that allows the system administrator to change the security level of a workstation. Refer to the *DII COE Security Manager's Guide (HP-UX 10.20)* for more information on security management capabilities. Follow the steps below to use `COESecLevel`.

STEP 1: **Log in as `sysadmin`**. Type `sysadmin` at the `Name` prompt and press [`RETURN`].

STEP 2: **Enter the `sysadmin` password**. Type the `sysadmin` password at the `Password` prompt and press [`RETURN`]. The System Administration software appears.

STEP 3: **Open a terminal emulator window**.

NOTE: Command line tasks are performed in terminal emulator windows. Follow the steps below to access a terminal emulator window.

STEP 1: Double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window.

STEP 2: Double-click on the `DII_APPS` folder in the `Application Manager` window to open the `Application Manager - DII_APPS`folder.

STEP 3: Double-click on the `SA_Default` folder to open the `Application Manager - SA_Default` window. This folder contains both a `DTterm` icon and an `XTerm` icon.

STEP 4: Double-click on either the `DTterm` icon or the `XTerm` icon to open the window.

STEP 4: **Log in as `sysadmin`**. Log in as `sysadmin` at the terminal emulator login prompt and press [`RETURN`].

STEP 5: **Enter the `sysadmin` password**. Enter the `sysadmin` password at the password prompt and press [`RETURN`].

STEP 6: **Change the security level of the workstation**. Type the following at the prompt:

```
COESecLevel [security level][RETURN]
```

NOTE: If you would like a list of the security levels or need help, type `COESecLevel` without any parameters. The following message appears:

```
Usage:
            COESecLevel Security Level>
where <security level> is UNCLASS, CONFIDENTIAL, SECRET,
TS, SCI.
```

(`TS` stands for top secret; `SCI` stands for sensitive compartmented information.)

STEP 7: **Close the terminal emulator window**. Type the following command at the prompt:

```
logout [RETURN]
```

STEP 8: **Reboot the system**. Select the `Reboot System` option from the `Hardware` pull-down menu. The `Reboot` dialog box appears with the following prompt: `Do you want to shutdown and reboot the computer?`Click on the `OK` button to reboot the machine.

STEP 9: **Log in as `sysadmin` or `secman`**. Log in as `sysadmin` or `secman` at the terminal emulator login prompt and press [`RETURN`].

STEP 10: **Enter the appropriate password**. Enter the `sysadmin` or `secman` password at the password prompt and press [`RETURN`]. The security banner will have changed to show the new security level.

6.8 Auditing

Auditing is a security management capability that allows the system administrator to enable or disable auditing. Refer to the *DII COE Security Manager's Guide (HP-UX 10.20)* for more information on security management capabilities.

6.8.1 Enabling or Disabling Auditing from SAM

NOTE: Refer to vendor documentation for more information on using SAM.

Follow the steps below to start or stop audit from SAM.

STEP 1: **Log in as `sysadmin`**. Type `sysadmin` at the `Name` prompt and press [`RETURN`].

STEP 2: **Enter the `sysadmin` password**. Type the `sysadmin` password at the `Password` prompt and press [`RETURN`]. The System Administration software appears.

STEP 3: **Access the Application Manager**. Double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window. Refer to Section 5, *Common Desktop Environment*, for more information about CDE.

STEP 4: **Open the `DII_APPS` folder**. Double-click on the `DII_APPS` folder in the `Application Manager` window to open the `Application Manager - DII_APPS` folder.

STEP 5: **Open the `SA_Default` folder**. Double-click on the `SA_Default` folder to open the `Application Manager - SA_Default` window.

STEP 6: **Execute the `sam` application**. Double-click on the `sam` icon.

STEP 7: **Select the `Auditing and Security` icon**. The `System Administration Manager` window appears. Double-click on the `Auditing and Security` icon.

STEP 8: **Select either the `Audited Users` icon, `Audited Events` icon, or the `Audited System Calls` icon**. The `SAM Areas:Auditing and Security` subwindow appears. Double-click on the `Audited Users` icon, the `Audited Events` icon, or the `Audited System Calls` icon.

STEP 9: **Convert to a trusted system**. Click on the `Yes` button to convert to a trusted system if the following message appears. If the message does not appear, proceed to STEP 12.

```
            You need to convert to a Trusted System before
            proceeding.
The conversion process does the following things:

1.  It saves a copy of "/etc/passwd" in the file
    "/etc/passwd.old.sav".
2.  It then moves the passwords from "/etc/passwd" into a new
    "hidden" password database (the file
    "/.secure/etc/passwd").
3.  It invalidates all passwords in "/etc/passwd" by replacing
    them with "*".  For more details, refer to the "HP-UX
    System Security" manual.

            Do you wish to convert to a Trusted System now?
```

STEP 10: **Affirm that you want to convert to a trusted system**. Click on the `Yes` button if the following message appears:

```
WARNING:   The change to a Trusted System is irreversible!
           Are you sure you want to continue?
```

STEP 11: **Finish with the conversion**. Click on the `OK` button if the following message appears:

```
Converting to a trusted system ...
Task succeeded.  Press OK to continue.
```

STEP 12: **Turn auditing on or off.** The `Auditing and Security` window appears (Figure 40). Click on an entry in the window to highlight it and select either the `Turn Auditing Off` or `Turn Auditing On` option from the `Actions` pull-down menu to stop or start audit, respectively.

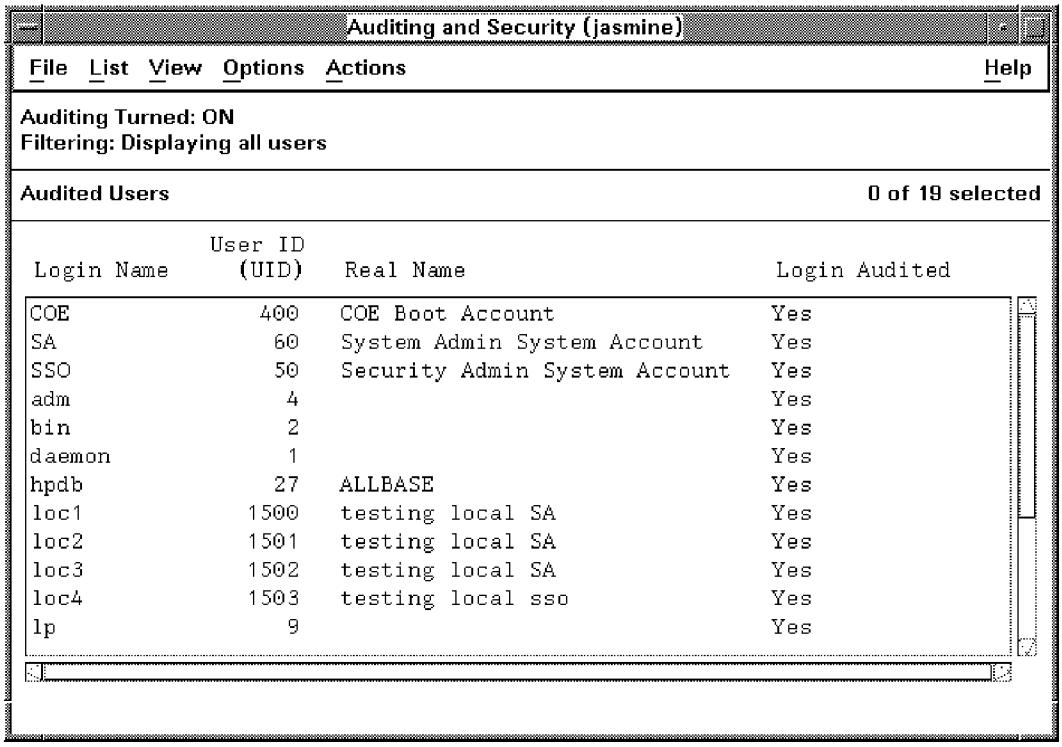

Figure 40. Auditing and Security Window

6.8.2 Using Shadow Password Files

To use a shadow password file on HP, type `/etc/tsconvert`. This utility updates the shadow password file and removes all password information from the default password file. Once this program has completed, the machine must be rebooted.

