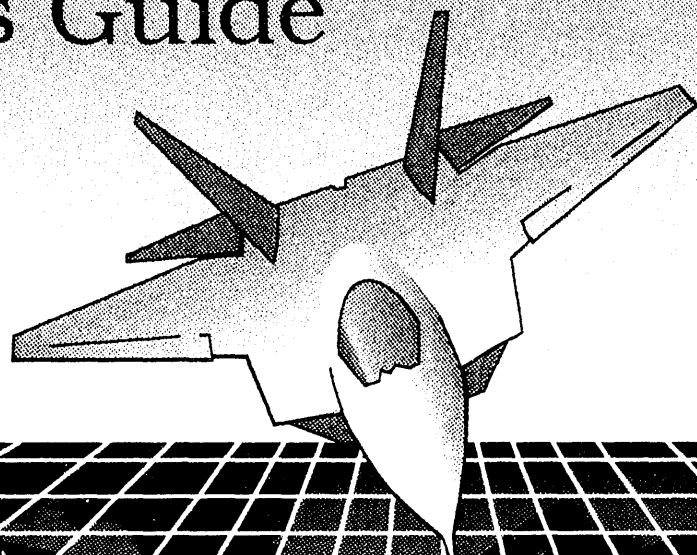


**1 of 2**

# CMS Distribution Subsystem User's Guide



October 1993

Prepared for the U.S. Air Force  
under a Related Services Agreement  
with the U.S. Department of Energy  
Contract DE-AC06-76RLO 1830

**CMS DISTRIBUTION SUBSYSTEM  
USER'S GUIDE**

**Software Version 1.2**

October 1993

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Pacific Northwest Laboratory  
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## SUMMARY

The Common Mapping Standard (CMS) Data Production System (CDPS) produces and distributes CMS data in compliance with the *Common Mapping Standard Interface Control Document*. CDPS is composed of two subsystems the CMS Distribution Subsystem (CDS) and the CMS Preprocessing Subsystem (CPS). This guide describes the operation of CDS.

CDS is responsible for the management of archived CMS data, the management of production orders, and the generation of theater databases. This subsystem was developed for use on a workstation running Ultrix 4.2, the X Window System Version X11R4, and motif Version 1.1. CDS is organized into seven major functional groups and supports archiving and distributing CMS data for selected products.

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## 1 Introduction

### 1.1 CDS Description

The Common Mapping Standard (CMS) Data Production System (CDPS) produces CMS data in compliance with the *Common Mapping Standard Interface Control Document, Revision 2.2*. (See Section 1.2.1.) Historically, tactical mission planning systems have been the primary clients of CMS data. CDPS is composed of two subsystems, the CMS Preprocessing Subsystem (CPS) and the CMS Distribution Subsystem (CDS). This guide describes the operation of CDS. References and other resources used for the preparation of this guide are listed at the end of this section.

CDS is responsible for the management of archived CMS data, the management of production orders, and the generation of theater databases. The CDS system was developed for use on a workstation running Ultrix 4.2, the X Window System Version X11R4, and Motif Version 1.1. CDS is organized into seven major functional groups:

- 1) CDS Executive
- 2) Manage Processed Data
- 3) Display CMS Data
- 4) Manage Production Orders
- 5) Build Theater Databases
- 6) Administration Tools
- 7) System Utilities

CDS supports archiving and distributing CMS data for the products listed in Table 1-1.

**Table 1-1. Products Supported by CDS**

GNC	Global Navigation Chart
JNC	Jet Navigation Chart
ONC	Operational Navigation Chart
TPC	Tactical Pilotage Chart
JGA	Joint Operations Graphics – Air
TLM	Topographic Line Map
ADRI	ARC Digital Raster Imagery
DTED	Digital Terrain Elevation Data (Level 1)
LFC	Low Flying Chart

### 1.2 About the CDS User's Guide

This guide describes the operation of the CMS Distribution Subsystem. In addition to Section 1, the guide contains seven other major sections. Section 2 provides definitions of

X Windows terminology and an overview of CDS with details on common features shared across major functional areas. Section 3 describes the Manage Processed Data module, which receives and archives CMS map data and stores information about the geographic coverage. Section 4 describes the Display CMS Data module, which allows the user to view the map coverage. Section 5 describes the Manage Production Orders (MPO) module, which allows the user to specify which map data from each product will be included in a theater database. Section 6 describes the Build Theater Database module, which uses map data designated in a Production Order (PO) to generate the theater database. Section 7 describes administrative tools. Section 8 contains descriptions of administrative tools. Section 8 describes system utilities that assist the user in keeping the CDS system data current.

Appendix A contains useful information regarding system messages used by CDS. Appendix B contains a glossary of acronyms and terms used by CDS.

Two special features are provided in the *CDS User's Guide*: how-to boxes and hint boxes. How-to boxes give simple, step-by-step instructions for most operations described in the guide. To help distinguish these instructions, they are outlined with a double-border. Hint boxes provide helpful hints and information on the operation of CDS. Hints are presented in an outline box and appear on the left side of the page. (See the following hint box on notation conventions.)

*Hint About Notation Conventions:*

*This guide uses the following conventions in referring to objects displayed on the screen:*

<b>Button Name</b>	<i>boxed and bold-faced serif</i>
WINDOW NAME	<i>small caps sans serif</i>
Menu Item	<i>bold-faced serif</i>
<b>system message</b>	<i>bold-faced sans serif</i>
STATE (ON, IDLE, USABLE)	<i>all caps serif</i>
<i>Note: Important text</i>	<i>bold, italics serif</i>

In this guide, all button names appear **boxed** and are bolded in the text for easy identification; menu item names are denoted using **bold-faced** type. System messages appear on the screen in a font type that looks like this: **CDS\_Socket\_Man: CPS connected to the socket**. Status indications (such as OFF, SCANNING, or ALLOCATED) are shown as caps in the text serif typeface. A bolded, italicized serif font indicates a note or other significant text.

System managers will want to consult the *System Administrator's Guide to CDPS*, intended for individuals with the responsibility for maintaining the system software and hardware configuration for both CDS and CPS.

### **1.2.1 References**

*CMS Preprocessing Subsystem User's Guide*, PNL-8924. 1993. Pacific Northwest Laboratory, Richland, Washington.

U.S. Air Force, 1993. *The Common Mapping Standard Interface Control Document, ESD-82155046A004 Revision 2.2*. ESC/YVD, Hanscom Air Force Base, Maine.

### **1.2.1 Bibliography**

Quercia, V. and O'Reilly, T. 1992. *The Definitive Guides to the X Window System, Volume Three, X Window System User's Guide, OSF/Motif Edition*. O'Reilly & Associates, Inc., Sebastopol, California.

*Software Requirements Specification for the CMS Distribution Subsystem (DRAFT), Revision 2*. Pacific Northwest Laboratory, Richland, Washington.

*System Manager's Guide to CDPS (DRAFT)*, Pacific Northwest Laboratory, Richland, Washington.

## 2 Using CDS

### 2.1 Basic X Windows Concepts

CDS is a window-oriented application that was developed using X Windows and the OSF/Motif toolkit. X Windows is a network-based interface to a computer's operating system using graphical images to represent data in a user-friendly manner. The purpose of this section is to provide a basic introduction to X Windows concepts.

**Note: It is strongly recommended that you understand these concepts before reading the rest of this manual and operating CDS.**

If you have prior experience working in the X windows environment, you may wish to skip this section.

X Windows concepts and terms introduced in this section are printed in *italics*, and are defined in the glossary (Appendix B).

#### 2.1.1 Main Interface Components

A graphical interface takes advantage of three basic components of a computer: the monitor for relaying information via *windows* displayed on the screen; the *mouse* for selecting items on the screen; and the *keyboard* for entering data.

##### 2.1.1.1 Windows

The computer screen or monitor is commonly called the *root window*, or in other windowing systems, the desk top. The *root window* can be thought of as the parent that takes care of the graphical needs of its children; CPS and CDS are such software applications. An application needs at least one window to relay or request information to communicate directly with you. A window becomes the active (or in use) window when the mouse is clicked within the window boundaries. Figure 2-1 indicates the major features of a window.

Typically, each window displays a window border. This border supports the following common window functions: resizing, repositioning, iconifying, raising/lowering, and removing. These functions are accessed through the window menu located in the upper left-hand corner. To access the window menu, click on the window menu button, a square button containing a raised, three-dimensional minus sign. From this menu you can *iconify* the window, change the window size, shuffle the window (*raise/lower*) to the front or rear of the screen, and, in some instances, exit the application associated with the window.