To discontinue use of a shadow password file on HP, type `/etc/tsconvert -r`. This utility restores the default password file with the actual encrypted password information. Once this program has completed, the machine must be rebooted.

6.9 Changing the sysadmin Password

Follow the steps below to change the `sysadmin` password.

STEP 1: **Log in as `sysadmin`**. Type `sysadmin` at the `Name` prompt and press [`RETURN`].

STEP 2: **Enter the `sysadmin` password**. Type the `sysadmin` password at the `Password` prompt and press [`RETURN`]. The System Administration software appears.

STEP 3: **Access the Application Manager**. Double-click on the Application Manager control on the CDE Front Panel to open the `Application Manager` window.

STEP 4: **Select the `DII_TOOLS` folder**. Double-click on the `DII_TOOLS` folder in the `Application Manager` window to open the `Application Manager - DII_TOOLS` folder.

STEP 5: **Select the `Chg Password` icon**. Double-click on the `Chg Password` icon to open the `Set Password` window (Figure 41).

Figure 41. Set Password Window

STEP 6: **Enter the current `sysadmin` password**. Enter the current `sysadmin` password in the Old Password field and click on the `OK` button.

STEP 7: **Enter the new `sysadmin` password**. The `New Password` window appears. Enter the new `sysadmin` password in the `Enter New Password` field and click on the `OK` button.

STEP 8: **Verify the new `sysadmin` password**. The `Verify New Password` window appears. Enter the new `sysadmin` password in the field and click on the `OK` button.

STEP 9: **Acknowledge that the `sysadmin` password has changed**. Click on the `OK` button when the following message appears:

```
Your password has been successfully updated!
```

7. Error Recovery Guidelines

WARNING! Never power off the system without first executing a shutdown. Doing so could cause irreparable damage. If the system has already been brought down incorrectly, refer to Subsection 8.4, *Repairing File Systems*.

The following topics are covered:

- Recovering from basic errors
- Troubleshooting multiple monitors
- Identifying hardware problems
- Repairing file systems
- Reporting problems.

7.1 Recovering From Basic Errors

Access to all System Administration menus and options is required to perform error recovery procedures.

IMPORTANT! The following procedures are listed according to "risk factor" — that is, from the least to the greatest risk of damaging files or losing data. Always begin corrective action with the procedure that poses the least risk.

If these steps do not correct the problem, contact the number listed in Section 7.5, *Reporting Problems*.

Options are unavailable:

- Access to options may be restricted for the user's account. Check with the security manager.

Window hangs or menu option has been disabled:

- Select the `Close All` option from the `SA System` pull-down menu (on the System Administration menu bar). All windows launched from the menu bar or from the `DII_APPS` folder will close. Windows launched from the CDE Front Panel will not close.

Reboot the system:

STEP 1: Notify users on remote monitors that their applications will soon terminate.

STEP 2: Select the `Reboot System` option from the `Hardware` menu on the System Administration menu bar.

STEP 3: Restart the system with user login.

Power up/power down the system with pointer and keyboard operational:

- See Chapter 3, *Operating Guidelines*.

Power up/power down the system with pointer frozen:

STEP 1: Turn off the monitor and peripherals.

STEP 2: Turn off the CPU.

STEP 3: Wait approximately 30 seconds.

STEP 4: Turn on the monitor and peripherals.

STEP 5: Turn on the CPU.

STEP 6: Restart the system with the user login.

Reinstall the DII COE:

STEP 1: Use the original installation tapes if a network installation is not possible.

STEP 2: Follow the instructions to reinstall the DII COE.

7.2 Troubleshooting Multiple Monitors and Keyboards

Monitor or keyboard fails to respond:

- A reboot may solve the problem.
- Rebooting the computer in a multiple monitor environment means all monitors will go down. When working with multiple monitors, contact all users before rebooting.

Monitor is black:

- Make sure the monitor cable is connected properly.
- Make sure the monitor is connected to a power supply and is turned on.
- The video switch may have incorrect input or output, or may be turned off.

Monitor is black with small yellow squares:

- Make sure each monitor is connected to the correct port on the back of the CPU.

Second monitor in a dual-eye configuration is gray:

- Make sure keyboards are connected correctly. This monitor is the second eye of a dual-eye configuration.

Trackball does not respond:

- Reboot the machine. If this does not work, try using a different trackball. If the trackball still does not respond, there may be a wiring problem in the cable.

Keyboard does not respond:

- Make sure the keyboard is connected properly.
- The keyboard may be connected properly but the monitor may not "echo" the typed characters to the screen. Rebooting the machine usually solves this problem.

7.3 Identifying Hardware Problems

When the workstation is turned on, the CPU runs a hardware check. If the hardware check is successful, the following occurs:

- The system boots from the default boot device.
- The system displays configuration information, followed by the login prompt.
- Observe the boot information for system/hardware problems. If the boot fails, a disk problem has occurred. Refer to the hardware manual for more information.

7.4 Repairing File Systems

If the system was brought down unexpectedly (for example, power failure, turned off without proper shutdown), it is designed to repair the file system when powered up.

- The system should never be powered down while the file system is being repaired. To do so would cause further damage to the file system.
- If power is fluctuating, leave the system off until power is re-established.

7.5 Reporting Problems

To receive immediate assistance with a problem or to report a problem, call the DII COE Hotline at (703) 735-8681 (DSN 653-8681) between the hours of 9:00 a.m. to 5:00 p.m. Eastern Standard Time. You can also send a facsimile at (703) 735-3080 (DSN 653-3080) or send an email message to hotlinec@ncr.disa.mil. The DII COE Hotline is located at the Operational Support Facility (OSF) in Sterling, Virginia.

If a problem cannot be corrected by the procedures described in this document, follow these guidelines to report it:

STEP 1: **Make sure the problem can be repeated**.

STEP 2: **Record pertinent information**. Record the problem, the last steps leading to the problem, and the frequency with which the problem occurs.

STEP 3: **Describe attempts to solve the problem**.

Appendix A - CSE-SS Functionality

A.1 CSEXDM

A.1.1 Overview

The X Display Manager (XDM) segment provides users with the capability to log in to a DII COE workstation via a graphical user interface (GUI). The `/h/COE/Comp/CSEXDM/bin/xdm` executable is a modified version of the X11 Release 4, X Display Manager and is initiated as part of the workstation's boot sequence.

A.1.2 CSEXDM Configuration

Resources affecting XDM functionality and various GUI characteristics initially have predefined default values. These resource values can be altered from the default settings by modifying various configuration files. Access with `root` privileges to a terminal emulator window and a text editor is required to perform these modifications.

The following is the main configuration file used by CSEXDM:

```
/h/COE/Comp-/CSEXDM/data/config/xdm-config
```

This file contains XDM resources in the X resource format. These resources control the behavior of CSEXDM.

It should be noted that because CSEXDM can manage more than one display connection (for example, X-terminals connected to the host machine), some of the resources apply to a single display device (per-display resources), while others apply to the CSEXDM process in general (global resources). For per-display resources, values are assigned using the following syntax, where `#` is the display number:

```
DisplayManager._#.resource:   value
```

To assign a per-display resource value to all displays, an asterisk is used as a wild card in place of the `_#` (for example, `DisplayManager*resource: value`). For global resource values, a simple dot notation is used (for example, `DisplayManager.resource: value`).