To the right of the window menu is the window title. To the right of the title is the iconify button, a square button with a small, raised three-dimensional square inside. This button has the

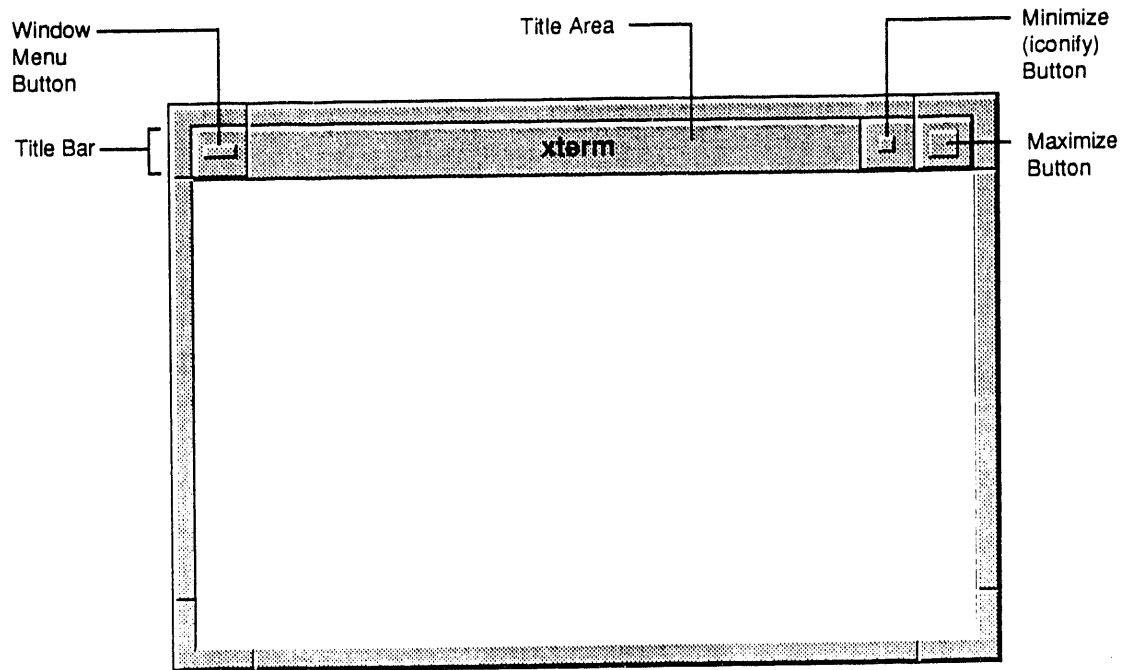


Figure 2-1. Main Features of a Window

same functionality as the **Minimize** window menu item. That is, clicking on the iconify button reduces the window to an *icon* (a small graphical image representing an object). The button at the far right on the window border is the **Maximize** window menu item. This square button (with a recessed three-dimensional square inside) is used to resize the window to fill the entire screen area. In this example, the area within the window border between the window menu button and the minimize button is used for the title area.

The X Windows environment provides four types of windows: (a) Standard input/output window — used for displaying and prompting; (b) Application modal — a window requiring you to respond before doing anything else within the current application, (c) System modal — a window demanding user response before any application can continue; (d) Paned window — a special case of the standard window in which a number of horizontal bars partition the window into sections.

In the paned window in Figure 2-2, the horizontal partition bars divide the allocation of display area between separate sections of the window without changing the overall size of the window. For example, if a window contains two lists in separate panes, you can adjust the separating bar so that the top list gets more (or all) of the window area. To adjust a pane, click and drag (up or down) one of the small buttons located on the left or right side of the separating line.

Product:	mssii : onc	REP / PDC-CE	No / No	
CDS Initiate	04/16/1993 13:55:32	Pages Total	96	
CDS Complete		Passed	0	
CDS Occiplets		Failed	0	
Frame	Status	Date	Device	Status
12345			A	
12346			V	
12347				
				Exit

Figure 2-2. Paned Window

To Resize a window:

- 1 - Position the mouse pointer over the border of the window. (Notice the pointer changes into a resize pointer.)
- 2 - Click and drag the mouse (left mouse button). As you drag the mouse, a window outline is drawn showing the new size.

When the window outline reaches the desired size, release the left mouse button and the window is redrawn to match the outlined box. (Another method of resizing a window is to select the **Size** menu item in the window menu, use the mouse to stretch or shrink the window, and then press the left mouse button.)

*Hint About Repositioning Obscured Windows:*

*X Windows provides various solutions to correct the problem of a window that is obscuring (covering) another window on the screen:*

*You can move it to another location on the screen by clicking on the window title and dragging the window to the new location. Alternatively, you can click on the border of a partially obscured window to bring that window to the front.*

*Or, if you repeatedly select the **Lower** menu item for the top window that is obscuring another window, this will shuffle the obscuring window lower until it no longer covers the desired window. Finally, if you do not need to interact with the obscuring window, you can iconify it (see the following how-to box).*

To Iconify/Redisplay a window:

- 1 - Click on the iconify button in the upper right-hand corner of the menu or select the Minimize window menu item.

This causes the window to shrink into a small graphical object (icon).

- 2 - The iconified window can be redisplayed by positioning the pointer over the icon and either double-clicking the left mouse button or clicking it once to bring up the window menu and then selecting the **Restore** window menu item.

### 2.1.1.2 The Mouse

The *mouse* is the primary means of interacting with software applications. The mouse controls the *pointer*, the screen indicator that allows you to select objects within a display. In turn, the *pointer* is a small object that moves in response to dragging the mouse.

The mouse supplied with the system has three buttons that are used to convey responses to the application while the mouse pointer is positioned over an object on the screen. Each of the mouse buttons can invoke different responses from the application. The buttons are referred to as the left, middle, and right buttons or as buttons one, two, and three, respectively. The left mouse button is used mainly for selecting items (buttons, menu items, or windows) or positioning the cursor within a text input area. The middle and right buttons are used in operating the frame viewer as described in Section 4 of this manual.

The three basic operations performed with the mouse in a window system are *point*, *click*, and *drag*. Pointing is defined as moving the mouse to position the pointer over the desired object or text. Clicking is the act of depressing and releasing the left mouse button. Dragging is accomplished by holding down the left mouse button and moving the mouse. Dragging is used to highlight text for editing or for drawing, for example, editing a description field or drawing selection boxes in the geographic display.

A variation of clicking is the *double-click*. Double-clicking is used as a shortcut in X Windows to redisplay windows that have been iconified or in selecting areas of text. To double-click on an icon or a text area, position the pointer over the subject and rapidly press and release the left mouse button two times.

### 2.1.1.3 The Keyboard

The keyboard is like other computer keyboards, but in X Windows the keyboard can perform the same operations as the mouse. Special keys or combinations of keys allow you to

move the pointer and simulate mouse clicks. The use of the keyboard to replace the mouse is beyond the scope of this discussion; for more information refer to *The Definitive Guides to the X Window System*.

#### 2.1.1.4 Interacting with Objects in X Windows

Applications written using X Windows provide various methods to enter data, to invoke and respond to action. The methods of interacting with an application include clicking/dragging, pressing buttons, selecting items from lists or menu, and entering text. The objects within a display are commonly referred to as widgets. These widgets can be: a raised rectangular button appearing to be three-dimensional; a toggle button which turns ON or OFF a defined state when it is selected; a menu that appears when a button is selected; or a list of items.

A *button* (commonly known as a pushbutton because it is pressed by clicking on it with the mouse) is generally associated with a single action. For example, a button labeled **Exit** closes the window when it is pressed. See the illustration in Figure 2-2. A pushbutton can be identified by its three-dimensional raised rectangular appearance. In addition, a pushbutton can be described as a default action; that is, when the return key on the keyboard is pressed, the button is activated, as if you had selected it using the mouse. A default pushbutton looks like a round pushbutton with an additional inverted border surrounding it. In Figure 2-3, the **Create** button is an example of the default action.

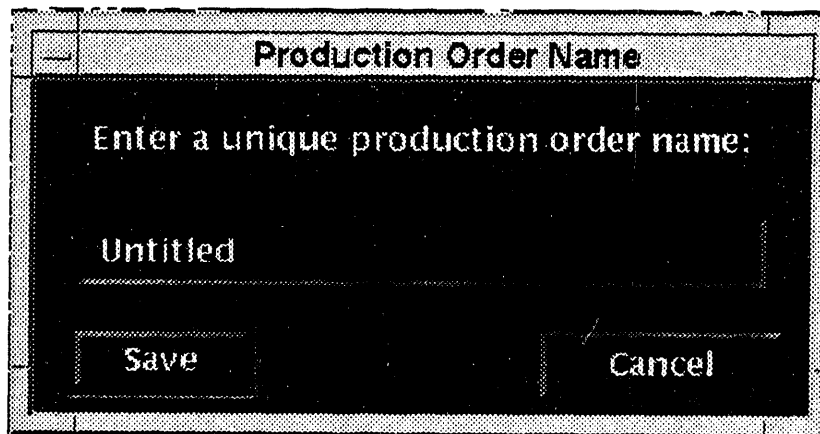


Figure 2-3. Example of a Default Pushbutton

A *toggle button*, (Figure 2-4) as its name implies, is used to set a state of either ON or OFF and its appearance is a small square pushbutton with a text label to the right. To set or turn on a toggle button, click on either the small button or its associated text. When set, this toggle button will change color (the color is application dependent). To reset or turn off a toggle button, reselect the button with the mouse. An example of a toggle button is the **Product** button in the geographic displays for both CPS and CDS.