Table 1 explains the resources set within the `xdm-config` file and shows their default settings.

Resource	Default Setting	Description
terminateServer	true	Specifies if the X server should be terminated when a session terminates instead of resetting it.
systemPath	/usr/bin:/usr/sbin/usr /openwin/bin:/etc (etal.)	Specifies the default value for the PATH environment variable for root users.
userPath	/usr/bin:/bin:/usr/sbin:/usr /local/bin (etal.)	Specifies the default value for the PATH environment variable for normal users.
authorize	false	Controls if CSEXDM generates and uses authorization for the server connections.
resources	/h/COE/Comp/data /app-defaults/xdm-resources	File defining the CSEXDM authentication widget's resources. These resources control the appearance of the CSEXDM opening login window.
startup	/h/COE/Comp/CSEXDM/data/etc /Xstartup	File containing commands executed by CSEXDM when the windowing session is started.
session	/h/COE/Comp/CSEXDM/data/etc /Xsession	File containing commands executed by CSEXDM when the windowing session is initialized.
reset	/h/COE/Comp/CSEXDM/data/etc /Xreset	File containing commands executed by CSEXDM when the windowing session is terminated.
serverEnv	/h/COE/Comp/CSEXDM/data /config/xdm-env	File containing extra environment variable assignments required by CSEXDM.
screensaverTimeout	5	Specifies the number of minutes before an inactive login screen is blanked.
rootLogins	false	Specifies if logins are allowed by root users (users having an ID of 0).
servers	/h/COE/Comp/CSEXDM/data /config/xdm-servers	File that contains an entry for each of the displays that should be managed by CSEXDM.
errorLogFile	/h/COE/Comp/CSEXDM/data/log /xdm-errors	File where CSEXDM errors are written. This file will also contain any errors generated by the Xstartup, Xsession, and Xreset files.
consoleLogFile	/h/COE/Comp/CSEXDM/data/log /xdm-console	File where console messages are written.
pidFile	/h/COE/Comp/CSEXDM/data/log /xdm-pid	File where the process identification of the CSEXDM process is stored.
dbmFile	/h/COE/Comp/CSEXDM/data/etc /xdmlogin	Directory and base filename for the database file that record the number of log in failures for each user.
maxInvalidLogins	3	Maximum number of log in failures before the user is locked out of the workstation.
loginResetTimeout	1440	Number of minutes before a workstation with invalid login attempts is reset to zero log in attempts (24 hours).

Resource	Default Setting	Description
lockoutMailRecipient	secman	Specifies the user or mail alias to receive mail messages when users are locked out of a workstation.
lockoutMailSubject	User Locked Out	Specifies the subject line for mail messages sent when users are locked out of a workstation.
dceAuthenticate	false	Specifies if DCE user authentication is performed.
dceLogin	/usr/bin/dce_login	Specifies the default path for invoking the DCE login script.
useDisplayConsole	true	Specifies if the Console Window will be displayed when CSEXDM is executed.

Table 1. xdm-config File Resource Settings

NOTE: After resource modification, the workstation must be rebooted for the changes to take effect.

A.1.3 Environment Variables

Alter the environment variables in the `/h/COE/Comp/CSEXDM/data/config/xdm-env`file as appropriate for the site.

A.1.4 CDE Invocation

CSEXDM is pre-configured to invoke the CDE desktop upon a successful login. By default, it determines if the CDE has been installed by testing for the existence of `/usr/dt/bin/Xsession` (see `/h/COE/Comp/CSEXDM/data/etc/Xsession`). If that file exists, it assumes the CDE is properly configured and starts up the `CDE Xsession` script. If `/usr/dt/bin/Xsession` is not found, it assumes the CDE has not been installed and defaults to invoking the MWM window manager as the user session. In this case the mwm binary should exist in one of the path components specified by the `DisplayManager*userPath`resource in the `xdm-config` file.

A.1.5 Unlocking a Locked Out User

To unlock users previously locked out due to too many invalid login attempts, invoke the `CSEXDM_User_Account_Information` binary. This binary opens a window that displays a variety of user login information, such as whether the user is currently logged in, the user's full name, and the user's home directory. Users who have an uppercase `L` next to their name are locked out users. To unlock a user in this condition, highlight the user name, then choose `clear_failures` from the `File` menu. Repeat this process for all locked out users who should be unlocked.

The `CSEXDM_User_Account_Information`binary also can be used to unlock locked users on remote hosts. To view user information on a remote workstation, an entry in the remote systems `/.rhosts` must exist for the local system. For example, if `CSEXDM_User_Account_Information` is being run from workstation A the following entry must exist in workstation B's `/.rhosts` file:

```
A     root
```

For more information, view the `User_Account_Information.1` manual page located in `/h/COE/Comp/CSEXDM/man`.

On platforms where the `CSEXDM_User_Account_Information`binary is not available, the `CSEXDM_clear_failures` binary can be used to unlock locked users. Execute the following command as the `root` user from the shell prompt in a terminal emulator window, where `uname` is the user name of the locked out user:

```
CSEXDM_clear_failures uname
```

Refer to the `clear_failures.1` manual page for more information.

A.1.6 DCE

The segment can be configured to perform DCE user authentication against the local cells Security Registry and to download the user security credentials. To enable this feature, first make sure the system has been properly configured to be a DCE client; this should be tested by invoking `/usr/bin/dce_login` with a valid user name and password. Second, set the `DisplayManager*dceAuthenticate`resource to `true` in the `/h/COE/Comp/CSEXDM/data/config/xdm-config`file. Finally, reboot the workstation. `CSEXDM_xdm` should attempt to perform a DCE authentication in addition to the local UNIX authentication.

If the DCE authentication fails and the user is a valid UNIX user, the user is still permitted access to the system; however, the user will not have any DCE security credentials for his or her login session.

A.1.7 Servers

In the file `/h/COE/Comp/CSEXDM/data/config/xdm-config` if the value of the `DisplayManager.servers` resource is set to `/h/COE/Comp/CSEXDM/data/config/xdm-servers`, then modify the `xdm-servers` file according to the `xdm.1` manual page. The `xdm.1` manual page is located in `/h/COE/Comp/CSEXDM/man`.

A.1.8 Manual Pages

The `xdm.1`, `User_Account_Information.1`, and `clear_failures.1` files in the `/h/COE/Comp/CSEXDM/man/` subdirectory are the on-line manual pages for the `CSEXDM_xdm`, `CSEXDM_User_Account_Information`, and `CSEXDM_clear_failures` applications.

A.2 CSECON

A.2.1 Overview

The CSECON segment provides a console window (read-only window) that remains open for the life of the user's login session and cannot be closed, although it may be iconified.

The console window, `/h/COE/Comp/CSECON/bin/CSECON_xdcons`, is started by CSEXDM and displays error and notification messages written to standard error and `/dev/console` during the login session. Errors generated by `CSECON_xdcons` are stored in the `/h/COE/Comp/CSEXDM/data/log/xdcons-errors` file. The `Close` function on the CSECON window is disabled by specifying the following resource in the following `/usr/lib/X11/app-defaults/Mwm` resource file:

```
Mwm*xdcons*clientFunctions: -close
```

All `xdcons` resources are specified in the `/h/COE/Comp/CSEXDM/xdcons-resources` file and are described in Table 2.

Resource	Default Setting	Description
foreground	old lace	Defines the color of text displayed in the console window.
background	darkslategrey	Defines the background color of the console window.
iconic	true	Defines the initial iconified state of the console window.
geometry	+0+0	Defines the location of the console window on the screen. These coordinates resolve to the upper left corner of the screen.
text.columns	80 columns	Defines the number of columns the console will display.
text.rows	4 rows	Defines the number of rows the console window will display.
minHeight	39 pixels	Defines the minimum height to which the console window can be reduced.
minWidth	36 pixels	Defines the minimum width to which the console window can be reduced.
heightInc	13 pixels	Defines the height of the icon used to represent the console window.
widthInc	6 pixels	Defines the width of the icon used to represent the console window.
title	Console Window	Defines the title of the console window.
iconName	Console	Defines the title of the window icon.

Table 2. CSECON Resources

A.2.2 Turning Off the Console Window

For some of the platforms supported by DII COE, the opening of the console window can be prevented by setting a resource value. If the resource `DisplayManager*useDisplayConsole` exists in the `/h/COE/Comp/CSEXDM/data/config/xdm-config`file, the console window can be disabled. To disable the opening of the console window, set the default value from true to false. To enable the opening of the console window, set the value to true. Superuser privileges and a text editor are required to modify the `xdm-config` file. To make the change effective, the user must log out and log in again. Setting this resource value determines the console window configuration for all users local to that workstation.

A.2.3 Manual Pages

The `xdcons.1` file in the `/h/COE/Comp/CSECON/man/` subdirectory is the on-line manual page for the `CSECON_xdcons` application.

A.3 CSEPAS

A.3.1 Overview

The CSEPAS segment provides users with the capability to change their own passwords and provides the security manager with the capability to assign a password to a general user. Both of these utilities use a rule-based password checking capability.

The user can change his or her own password through invocation of the `CSEPAS_userpass` executable. `CSEPAS_userpass` allows the user to enter a new password and re-enter the password for verification purposes. The `/h/data/app-defaults/CSEPAS`resource file is used for setting the font and color characteristics of the GUI windows. `CSEPAS_userpass` implements the public domain `passwd+` software, which provides its rule-based password checking capability. The `/h/COE/Comp/CSEPAS/data/passwd.data`file contains the construction rules for a valid password. The rules contained in this file are discussed in the next section.

The security manager assigns passwords to users through invocation of the `CSEPAS_Assign_Passwords`executable. `CSEPAS_Assign_Passwords`displays a selectable list of users who currently exist on the system. `CSEPAS_userpass` is invoked for each user that is selected for password assignment.

A.3.2 Changing Password Construction Parameters

To determine the parameters by which a password is constructed, the appropriate set of rules in `/h/COE/Comp/CSEPAS/data/passwd.data`must be selected. To modify the `passwd.data` file, superuser privileges are required. It is recommended that the rules themselves not be modified, with the exception of the password length rule. The desired combination of rules can be selected through the insertion or removal of commenting marks at the beginning of the rules records. A standard ASCII text editor can be used to modify the `passwd.data` file. When the `passwd.data` file is in its initial state, a default set of password rules are selected.

In the case of every rule, to prevent the use of a rule in the construction of a password, comment out the rule by inserting a `#` character at the beginning of the line where the rule is specified. Be aware that some rules are interrelated and may require all associated rules to be commented out to prevent the checking of that password construct. Uncomment the rule by deleting the `#` from the beginning of the line where the rule is specified.

In the `passwd.data` file, the password rules are found beginning on line 102. The first rule of the set disallows the user’s login name being used as his or her password. Note that to allow users to use their log in name as their password, the circular shift rule, identified in a following paragraph, must also be commented out. The second rule is similar to the first rule and disallows the use of the user’s log in name typed in reverse being used as their password.

The third through the eleventh rules, discussed in the following paragraph, depend on the GECOS information having been included in the user's password record. If this information is not included with the password record, then these rules are not checked in the construction of new passwords.

The third and forth rules disallow the user's first name and reversed first name being used as their password. The fifth and sixth rules disallow the user's last name and reversed last name being used as their password. The seventh and eighth rules disallow the user's office and reversed office being used as their password. The ninth and tenth rules disallow the user's phone number and reversed phone number being used as their password. The eleventh rule disallows the user's initials being used as their password.

The twelfth and thirteenth rules disallow the newly entered password from being the same as the previous password. The last rule in this section disallows the use of the user's ID from being the password or being contained within the password.

The next rule found in the `passwd.data` file disallows use of a circular shift of the user name as a password.

The next section of the file contains five rules that govern the use of host name and domain name in the construction of passwords. The first two rules in this section disallow the host name and reversed host name of the local workstation being used as passwords. The next two rules disallow the domain name and reversed domain name being used as passwords. The last rule disallows domained host name being used as a password.

The next section of the file contains four rules that disallow words that are found in two separate dictionary files from being used as passwords. Note that both of the rules for a dictionary must be commented out to allow words found in that dictionary to be used as passwords. The two dictionary files are `/h/COE/Comp/CSEPAS/data/trivial.dict`and `/h/COE/Comp/CSEPAS/-data/full.dict`.

The last rule in the file determines the required length of the password. The default length of a constructed password is eight characters. To adjust the length of the constructed password change the value of the number after the < character to the minimum desired length. The password can be adjusted to be 1 to 8 characters long. For the benefit of the user, it is suggested that if the password length limit is modified, that the length specified in the error message portion of the rule also be changed to reflect the new length. If this rule is commented out, a password from length 1 to 8 characters can be constructed.

A.3.3 Manual Pages

The `userpass.1`, `Assign_Passwords.1`, and `passwdplus.1` files in the `/h/COE/Comp-/CSEPAS/man/` subdirectory are the on-line manual pages for the `CSEPAS_userpass` and `CSEPAS_Assign_Passwords` applications.

A.4 CSELCK

A.4.1 Overview

The CSELCK (xlock) segment provides the DII COE with an automatic session locking mechanism that activates when the mouse and keyboard have been idle for a configurable amount of time.

A.4.2 Operation

The condition of a session when it is in an idle state is referred to as deadman. The CSELCK segment considers deadman to have two distinct phases. During the first phase of the deadman, `/h/COE/Comp/CSELCK/bin/CSELCK_xautolock`automatically locks the screen if the keyboard and mouse have been idle for a configurable time limit by invoking `/h/COE/Comp/CSELCK/bin/xlock`. During the second phase of the deadman, xlock takes a deadman action if the keyboard and mouse remain idle for a configurable time limit after the screen has been automatically locked. The xlock resources are specified in the file `CSELCK` located in the `/h/COE/Comp/CSELCK/data/app-defaults`subdirectory. These resources are described in Table 3. Superuser privileges and a text editor, such as “vi” editor, are required to change this file. The xlock resources are located at the end of the `CSELCK` file. At the beginning of this file, after some records of modification, are the settings for the various screen saver modes which are used by the `CSELCK_xlock` screen locking application. The settings for these screen saver modes are described in the `CSELCK_xlock` manual pages.

Be aware that the CDE which comes with the DII COE kernel also contains a screen saver function. Depending on whether it is enabled and the settings of its time out value, it may engage before the CSELCK can perform its session locking function.

A.4.3 Changing Screen Lock Time Out

The `CSELCK_xautolock` process is initially invoked when xdm executes “Xsession” during user log in. This file is located in the `/h/COE/Comp/CSEXDM/data/etc/` subdirectory. This file must be edited to change the period of time that `CSELCK_xautolock` waits before locking the screen of an idle workstation. Superuser privileges and a text editor, such as “vi” editor, are required to change this file. This task is intended to be performed by the System Administrator. The `-time` option of the command line which invokes the `CSELCK_xautolock` process is the value which needs to be changed. The command line appears as follows:

```
if [ -d /h/COE/Comp/CSELCK ]; then
   /h/COE/Comp/CSELCK/bin/CSELCK_xautolock -time 5 -locker
   “/h/COE/Comp/CSELCK/bin/CSELCK_xlock -name CSELCK
   -remote -allowaccess +allowroot >&- 2>&-” &
fi
```

Note that the line is replicated here with the default options. The maximum value that the `-time` option can be is 60 minutes and the minimum value is 1 minute. The default, as shown, is 5 minutes. The workstation must be rebooted after the change is made to make it effective.