A button similar to the toggle button is the *radio button*, represented by a raised, three-dimensional diamond. Radio buttons, as represented in Figure 2-5, are always found in groups of two or more because they are mutually exclusive: that is, only one button in the group can be set to ON at any time. The radio button is set like the toggle button; click on the diamond or the text and the diamond changes color. Unlike the toggle button, the radio button cannot be reset or turned off by reselection. The current selection can be changed only by selecting another radio button from the group. For example, in the CPS and CDS geographic displays, radio buttons are used for selecting the type of selection box to draw (for example, to add or remove).

An *option menu* button looks just like a pushbutton except for its raised, three-dimensional minus sign to the right of the button text. (See illustration, Figure 2-6.) An option menu presents the user with a list of options or menu items. Typically, option menus are used to set a state for sorting/searching, for instance in the CDS display media log for searching on products.

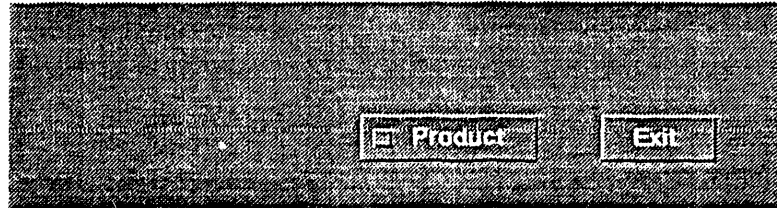


Figure 2-4. Toggle Button and Pushbutton

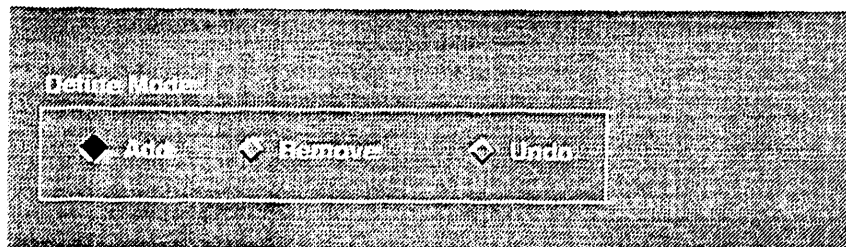


Figure 2-5. Radio Buttons



Figure 2-6. Option Menu Button

Other types of menus can be found in X Window applications, including pull-down, pop-up, and cascade menus. A *pull-down* menu is activated by pressing down on the left mouse button and dragging the pointer to highlight or outline the desired selection. *Pull-down* menus are used to organize application functionality and to conserve screen space. For example, in CPS and CDS the geographic window contains a row (menu bar) of pull-down menus for activating different display items and functions. A *pop-up* menu is displayed when the right mouse button is depressed over an object. A *cascade* menu is a pull-down menu within another pull-down menu. Pop-up and cascade menus are not used in CDPS at this time. For more information refer to *The Definitive Guides to the X Window System*.

Because of the limited size of monitors, many applications use scroll bars for data that take too much space or exceed a display's dimensions; for example, large amounts of text or long selection lists. A scroll bar can either be oriented vertically or horizontally depending on whether or not the width or height of the bounding window is exceeded. Within CDPS, scroll bars are used mainly for displaying long lists of items.

When selecting items from a list, position the pointer over the desired item in the list and click. The selected item becomes highlighted to reflect your selection and then can be acted on. If a list or text area contains a scroll bar, this means items are present within the list/text area that you cannot see. To view the hidden areas, choose the desired direction and click on the appropriate incremental arrow at one end of the scroll bar. You can also scroll/view the hidden items by either clicking and dragging the slider bar between the two incremental arrows or by clicking within the scrolling region to move quickly through the list.

***Note: generally, the smaller the slider bar (rectangle between the incremental arrows showing current location within the list) the greater amount of data/text is hidden from view. You can resize the window to expand the scrolled area and display more of the hidden text.***

Text areas are used to allow you to enter data directly to the application from the keyboard. To enter data into a text area, position the pointer in the displayed text area and click the left mouse button. The pointer will change into a cursor shaped like an I-bar and text can be entered. To modify existing text, position the cursor at the point of insertion and click the left mouse button. The pointer will change into the I-bar cursor. Sections of text can be removed or replaced by clicking and dragging the pointer across the desired text, deleting it, and then entering the new text. A text area can be identified by its three-dimensional, recessed appearance. Text areas, such as those on the TASK DEFINITION BY COORDINATES window, are shown in the Figure 2-7 example.

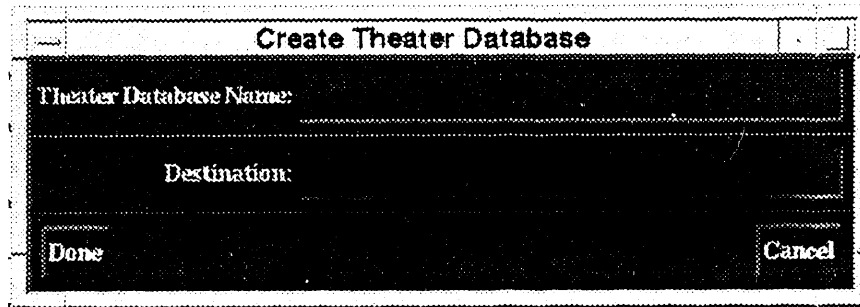


Figure 2-7. Text Area Example

## 2.2 Overview of CDS

This section provides an explanation of CDS and how it works within X windows/motif. Included is a description of the CDS Executive and brief descriptions of the other six CDS modules.

### 2.2.1 CDS Executive

The first display that appears on screen after the user logs into CDS is the CDS EXECUTIVE window. The purpose of the CDS Executive is to provide access to the six CDS modules. The CDS Executive occupies the top section of the screen (see Figure 2-8) and is present throughout the CDS session. The top line shows the date and time at the left and right sides, respectively.

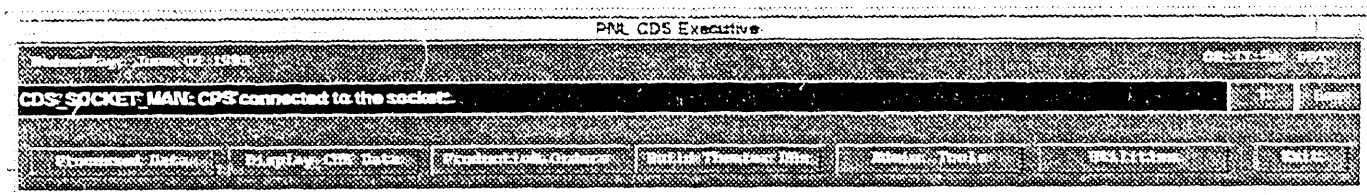


Figure 2-8. CDS Executive

Line 2 of this menu displays system messages. Color coding defines the type of message displayed, as shown in Table 2-1.

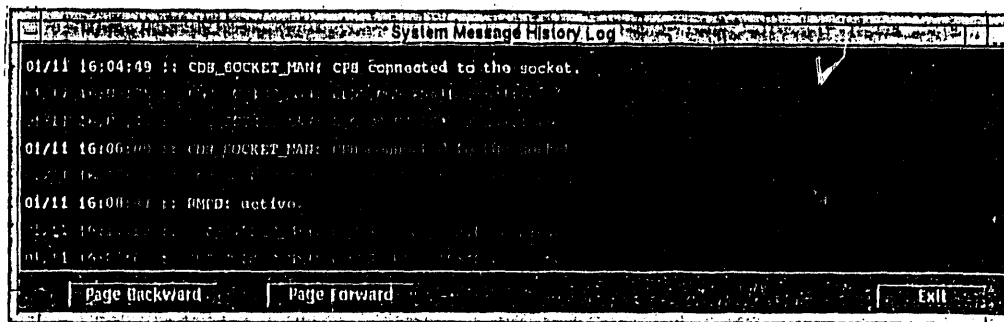
*Note: Diagnostic messages are not displayed on the CDS Executive system message line. However, such messages are displayed in the SYSTEM MESSAGE HISTORY LOG window (Figure 2-9).*

**Table 2-1. CDS Executive: Displayed Message Types**

<u>Error Code</u>	<u>Type of Message</u>	<u>Background Color</u>
A	Alerts	black
W	Warnings	yellow
E	Errors	red
F	Fatal Errors	red

A counter to the right of the system messages line displays the number of messages in the queue. A click on the counter clears the current message and displays the next most recent message; in this way, messages can be read one at a time (most recent message first) to clear the message queue. Click on the **Log** button to the right of the counter to examine a historical list of messages. Figure 2-9 is an example of the SYSTEM MESSAGE HISTORY LOG window. Notice the background color for the system message line is reversed to become the color of the actual message in the SYSTEM MESSAGE HISTORY LOG window.

This window also provides three buttons to perform the actions indicated by their names: the **Page Backward** button, the **Page Forward** button, and the **Exit** button.



**Figure 2-9. System Message History Log Window**

The bottom line of the CDS Executive contains items or buttons that activate the CDS modules. These items have labels that are the same or similar to the names of the modules they represent:

- **Processed Data** for Manage Processed Data Module
- **Display CMS Data** for Display CMS Data Module
- **Production Orders** for Manage Production Orders Module
- **Build Theater DBs** for Build Theater Databases Module
- **Administration Tools** for Administration Tools Module
- **Utilities** for System Utilities Module

When you click on any of these items on the bottom of the CDS Executive, the button changes color to indicate the corresponding module is active. The button returns to its original color when the module is exited. In addition, **Exit** (located at the far right) is used to exit CDS. However, before you can exit CDS, all CDS processing must be complete.

### **2.2.2 Manage Processed Data**

The Manage Processed Data module (Section 3) receives CMS data from network feeds (or, in degraded mode, from 8mm tapes) and stores information about the geographic coverage in the media log and the processed data catalog. Actual CMS data is not maintained on the CDS system disks because of the huge storage requirements for all of the map data. Rather, the Manage Processed Data module transfers the data it receives to the processed data archive media that includes both Erasable Optical Disks (EOD) and 8mm tapes. The Manage Processed Data module also allows you to view the media and the transfer logs, and transfer archived CMS data between the two types of archive media.

### **2.2.3 Display CMS Data**

Using the Display CMS Data module (Section 4), you can view the current coverage of CMS data stored in the Processed Data Catalog. CMS data coverage is presented in a geographic display that identifies the coverage for each product using color coding. See Figure 2-10.

### **2.2.4 Manage Production Orders**

The Manage Production Orders module (Section 5) helps you determine which CMS data from each product will be included in a Production Order (PO). The goal is to select only the applicable data. Information about the selected data and the arrangement of that data on distribution media are specified in a PO. You can also change the contents of a previously specified-PO. A tabular listing of a PO's contents is available in the PRODUCTION ORDER REVIEW window for your inspection.

### **2.2.5 Build Theater Databases**

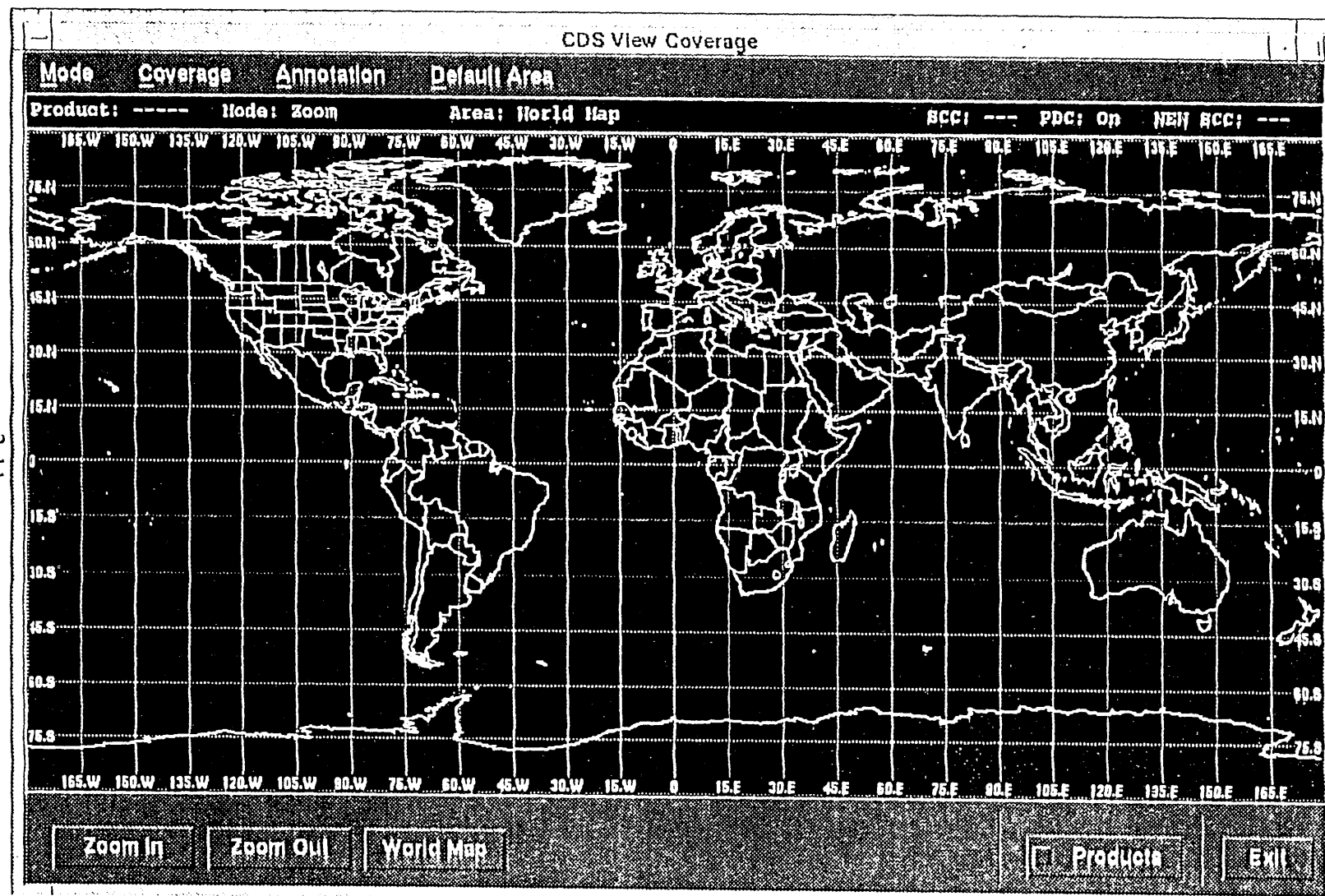
The Build Theater Databases module (Section 6) uses the information saved in a PO to generate a theater database. When executing the PO, CDS asks you to load tapes, enable optical disks, and the required output media, based upon the PO contents. CDS reads the requested data from tapes and EODs, and writes the data to the output media, consisting of one or more EODs.

### **2.2.6 Administrative Tools**

The administrative tools module (Section 7) contains a set of tools to perform basic operations that do not require the system to be idle.

### **2.2.7 CDS System Utilities**

With System Utilities (Section 8), you can view information about the CDS installation and perform periodic user-level administrative tasks. No other menu choice can be active when the utilities are activated or in use.



2-11

Figure 2-10. Geographic Display

## 2.3 Common Geographic Display Functions

All geographic displays of processed data contain basic map manipulation functions; some are accessed from the menu bar, while others are available in buttons and dialog windows. Functions in the menu bar include **Mode** selection, **Coverage** selection, **Annotation** features, and **Default Area** selection (Figure 2-7). Other functions are available through buttons displayed near the bottom of the geographic map windows. These buttons include **Products** and **Exit**. Additional buttons depend on the mode that is currently active. (See Figure 2-10.)

### 2.3.1 System Modes

For geographic displays, the mode determines the effect of mouse clicks in the map area and the display/control functions that appear in the bottom section of the window. You can select a mode by clicking on the **Mode** item in the menu bar of the map window. This action displays a pull-down menu with a list of available modes (Figure 2-11). The list varies according to the CDS module that is running. The **Zoom** and **View Media Locator** modes are discussed in the following paragraphs. The **Define Area** and **View by Frame** modes are discussed in Section 5.4.



Figure 2-11. Mode Pull-Down Window

**Zoom** mode, the default setting, enables you to select areas of the map and then click on display control buttons (**Zoom In**, **Zoom Out**, **World Map**). **Zoom** mode allows you to select areas of interest for closer viewing. In **Zoom** mode, when you click and drag the cursor across a map area, the system responds by surrounding the selected area with a rectangle that grows or shrinks as you move the mouse. The rectangle is constrained to have an aspect ratio in which the width is twice the height. When you click on the **Zoom In** button, the map is redrawn to fill the entire map display window with the designated region. If displayed, coastlines/political boundaries are resized accordingly. You may zoom into an area as often as you wish, but the display will cease to enlarge when the product frames are as large as the screen size and the aspect ratio will allow. After zooming into a desired region, you can **Zoom Out** to the previously displayed area. A second click on **Zoom Out** returns the viewing area to the default area or world map. The **World Map** button resets the display to the world map.

To Zoom In or Zoom Out in a map display:

- 1 - Be sure that Zoom Mode has been selected in the Mode menu.
- 2 - Position and drag the mouse pointer to create a box that surrounds the area of interest.

Steps 1 and 2 may be repeated as often as necessary; only the most recently drawn rectangle will be displayed.

3 - Click on the **Zoom In** button.

4 - A single **Zoom Out** returns the screen to the previous display. The second click on the **Zoom Out** button returns the display to the default area or world map.

### 2.3.2 Coverage

The second menu bar item in the geographic map windows is **Coverage** (see Figure 2-12). Pull-down menu choices are:

**Source Coverage Catalog (SCC).** This choice shows all source data that have been scanned (but not necessarily preprocessed) by CPS. This information is updated periodically by the CPS operator and must be imported by CDS (See Section 7.5).

**Processed Data Catalog (PDC).** The PDC shows processed data that have been stored by and are available through CDS.

**New Source for Processed Data.** This choice shows whether or not source data exist that are newer than the processed data. Any such data are indicated by darker coloring on the map (75 percent black shading).

You may select any of the coverage display items, in any combination. The default option is **Processed Data Catalog**.