Resource	Default Setting	Description
deadmanTimeout	30 minutes	Specifies the number of minutes after the screen is locked to execute the deadman action.
deadmanAction	none	Specifies the actions to be performed when deadman timeout expires. It may consist of the string “none” or one or more of the following space separated strings: “notify”, “terminate”, and “script”. If “none” is set, no action will be performed. If “notify” is set, the person or mail alias, specified by the deadmanMailRecipient resource, will be notified by email that the workstation has been left unattended. If “terminate” is set, the user’s session, including all processes owned by the user, will be terminated. If “script” is set, the shell script named by the deadmanScript resource will be executed.
deadmanWarningTimeout	60 seconds	Specifies the number of seconds before executing the deadmanAction to display a warning message.
deadmanWarning	Depends on the setting of the deadmanAction resource	Specifies the warning message to display. If the deadmanAction contains the “terminate” flag, the deadmanWarning default is “WARNING: Inactive session will be terminated in %d seconds!”. Otherwise the default is to not display a warning message.
deadmanWarningBell	on	Controls whether an audible beep is sounded at one-second intervals during the display of the warning message.
deadmanScript	No default	The script executed when the deadman timeout expires if the deadmanAction resource is set to “script”. The script must reside in the `/h/CSELCK/data/etc` directory.
deadmanMailRecipient	secman	Specifies the user or mail alias used by the deadman capability when sending mail messages.
deadmanMailSubject	Deadman Timeout	Specifies the subject line of deadman mail messages.

Table 3. CSELCK (Xlock) Resources

A.4.4 Manual Pages

The `CSELCK_xautolock.1` and `CSELCK_xlock.1` files in the `/h/COE/Comp/CSELCK/man/` subdirectory are the on-line manual pages for the `CSELCK_xautolock` and the `CSELCK_xlock` applications.

Appendix B - Communications

B.1 The DII COE Network

An HP or a SPARC loaded with the DII COE can be configured as a stand-alone machine or networked in a server/client relationship.

B.1.1 Stand-Alone Configuration

A stand-alone machine is its own server. It retains data without relying on a networked server. It shares data (1) through messages transmitted over configured comms ports or (2) by floppy diskette or tape.

B.1.2 Network Configuration

The communications processor holds all track and comms data. When installing software, the communications processor should be installed first, followed by its client machines. Client machines depend on the server for data, especially data from the track database. Communications processor functions include:

- Processing incoming and outgoing messages
- Decoding incoming messages
- Correlating track information
- Routing outgoing messages.

If the server goes down, the Track Database Manager (Tdbm) warning window informs the user that the server is down. Although the user can view track information, no track database actions (local or shared) are processed.

B.2 Interface Description

The DII COE supports two interface types: serial and LAN.

B.2.1 Serial Interface: RS-232, RS-422, MIL-188

A serial interface is used for serial communication between systems. If systems are at the same site, connect them directly. If systems are at different sites, connect them through a secure modem, such as a STU III.

B.2.2 LAN Interface: Ethernet and Fiber Optic Cabling

Ethernet and fiber optic cabling are used to enable communications between two or more workstations on a LAN. Each machine is assigned a unique name and IP address on the network, which are used by system files.

B.2.3 Protocols

B.2.3.1 TCP/IP

Transmission Control Protocol (TCP) moves data in a continuous, unstructured byte stream. It provides full-duplex service, acknowledgment of data received, and data flow control.

Internet Protocol (IP) provides network layer services to the TCP/IP protocol suite. IP is responsible for forwarding packets through a network based on IP addresses. IP relies on TCP to guarantee delivery of packets.

B.2.3.2 X.25

X.25 is used for a Wide Area Network (WAN) of computers connected by a Packet Switching Network (PSN), such as the Defense Data Network "DSNET1". (X.25 is generally used by ashore sites only.)

B.3 Physical Connections

B.3.1 Serial

B.3.1.1 Requirements for a Direct Connection

A 2-, 3-, and 7-pin connection is required to connect systems located in the same installation.

B.3.1.2 Requirements for STU III Connection

The STU III must support an RS-232 connection. If it does not, the user must request an RS-449-to-RS-232 adapter from the manufacturer.

An HP workstation requires a DB 9 female-to-DB 25-male cable. Certain models of STU III require voltage on pins 4 and 20, which the HP workstation does not supply. A special adapter must be used.

B.3.2 LAN

B.3.2.1 Requirements for an Ethernet Interface

- Use an AUI interface with a DB 15-pin connector between the workstation and the transceiver.
- The copper LAN interface may have a BNC connection between transceivers.
- The network must be terminated at both ends. Use a terminating 50W resistor on each end.
- If the workstation is a stand-alone configuration, the LAN connections on the workstation must be terminated. Use a 50W resistor on each end.

B.3.2.2 Requirements for a Fiber Optic Connection

- Use an AUI interface with a DB 15-pin connector between the workstation and the transceiver.
- The transceivers must reside at each computer connected by fiber optics. These boxes have dual-ring capability to ensure continued transmission.

For example, if a transmission is interrupted by a broken fiber optic or connection, it is automatically routed to the second ring.

B.3.3 X.25

Requirements for an X.25 Connection (HP)

- If the system is configured for DDN communications, the Serial A port must be the DDN/X.25 interface device. No other device may be configured to the TTYA port.
- A DB 15 connects the machine to a modem and encryption device with an X.25 interface.
- The X.25 card provides synchronous RS-232 (DTE) error-free transmission over the PSN.
- There may be many interfaces, such as crypto, modem, or leased line, between the computer and the actual PSN.

B.4 Communication and Broadcast Configuration

Modify fields to configure a communications channel. Keep in mind the following general information:

- Standard comms settings should be used. Changing some settings, such as baud rate, parity, or stop bits, may cause data to be garbled. For example, if messages are garbled, it is likely that the transmitting and receiving sites do not have the same values set for the baud rate and related fields.
- XON/XOFF should never be used for baudot data connections. Toggle on the `XON/XOFF` checkbox to enable the use of software flow control to stop and resume transmission.
- If the `RTS/CTS` checkbox is toggled on, hardware flow control is enabled.
- Make sure the comms interface configuration matches the flow control settings.

B.4.1 Starting Comms Channels

A comms channel must be turned on before it can be used.

Turn channels on and off one of two ways:

- Highlight the channel and then select `START`, `STOP`, or `RESTART` from the pop-up menu.
- Toggle the `AUTOSTART` checkbox `ON` in the `COMMS EDIT` window. This turns a channel on at system startup.

The `STATUS` column indicates status of each channel: `ON` or `OFF`.

Important:

- A comms channel can only be turned on if the designated device exists. For example, a DTC comms channel is assigned to TTYC2. If a multiplexer is not connected to the TTYC port, this channel cannot be turned on, but it can be reassigned to an existing port.
- A channel must be `ON` to open its status window.

Highlight the channel and select the `WINDOW` pop-up option.

B.4.2 Starting Broadcasts

A broadcast must be turned on before it can be used. Broadcasts are turned on and off using the `BROADCASTS` option from the `FOTC/BCST` menu. The `BROADCASTS` window displays a list of available broadcasts.

Turn broadcasts on and off one of two ways:

- Highlight the broadcast; select `START` from the pop-up menu.
- Toggle the `AUTOSTART` checkbox `ON` in the `BROADCAST EDIT` window. This turns the broadcast on at system startup.

The `STATUS` column indicates status of each broadcast: `ON` or `OFF`.

B.4.3 Message Transmission

Messages are sent manually (using an `XMIT` option) and automatically (using a broadcast). To transmit a message, make sure the communications channel is turned on, the channel is configured properly, and the channel can transmit messages.