Source Coverage Catalog (SCC)	Ctrl-S
Processed Data Catalog (PDC)	Ctrl-P
New Source for Processed Data	Ctrl-N

Figure 2-12. Coverage Pull-Down Window

### 2.3.3 Annotation

The third menu bar option is **Annotation**. A number of overlay and map manipulation functions are available in the Annotation pull-down menu on geographic displays. Annotation menu items are shown in Figure 2-13. All items in this pull-down menu toggle ON and OFF, causing map features or functions to be displayed or removed from the display.

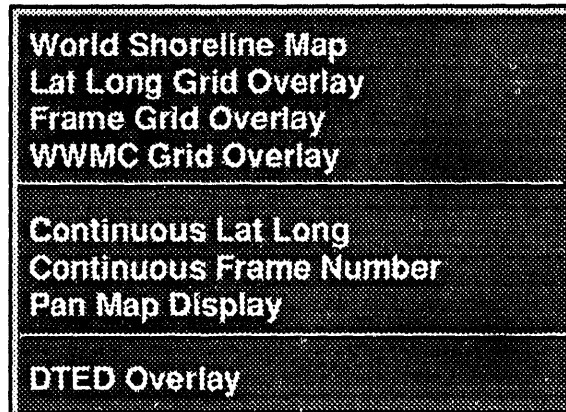


Figure 2-13. Annotation Menu

The first item is the **World Shoreline Map**, which displays coastline/political boundaries. The second item (**Lat Long Grid Overlay**) displays the latitude and longitude lines. Both of these options are set to ON as defaults for all modes.

The next three items (**Continuous Lat Long**, **Continuous Frame Number**, and **Pan Map Display**) open separate utility windows. The CONTINUOUS LAT LON window (see Figure 2-14) provides a continuous read-out of the latitude and longitude of the cursor position when the cursor is over the map. The CONTINUOUS FRAME NUMBER window (Figure 2-15) provides a continuous read-out of the frame number. The PAN MAP DISPLAY (Figure 2-16) window allows you to pan the map (after you have zoomed in) by clicking on left, right, up, or down arrows. The amount of change produced by one click is determined by the percentage setting displayed in the center of the Pan Map control. Clicking on the percentage box cycles the value through the following percentage settings: 5, 10, 25, 50, 75, and 100.

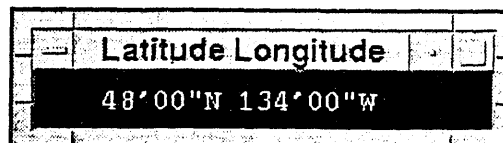


Figure 2-14. Continuous Lat Long Window

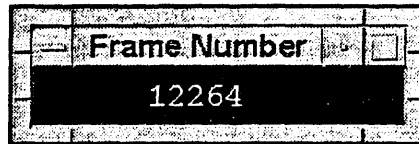


Figure 2-15. Continuous Frame Number Window

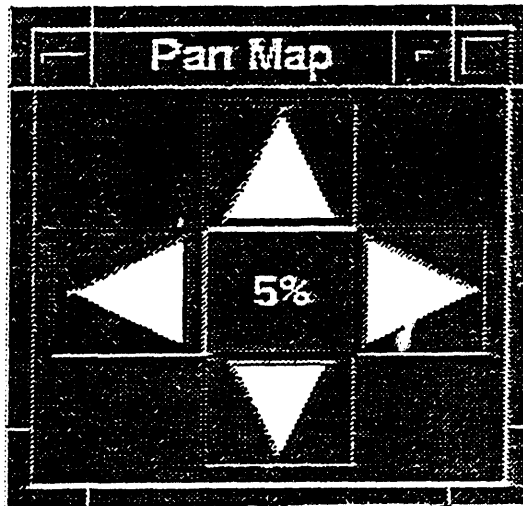


Figure 2-16. Pan Map Display Window

The **Frame Grid Overlay** item toggles an overlay grid corresponding to the frame size of the selected product. In some cases (JGA, TLM, and ADRI), you must zoom in below 1.0 degree resolution to see the frame boundaries, as these products have frame sizes at or below 0.5 degree square.

The **World Wide Media Cell Grid (WWMC Grid)** item displays an overlay grid depicting the partitions into which the CMS data are divided for storage on processed data archive media. This enhanced display is intended to help you identify which EOD or 8mm tape contains the processed data for a particular area of the world.

The **DTED Overlay** item shows where DTED coverage is while other products are displayed. DTED coverage is displayed using cross-hatching slanted in the NW-SE direction.

#### 2.3.4 Default Areas

Default areas (Figure 2-17) allow you to define, store, delete, and recall commonly used geographic regions for quick and easy access. You can store and label a maximum of 20 default areas. At startup, the geographic display defaults to the world map. Refer to the following how-to boxes for information on using the default areas.

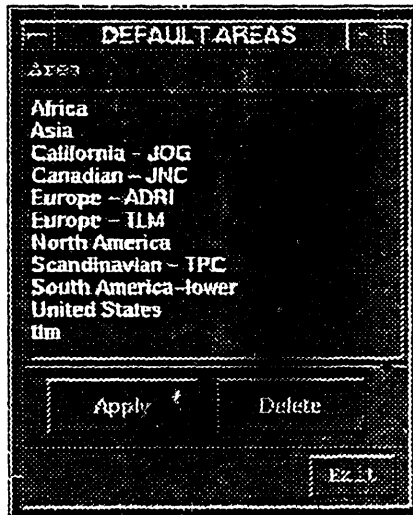


Figure 2-17. Default Area Pop-Up Window

To Define a default area:

- 1 - Use the zoom and pan map operations to set the display to the region you want to define. (The display shown will become the default area.)
- 2 - When the desired area is displayed in the map region, select **Define** from the **Default Area** pull-down menu on the geographic display (Figure 2-10).

A dialog window then appears, asking you to type a name for the new default area.

- 3 - Enter a unique description and click on **Create** (or click on **Cancel** to abort creation of the default area.)

The new default area will be listed in the **Default Area** pull-down menu.

- 4 - To register the new default area as the current default area, either select the new default area description from the **Default Area** Pull-Down menu; or from the **DEFAULT AREAS** Pop-Up window (accessed through **View/Delete Areas**), select the area and click on **Apply**.
- 5 - To close the **Default Areas** Pop-Up Window, click on **Exit**.

To View a default area without applying:

- 1 - Select the **View/Delete Areas** item in the **Default Area** pull-down menu (Figure 2-10) of the geographic display.

The **DEFAULT AREAS** (Figure 2-18) pull-down window appears, listing the default areas.

- 2 - From the list, select the desired area you wish to view.

The display returns to the world map and the selected area is outlined with a box.

- 3 - To set the current default area from the **DEFAULT AREAS** pop-up window, select the desired area and click on **Apply**.

- 4 - To close the **DEFAULT AREAS** window, click on **Exit**.

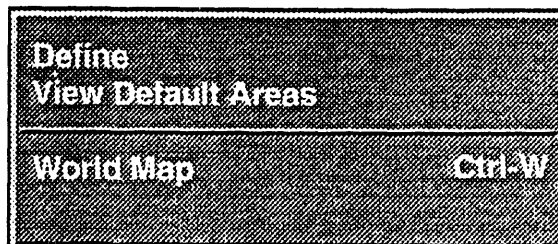


Figure 2-18. Default Area Pull-Down Window

### 2.3.5 Work Area

The **Work Area** menu item allows you to define several regions (work areas) that can be used repeatedly across products, but always retain the option of returning to the default area at any time. The regions may be defined within the world map or any other default area. To operate the work area function (available in the **CREATE PRODUCTION ORDER** window, the **EDIT** window, or the **ALLOCATE** window, all of which are choices in the **MANAGE PRODUCTION ORDERS** window), select the **Work Area** menu item at the top of the window. The **WORK AREA** Pull-Down window will appear (see Figure 2-19). This menu functions exactly like the **DEFAULT AREAS** window (Figure 2-17), with one exception: Default Areas are defined and applied throughout the system, whereas Work Areas are defined and applied to a specific PO. Thus, Work Areas are stored in the PO, and are useful only when operating on that particular PO.



Figure 2-19. Work Area Pull-Down Menu

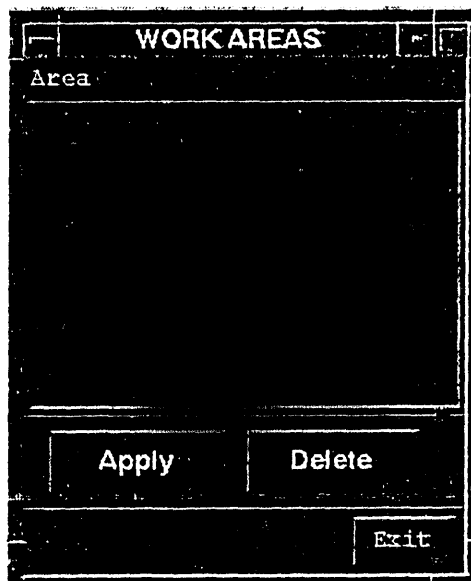


Figure 2-20. Work Area Pop-Up Window

#### 2.4 Examples of Screen Displays in Color

This section contains colored screen displays that illustrate the basic functions of CDS. Figure 2-21 contains windows which support options found on the MPD OPTIONS window. Pictured are windows involved in data transfers from CPS to CDS. Also shown are the TRANSFER LOG DIRECTORY window and the MEDIA LOG DIRECTORY window which allow you to access data about this portion of the system.

Figure 2-22 contains windows produced by the frame viewer. The frame viewer is available through the Display CMS Data option of the EXECUTIVE window. When the frame viewer is initiated, the VIEW FRAME window and the CONTROL window appear. The other windows shown can be obtained by choosing options on the CONTROL window.

Figure 2-23 contains windows used to allocate a production order to output media. The ALLOCATE PRODUCTION ORDERS window is the centerpiece of the allocation operation. The other windows shown provide information about this process and its control.

Figure 2-24 contains the THEATER DATABASE window which contains information about the theater database that is currently being produced. This window is used to follow the progress of this operation. Also pictured is a prompt window which indicates that an output media needs to be loaded.

Figure 2-25 shows the SYSTEMS MESSAGE HISTORY LOG, the CDS UTILITY MENU and the EXECUTIVE window. The LOG window allows you to scroll through a record of messages which have been sent to the EXECUTIVE banner. The UTILITY window allows you to perform administrative functions when no other processes are active.

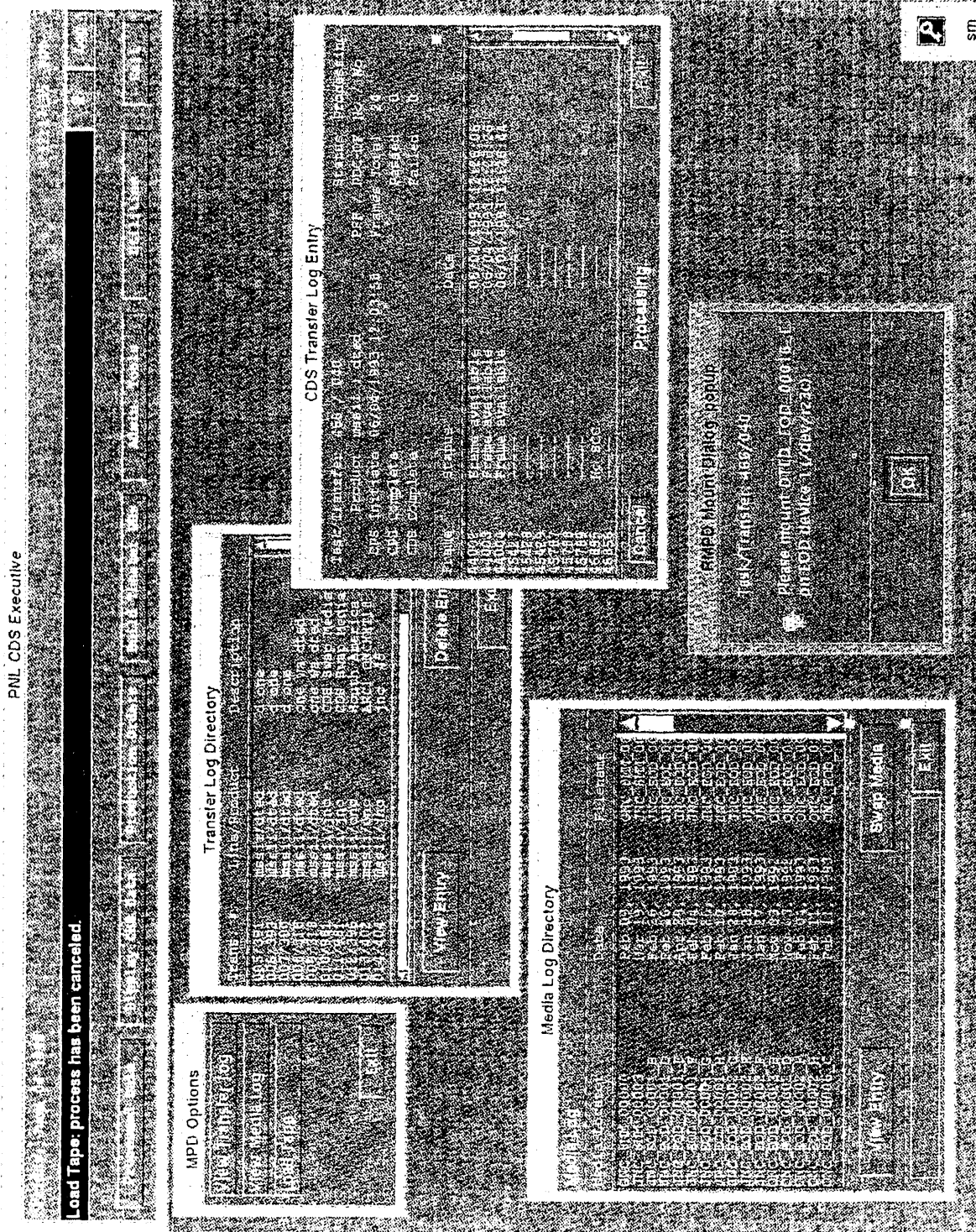


Figure 2-21. Manage Processed Data





Thursday, Dec 10 1992

Production Orders: Build Theater DB

**CDS: Theater Database**

Production Order: tnp\_0nc Theater Database Name: All programs  
 Creation Date: 03 Dec 92 Theater Database Destination: Virgin Islands  
 Allocation Date: 09 Dec 92  
 Comment: dghhh  
 Allocated output media: 1

Input Tab List	Input EOD List	Output EOD List
OM_1_A	OM_1_A	OM_1_A
OM_1_B	OM_1_B	OM_1_B

**EOD Input Drives**

Device	Current Media	Frames To Extract
/dev/rzdc	DRIVE EMPTY	

Device: /dev/rzdc

**CDS: Theater Database**

LOAD CDS OUTPUT MEDIA OM\_1\_A ON DRIVE 2 (/dev/rzdc)

Loaded Cancel

View Staged Data Log Cancel Build Theater Database

Frames on Temporary Disk: 0

System icons: xterm, DECter, xterm, sm

2-23

Figure 2-24. Build Theater Database

2-24



Figure 2-25. System Utilities and System Messages

### 3 Managing Processed Data

#### 3.1 Purpose

CDS receives CMS data from CPS via Ethernet or 8mm tapes and records information about the geographic coverage in the Processed Data Catalog. Actual CMS data are not maintained on the CDS system disks because of the huge storage requirements for all of the CMS data. The geographic coverage of CMS product data is referenced by longitude and latitude on a world grid. CMS data coverage is maintained in standard units called geographic frames. Each CMS product has a standard area or frame size, given in degrees of longitude and latitude. A frame size of 1 x 1 indicates an area of 1 degree by 1 degree. For a given product, many frames are associated with a geographical region. The products supported by CDS have the scales and frame sizes as shown in Table 3-1.

Table 3-1. CDS Map Frame Scales and Sizes

<u>Product</u>	<u>Scale</u>	<u>Frame Size</u>
GNC	1: 5 Million	2 x 2
JNC	1: 2 Million	2 x 2
ONC	1: 1 Million	1 x 1
TPC	1: 50K (approx)	1 x 1
JGA	1:250K	0.5 x 0.5
TLM	1: 50K (approx)	0.2 x 0.2
ADRI	1:100K	0.2 x 0.2
DTED	Level 1	1 x 1
LFC	1:500K	1 x 1

#### 3.2 Startup of Manage Processed Data

You can manually initiate the Manage Processed Data (MPD) module or it can be initiated automatically by CDS. The automatic startup occurs when CDS detects that CPS has started a preprocessing task. The transfer process is initiated automatically. Alternatively, you can manually enter MPD at any time.

##### 3.2.1 Automatic Startup of Manage Processed Data

When CDS automatically initiates this module, the Manage Processed Data (MPD) Options dialog box (Figure 3-1) appears and the TRANSFER LOG ENTRY window (Figure 3-2) is displayed. The TRANSFER LOG ENTRY window lists the frames being transferred, with status and date information as provided by CPS.