> **NOTE**: Manual transmissions are not allowed on the DTC channel; only automatic transmissions are allowed via the DTC broadcast.

To broadcast a message, make sure the appropriate comms channels are running, as described in the previous section, and the appropriate broadcast programs are running, as described below.

B.4.4 Message and Broadcast Headers

To set a default message header for manual transmissions, click `DEFAULT` in the `HEADER EDIT` window pop-up menu. This header is used for all options that have a manual transmit capability, such as tracks and overlays.

Each broadcast has its own header. If `DEFAULT` is selected while creating a header for a broadcast, the broadcast header becomes the default message header. This header is used for manual transmissions and for the broadcast.

B.5 STU III Configuration

A serial interface comms channel must first be configured for the STU III connection (see Section B.3, *Physical Connections*). Set the device to the port connected to the STU III. Use serial interface defaults for the other settings: `data type=ASCII`, `parity=NONE`, `stop bit=1`, `baud rate=2400`, `data size=8`, `RECV` and `XMIT=ON`.

- An entry must be made in the Auto-Forward Table. (See *Auto-Forward Table* in the *Unified Build User's Guide*.)
- An entry must be made in the Sources reference table if in FOTC mode. (See *Source XREF Table* in the *Unified Build User's Guide*.)
- Both STU IIIs must be in Remote Control Mode with Secure Access Control System (SACS) enabled.
- Both STU IIIs must have proper ACLs loaded.
- STU IIIs with SACS support auto-answer auto-secure-no operators are needed. In this mode, Voice/Secure Voice options are unavailable.

SACS grants access to designated STU IIIs, as identified in the ACL on the local STU III.

Three requirements for secure authentication of automatic, incoming calls are (1) ACL header, (2) DAO code, and (3) Keyset ID.

STU IIIs (including STU III SACS) without these codes are excluded, and cannot gain access or connect with STU-IIIs that share DAO codes or keyset IDs. This creates a closed network. Unauthorized calls are disconnected before the line to JMCIS is opened. If two STU IIIs can talk to each other, but cannot transmit data, their internal modes may be different. Check baud rates: synchronous and asynchronous must match.

B.5.1 Downloading ACL

The following tables illustrate the sequence of an ACL download. This sequence has been tested on AT&T devices only.

STEP 1: Insert the Master CIK.

STEP 2: Click on the `MENU` option.

OBSERVE	PRESS
Main Menu Secure Voice	NEXT
Main Menu Secure Data	NEXT
Main Menu Show Config	NEXT
Main Menu Change Config	SELECT
Change Config Security Config	SELECT
Security Config SACS Disable	NEXT
Security Config SACS Options	SELECT
SACS Options SACS Control	NEXT
SACS Options Auto Access Control	NEXT
SACS Options Far-end ID	NEXT
SACS Options Access List	SELECT
ACCESS LIST MENU Load ACL Via DTE	SELECT
WAITING FOR ACL start DTE transfer	(begin download)
RECEIVING ACL please wait	(wait until finished)
ACL RECEIVED nnn show new ACL	NEXT
ACL RECEIVED nnn save new ACL	SELECT
NEW ACL SAVED previous menu	MENU

B.5.2 Temporarily Disabling SACS ACL

STEP 1: Insert the Master CIK.

STEP 2: Click on the `MENU` option.

OBSERVE	PRESS
Main Menu Secure Voice	NEXT
Main Menu Secure Data	NEXT
Main Menu Show Config	NEXT
Main Menu Change Config	SELECT
Change Config Security Config	SELECT
Security Config SACS Disable	SELECT
SACS Disable on/off change Disable	SELECT

B.5.3 Autodialing Between Two AT&T STU IIIs

STEP 1: Insert the Master CIK.

STEP 2: Click on the `MENU` option to turn auto-answer on.

After the ACL is downloaded, but before it is put in Remote Control Mode, auto-answer must be on.

If the display indicates one or more AASD rings, auto-answer is on.

PRESS	PRESS
`NEXT` until "`Change Config`"	`SELECT`
`NEXT` until "`Security Config`"	`SELECT`
`NEXT` until "`SAC Options`"	`SELECT`
`NEXT` until "`SACS Control`" (ensure SASCTRL is enabled.)	`SELECT`

PRESS	PRESS
`MENU`	`MENU` (again)
`NEXT` until "`Change Config`"	`SELECT`
`NEXT` until "`Security Config`"	`SELECT`
The display panel will read SACS Disable (ensure SACS Disable is `OFF`)	`SELECT`

PRESS	BUTTON
`MENU`	`MENU` (again)
`NEXT` until "`Change Config`"	`SELECT`
`NEXT` until "`Security Config`"	`SELECT`
`NEXT` until "`SAC Options`"	`SELECT`
`NEXT` until “`Auto Access Ctrl`”	(Ensure Auto Access Ctrl is `ON`)

PRESS	BUTTON
MENU	`MENU` (again)
`NEXT` until"`Change Config`"	`SELECT`
`NEXT` until "`Auto-Answer`"	`SELECT`

B.5.4 Configuring Specific STU-III Models

Motorola SECTEL 1000/2000:

- This device provides the auto-secure feature, but does not allow auto-answer, nor does it support SACS.
- The default data mode is 2400 baud, asynchronous.
- An RS-232 port is included, allowing direct connection to the system.
- A serial communications interface must be used.

RCA STU III:

- The STU III data port is an RS-232 (DB 25) or an RS-449 (DB 37) connection, depending on manufacturer and model.
- RS-232 and RS-449 share the same signal levels but have a different pinout.
- RS-449 ports must be converted to RS-232 to work with the system. These converters are included with the STU III.

Table 4 illustrates the conversion requirements of a STU III RS-449 configuration to an RS-232.

RS-449 (STU-III)	RS-232 (TDP)
1–Shield	1–Shield
4–Send Data (+)	2–TXD
6–Receive Data	3–RXD
7–Request to Send	4–RTS
9–Clear to Send	5–CTS
11–Data Mode	6–DSR
19–Common Return	7–Common
20–Receive Common	
22–Send Data (-)	
37–Send Common	
12–Terminal Ready	20–DTR

Table 4. RS-449 to RS-232 Conversion

Follow the steps below to configure an RCA STU III:

STEP 1: Press `PROGRAM`.

STEP 2: Press `SETUP`.

STEP 3: Press `YES` at "`set terminal options`."

STEP 4: Press `YES` at "`set standard options`." The standard settings are:

- Dialing mode: TONE
- Comm mode: FULL DUPLEX
- Data Ports: 2400 ASYNC
- Remote Capable: DISABLED
- A-lead Control: ENABLED
- Dual Home: Line 1 only.

Appendix C - Multiple Monitor and Keyboard Configurations

A single, properly equipped HP TAC-3 (Tactical Advanced Computer) CPU can drive any of the following configurations:

- Single-eye console with 1-3 single-eye remote monitors
- Dual-eye console with 1-2 single-eye remote monitors
- Dual-eye console with a dual-eye remote monitor.

Tables 5 and 6 illustrate the recommended single-eye and dual-eye monitor connection schemes. For potential difficulties the user may encounter in a multi-monitor environment, refer to Subsection 7.2, *Troubleshooting Multiple Monitors and Keyboards*.