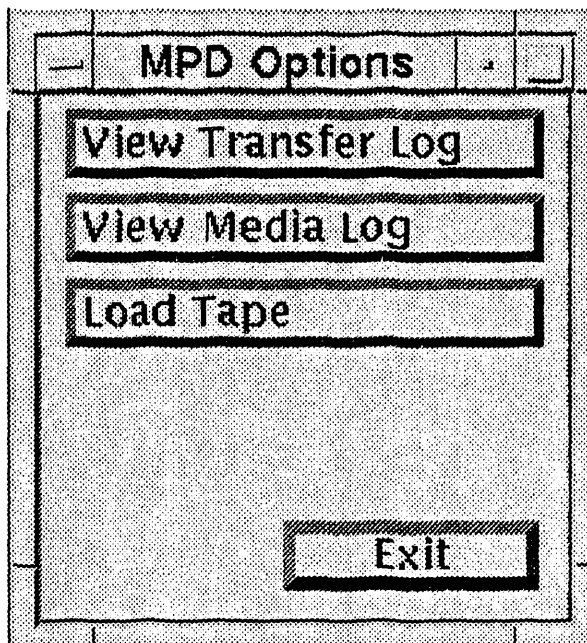


Figure 3-1. Manage Processed Data Options Dialog Box

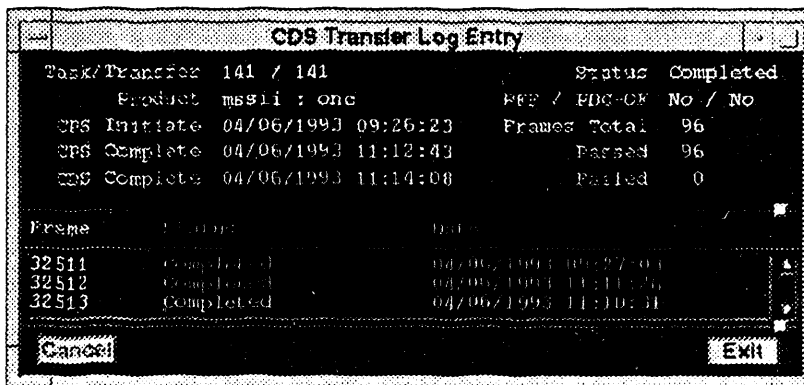


Figure 3-2. Transfer Log Entry Window

*Hint About Labeling the EOD:*

*The MPD module requests required media from the coverage archive using the media locator number. Whenever a new media locator is requested, be sure to write the media locator number on the EOD label for easy reference.*

*If you are prompted for a new EOD, with the following locator,*

**JNC\_EOD\_00001\_A,**

*you should label the A side of a new media and insert it. You should not use the B side of this EOD until prompted to do so, that is with the prompt*

**JNC\_EOD\_00001\_B.**

*When the A appears in the prompt, you must use the A side of the EOD; when the B appears in the prompt, you must insert the B side of the EOD. The letters C through H also may appear in the prompt. For C through H, you must alternate between sides A and B. The following table explains this relationship:*

<u>Media Label</u>	<u>Physical Side Labeled on EOD</u>
JNC_EOD_00001_A	A } one physical EOD
JNC_EOD_00001_B	B
JNC_EOD_00001_C	A } one physical EOD
JNC_EOD_00001_D	B
JNC_EOD_00001_E	A } one physical EOD
JNC_EOD_00001_F	B
JNC_EOD_00001_G	A } one physical EOD
JNC_EOD_00001_H	B

*If you label the media correctly, you will avoid the problem of being prompted by CDS to mount opposite sides of one EOD in two different EOD drives at the same time.*

The following frame status values are used in this display:

*Hint About Archive EOD Media:*

*Archive EOD media, used by MPD, must be formatted. In addition, these media must have an ULTRIX™ file system installed. The EOD media format is done off-line. For more information, refer to the System Administrator's Guide to CDPS. The Ultrix File system installation can be performed through the Administration Tools module. (See the Administration Tools Section.)*

- Moved - the frame is on its destination media in the physical archive,
- Copy-failed - MPD failed to move the frame
- In Copy - the frame is currently being copied to its destination
- Available - the frame has been transferred from CPS to CDS and is ready to be moved to the physical archive
- Not Rec'd - the frame was never transferred
  - the transfer completed without sending the frame
  - the frame was not transferred because it failed QC
- No SCC - no source is available for this frame, CPS did not process it, no frame sent
- In PDC - frame processed and transferred previously, no frame sent

Dialog window(s) will be displayed to prompt you to mount the appropriate media from the coverage archive. Place the media in the requested drive and click on the **OK** button. The dialog window then closes and the transfer process proceeds. When the transfer is complete, click on the **Exit** button in the TRANSFER LOG ENTRY window. This **Exit** button is not active while the transfer is in progress. You may, however, use the **Cancel** button to abort the transfer. On the first click on the **Cancel** button, all frames that have not yet been received from CPS are marked as untransferred, and MPD attempts to complete moving available frames to media. On the second click on the **Cancel** button, all frames not currently on media are discarded, ending the task.

### 3.2.2 Manual Startup of Manage Processed Data

To manually enter the MPD module, click on the **Processed Data** button on the CDS Executive (see Figure 2-5). This activates a dialog window as shown in Figure 3-1. (Options (choices) available in the MPD menu are: **View Transfer Log**, **View Media Log**, **Load Tape**, and **Exit**.)

To exit the Manage Processed Data menu, click on the **Exit** button. The other functions are described in Sections 3.3, 3.4, and 3.5.

*Hint About Exiting Manage Processed Data:*

*Exit is not allowed while a transfer of frames from CPS or from a degraded-mode tape is in progress. You will need to wait until the transfer is complete, or cancel the transfer, before you are allowed to exit this module.*

### 3.3 View Transfer Log

When the **View Transfer Log** item is selected, the **TRANSFER LOG DIRECTORY** window (Figure 3-3) appears. This window lists all transfers that have occurred. Each line on the list displays the transfer number, the product associated with each transfer, and a 30-character description.

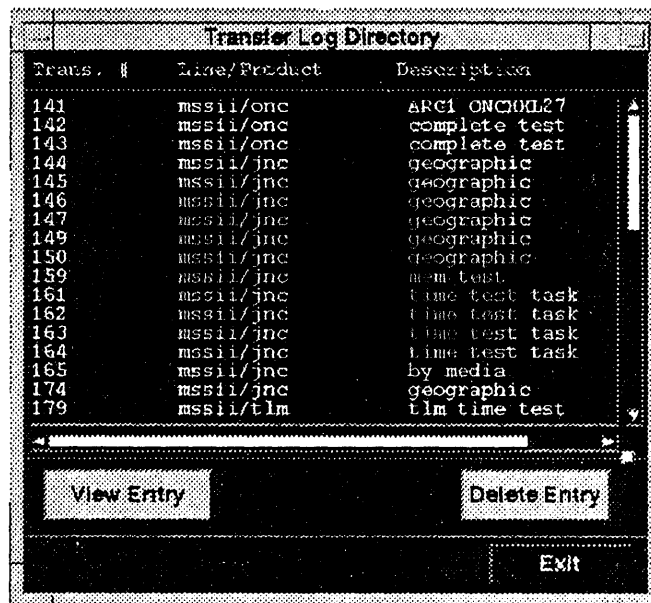


Figure 3-3. Transfer Log Directory Window

You may view additional information about a given transfer number by selecting the desired line in the **TRANSFER LOG DIRECTORY** window and clicking on the **View Entry** button. This brings up the **TASK LOG ENTRY** window (Figure 3-2). This window shows header information in the top portion, and a list of frames with corresponding frame creation dates and status in the bottom portion. The status information refers to the disposition of the frame listed. Possible status values include: **COMPLETED**, **FAILED**, **NO SCC**, **PENDING**, and **In PDC**, defined as follows

- Completed - transfer completed successfully
- Failed - frames not transferred because they failed QC
  - transfer not completed
  - MPD failed to copy frame to its destination in the physical archive
- No SCC - no source was available, CPS could not process frame
- Pending - task was canceled, frames were waiting to be placed in the physical archive
- In PDC - frame processed and transferred previously, no frame sent

You can eliminate an entry for a given transfer number by selecting the desired line in the TRANSFER LOG DIRECTORY window and clicking on the **Delete Entry** button. The entry is deleted and the list window redisplay the modified log. No confirmation dialog is provided; a single click on the **Delete Entry** button deletes the selected entry.

To View Transfer Log information:

1 - Click on the **View Transfer Log** option in the MPD Options dialog box.

This action brings up the TRANSFER LOG DIRECTORY window.

2 - Select a desired transfer by clicking on a line in the log, then clicking on the **View Entry** button.

This action brings up the TASK LOG ENTRY window.

3 - After reviewing the information, click on the **Exit** button to close the window.

### 3.4 View Media Log

The media log maintains records of all media in the processed data archive that contain any CMS data. The **View Media Log** menu item brings up the MEDIA LOG DIRECTORY window (Figure 3-4), which displays a list of media by media locator, date, and filename. To view more detailed information on a particular entry, click on the **View Entry** button. This brings up the MEDIA LOG ENTRY window (Figure 3-5).

The MEDIA LOG ENTRY window displays information that is recorded in the CDS Processed Data Catalog for the designated media, identified by the media locator shown in the first field, upper left portion of the window. The list of frames, dates, and file sizes refers to the frames that have been transferred onto the specified media. The MEDIA LOG ENTRY window is for viewing only; no information can be changed, added, or removed.

To filter the contents of the Media Log Directory window, click in the **Product** button and select a product from the list. The name of the selected product will appear on the button and the window will only display a list of media containing the indicated product.