Single-eye Console	**Remote 1**	**Remote 2**	**Remote 3**
Monitor: crt00 Keyboard: KYBD4	None	None	None
Monitor: crt00 Keyboard: KYBD1	**Single-eye** Monitor: crt01 Keyboard: KYBD2	None	None
Monitor: crt00 Keyboard: KYBD1	**Single-eye** Monitor: crt01 Keyboard: KYBD2	**Single-eye** Monitor: crt10 Keyboard: KYBD3	None
Monitor: crt00 Keyboard: KYBD1	**Single-eye** Monitor: crt01 Keyboard: KYBD2	**Single-eye** Monitor: crt10 Keyboard: KYBD3	**Single-eye** Monitor: crt11 Keyboard: KYBD4

Table 5. Single-eye Console

Dual-eye Console	**Remote 1**	**Remote 2**
Top Monitor: crt01 Bottom Monitor: crt00 Keyboard: KYBD1	None	None
Top Monitor: crt01 Bottom Monitor: crt00 Keyboard: KYBD1	**Single-eye** Monitor: crt10 Keyboard: KYBD4	None
Top Monitor: crt01 Bottom Monitor: crt00 Keyboard: KYBD1	**Single-eye** Monitor: crt10 Keyboard: KYBD3	**Single-eye** Monitor: crt11 Keyboard: KYBD4
Top Monitor: crt01 Bottom Monitor: crt00 Keyboard: KYBD1	**Dual-eye** Top Monitor: crt11 Bottom Monitor: crt10 Keyboard: KYBD3	None

Table 6. Dual-eye Console

Appendix D - Database Size Limits

This appendix lists database limits for various DII COE files.

Tracks	Limits
Platform/Ambiguity	1500
Emitter	1500
Link	1024
Acoustic	100
Unit	500
SI	450
External	0

Table 7. Track Limits

Other Track Ranges	Limits
Confidence Level of AOU Cross-fix Ellipse	90 percent
Dynamic Status Board	1 master track / 20 slave tracks
Land Sites	100
Missile Systems/Track	10
Radar Systems/Track	10
Sonar Systems/Track	10
Weapon Systems/Track	10
Specific IFF Mode-2 Valued Tracks Can Be Archived	20
Track Archive Sequence of Steps	60 seconds
Track Groups	32
Tracks/Group	Limited only by disk storage
Track History Reports/Track	1,000
Track Symbol Label	26 characters

Table 8. Other Track Range Limits

Communications	Limits
Addressee (Channel Message Buffer Manager)	1,000 backlog messages
Alert Log	1,000 messages
Incoming Message Log	1,000 messages
Incoming Opnote Log	200 opnotes
Outgoing Message Log	1,000 messages
RAINFORM Messages	1,000 lines
Received Messages Displayed in Status Window	1,000 messages
Report Log	2,000 reports
Saved for Raw Messages	500 lines

Table 9. Communications Limits

Miscellaneous	Limits
Auto-Forwarding, Addresses	500
Broadcast, User-Set Cycle Rate	0-720 minutes
Broadcasts, Active	25
Characters Stored per Screen Name	50
Clipboard, Files Stored on	1,000
Engagement Scenarios	10
Grid Cells, Number of	24 or 48
IFF/DIs, Nicknames	100
Incoming Message Alert, Addresses	5
Incoming Message Alert, Originators	5
Net Address (DDN)	256
Satellite Charlie Elements	300
Satvul-Satellites per Category	300
Stored Screen, Briefing Slides	50
Stored Screens, Number of	50

Table 10. Miscellaneous Limits

Maps	Limits
Key Sites	1,000
Stored Map, Parameter Combinations	500
Stored Maps	20
Zoom Width, Greatest	21,600 NM
Zoom Width, Smallest	0.25 NM

Table 11. Map Limits

Overlays	Limits
Overlay, Items	100
Overlay, Points	256
Overlay, Polyline Points	256
Overlays, Number of	500

Table 12. Overlay Limits

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Appendix E - Allocating More Disk Space on an LVM Configured System

Follow the steps below to allocate more disk space on a logical volume manager (LVM) configured HP system using the HP-UX SAM.

STEP 1: **Log in as `root`**. Type `root` at the `Name` prompt and press [`RETURN`].

STEP 2: **Enter the `root` password**. Type the `root` password at the `Password` prompt and press [`RETURN`]. The CDE Front Panel appears at the bottom of the screen.

STEP 3: **Access the File Manager**. Double-click on the File Manager control on the CDE Front Panel to open the `File Manager` window. Refer to Section 5, *Common Desktop Environment*, for more information about CDE.

STEP 4: **Select the `usr` folder**. Double-click on the `usr` folder, which is located in the `File Manager` window.

STEP 5: **Select the `sbin` folder**. Double-click on the `sbin` folder.

STEP 6: **Select the `sam` icon**. Double-click on the `sam` icon.

STEP 7: **Execute the SAM application**. The `Action: Execute` or `Action:Run` window appears. Click on the `OK` button without entering any options or arguments.

STEP 8: **Select the `Disks and File Systems` icon**. The `Welcome to SAM` window appears, followed by the `System Administration Manager` window. Inside the `System Administration Manager` window is the `SAM Areas` subwindow. Double-click on the `Disks and File Systems` icon.

STEP 9: **Select the `File Systems` icon**. The `SAM Areas:Disks and File Systems` subwindow appears. Double-click on the `File Systems` icon.

STEP 10: **Select the partition you want to modify**. The `Disks and File Systems` window appears (Figure 42). Click on the partition that you want to modify to highlight it.

STEP 11: **Choose to modify the partition**. Click on `Modify...` from the `Actions` pull-down menu.

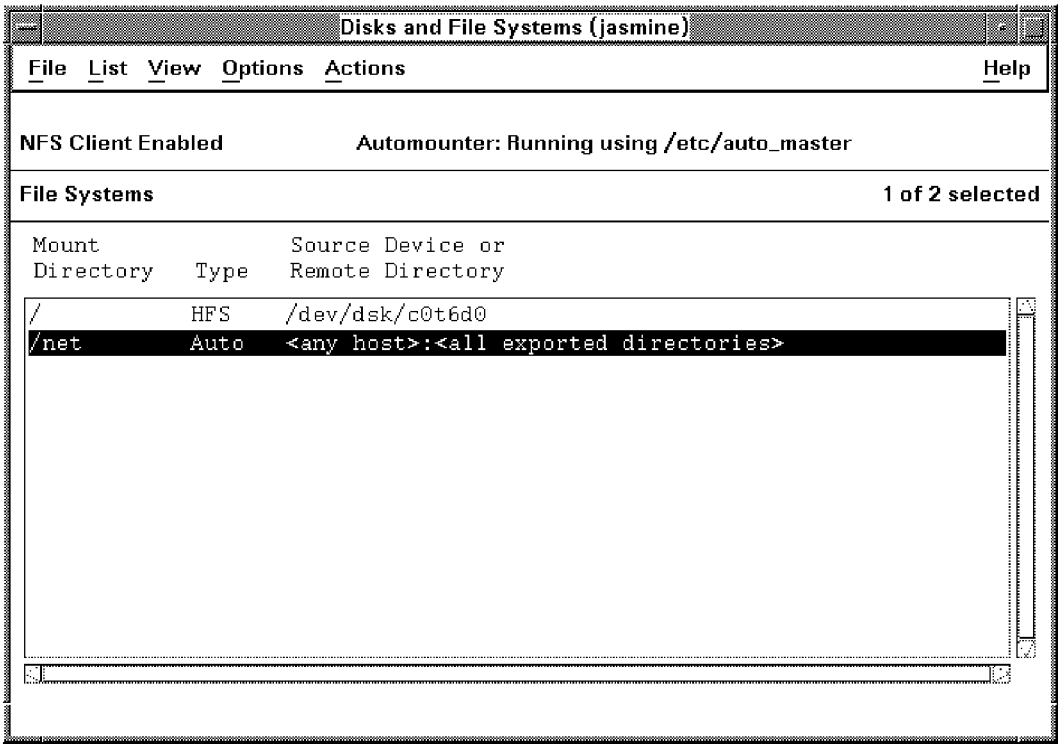

Figure 42. File Systems Window

STEP 12: **Unmount the partition**. The `Modify a Local File System` window appears. The partition to be modified must be unmounted before you can increase its size. Click on the `Now` toggle in the `When to Mount: (optional)` panel. The toggle will be deselected (gray). Click on the `OK` button.

WARNING: **Do NOT** unmount any partitions that are in use. This includes `/`, `/stand`, `/h`, and any NFS mount points.

STEP 13: **Confirm that you want to unmount the partition**. Click on the `Yes` button when a confirmation message similar to the following appears:

```
Removing the file system, [name of file system], means all
files in the file system will no longer be available.

Do you want to continue and remove the file system?
```

STEP 14: **Exit the `Disks and File Systems` window**. The `Disks and File Systems` window returns to the forefront. Click on `Exit` from the `File` pull-down menu.

STEP 15: **Choose to view logical volumes**. The `SAM Areas:Disks and File Systems` window appears. Double-click on the `Logical Volumes` icon.

STEP 16: **Select the volume that you want to increase**. The `Logical Volumes` subwindow appears (Figure 43). Click on the volume to be increased to highlight it. The sixth column, `Mount Directory`, shows the mount point.

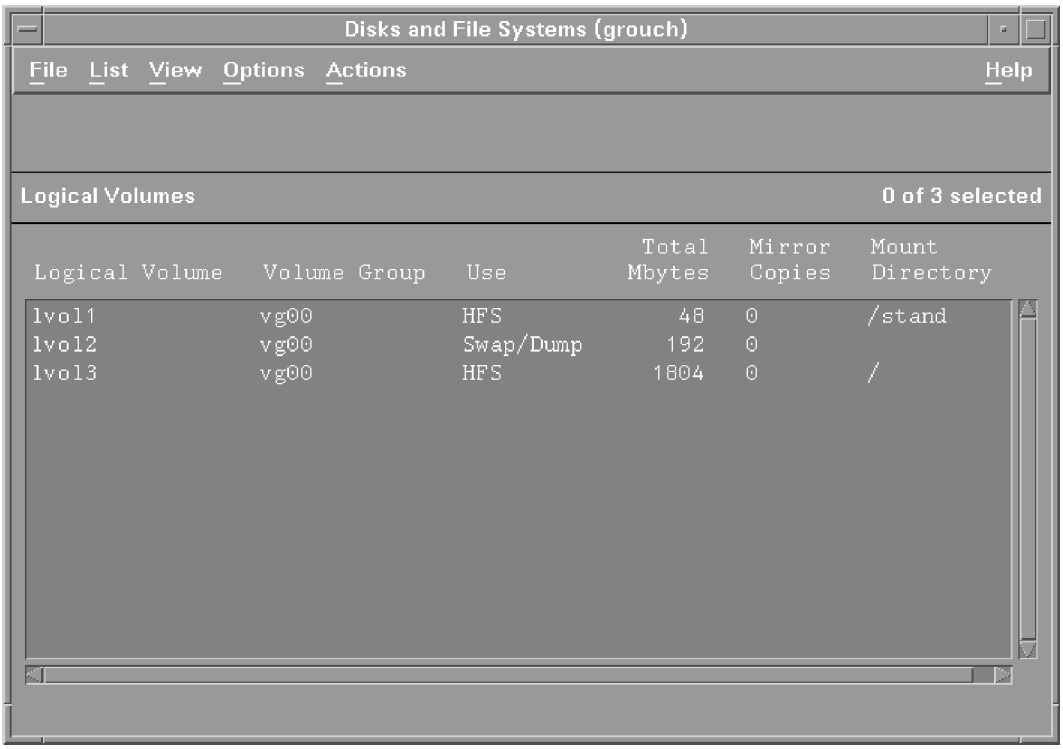

Figure 43. Logical Volumes Window

STEP 17: **Choose to increase the volume**. Select `Increase Size...` from the `Actions` pull-down menu.

STEP 18: **Choose the new size of the volume**. The `Increase Size` window appears (Figure 44). The available space is shown in the `Space Available in Volume Group (Mbytes)` field. If any space is available in the volume group, you can increase the size of the volume. The current logical volume size is shown in the `Current Logical Volume Size (Mbytes)` field. Type the number in the `New Size (Mbytes)` field and click on the `OK` button.

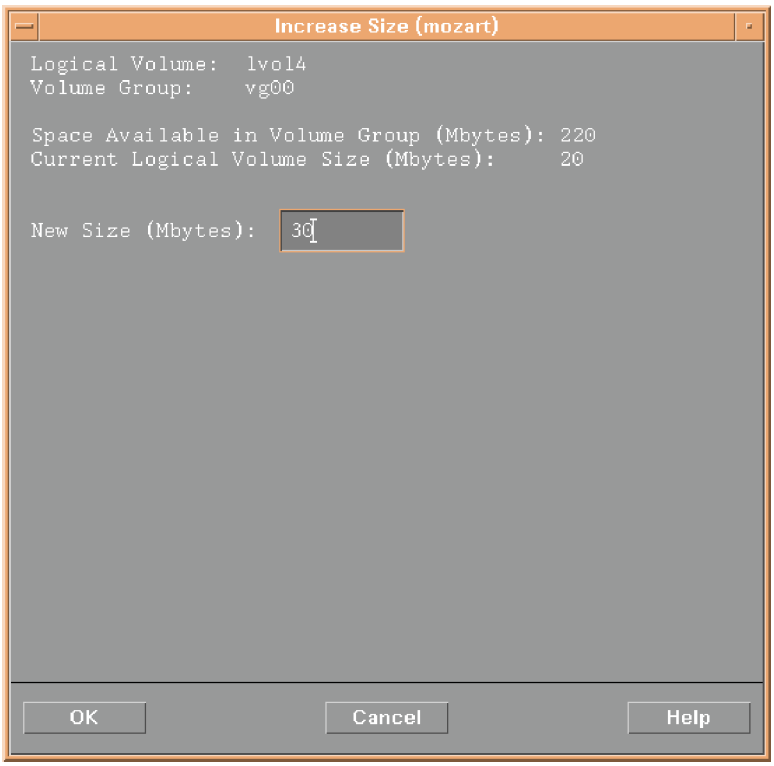

Figure 44. Increase Size Window

STEP 19: **Acknowledge a message that the size must be a multiple of 4 MB**. Click on the `OK` button if a message similar to the following appears:

```
When increasing the size of an existing logical volume, the
new size must be at least 4 Mbytes (the physical extent size
for this volume group) greater than the current size.
```

The size in the `Increase Size` window changes to a multiple of 4 Mbytes. Click on the `OK` button in the `Increase Size` window to continue.

STEP 20: **Check the partition size in the `Disks and File Systems` window**. If the modification was successful, the fourth column of the `Disks and File Systems` window, `Total Mbytes`, will display the increased size of the partition.

STEP 21: **Exit the `Disks and File Systems` window**. Select the `Exit` option from the `File` pull-down menu.

STEP 22: **Mount the partition whose size was increased**. From the `SAM Areas: Disks and File Systems` window, double-click on the `File Systems` icon.

STEP 23: **Select the modified partition**. The `File Systems` window appears. Click on the partition that was unmounted and then modified to highlight it.

STEP 24: **Choose to modify the partition**. Click on `Modify...` from the `Actions` pull-down menu.

STEP 25: **Mount the partition**. Click on the `Now` toggle in the `When to Mount: (Optional)` column. The toggle will be selected (white). Click on the `OK` button.

STEP 26: **Exit the `Disks and File Systems` window**. Click on the `Exit` option from the `File` pull-down menu to exit the `Disks and File Systems` window.

STEP 27: **Exit SAM**. Click on the `Exit SAM` option from the `File` menu to exit SAM.

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