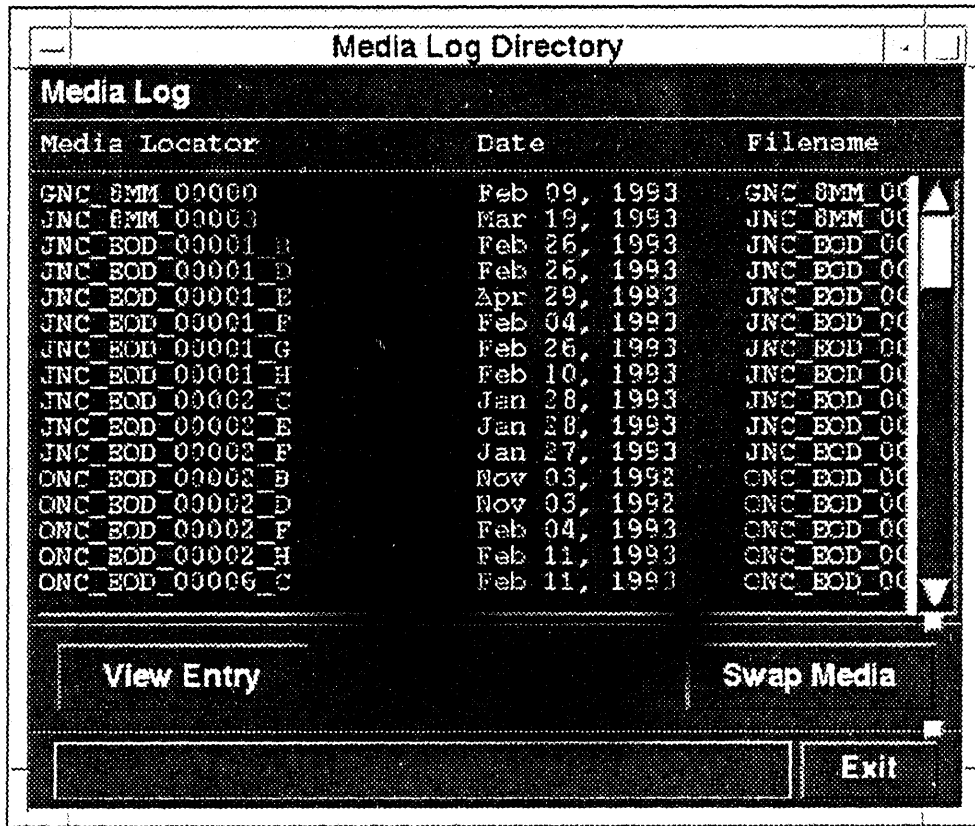
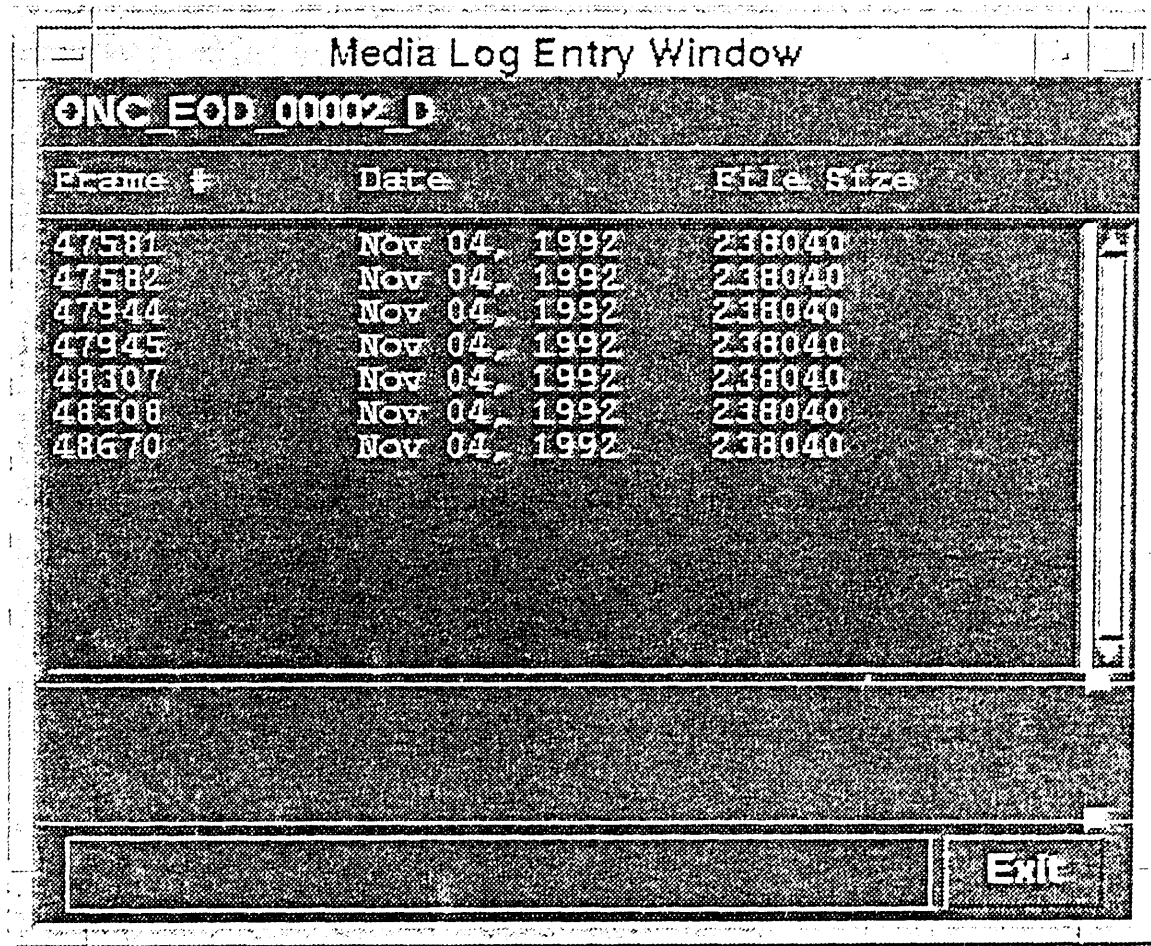


Figure 3-4. Media Log Directory Window



The screenshot shows a window titled "Media Log Entry Window" with a header "ONC EOD 00002 D". Below the header is a table with three columns: "Frame #", "Date", and "File Size". The table contains seven rows of data, all with a date of "Nov 04, 1992" and a file size of "238040". At the bottom right of the window is an "EXIT" button.

Frame #	Date	File Size
47581	Nov 04, 1992	238040
47582	Nov 04, 1992	238040
47944	Nov 04, 1992	238040
47945	Nov 04, 1992	238040
48307	Nov 04, 1992	238040
48308	Nov 04, 1992	238040
48670	Nov 04, 1992	238040

Figure 3-5. Media Log Entry Window

Swap media allows you to transfer CMS data stored in the processed data archive from one medium to another. This option is available from the MEDIA LOG DIRECTORY window.

To initiate a swap, select the single EOD (representing a selection of the eight related EODS) or tape you wish to transfer from the list in the MEDIA LOG DIRECTORY window. Then click on the **Swap Media** button. An error is reported if the **Swap Media** button is pressed before selecting an item in the displayed list of media. Upon successful initiation of a swap media task a TRANSFER LOG ENTRY window will appear. This window displays a status for each frame on the chosen tape or EOD set. Next, you will be prompted to mount the required media on various devices.

Upon successful completion of a swap media task the TRANSFER LOG ENTRY window will show a frame status of "moved" for each frame entry. After the task is completed, you should exit any or all active Display CMS Data and Maintain Production Order processes. This will allow those displays to reflect the recent changes made by the swap media task.

*Hint Box for Swap Media:*

*A swap media task will not come to a successful completion if the coverage reported in the Processed Data Catalog and the coverage found in the physical archive do not agree. More specifically, if one or more frames are missing from the input EOD(s) the swap media task will not complete. Coverage can be physically lost from the physical archive when the fsck utility is performed. That is, files system references to files may become lost when a file system check is run on an EOD.*

To Swap Media:

- 1 - Select the desired media for swapping from the list in the MEDIA LOG DIRECTORY window.
- 2 - Click on the **Swap Media** button found in the lower right corner of the MEDIA LOG DIRECTORY window.

The CDS TRANSFER LOG ENTRY window will appear containing a list of frames to be transferred. Immediately after you will be prompted to mount the output media and the input media.

- 3 - Mount the output device with the requested media. Click on the **OK** button.
- 4 - Mount the input device with the requested media. Click on the **OK** button.

As frames are moved from one media to another each frame's status value in the CDS TRANSFER LOG ENTRY window becomes "In Copy" and progresses to "moved".

When the swap is complete you will be prompted to dismount the input and output media.

- 5 - Dismount the input media. Press **OK**.
- 6 - Dismount the output media. Press **OK**.

At the bottom of the CDS TRANSFER LOG ENTRY window you will find the message, "Task is completed. Please exit this window."

- 7 - Press the **Exit** button on the CDS TRANSFER LOG ENTRY window.

The MEDIA LOG DIRECTORY window will display an updated media list reflecting the changes made by the completed task.

To View the Media Log:

1 - Click on the **View Media Log** option in the MPD Options dialog box (Figure 3-1).

This action brings up the MEDIA LOG DIRECTORY window.

2 - Select a desired media by clicking on a line in the log, then click on the **View Entry** button.

This action reveals the MEDIA LOG ENTRY window.

3 - After reviewing the information, click the **Exit** button to close the window.

### 3.5 Load Tape

The Load Tape function is used when the CPS/CDS network connection is unavailable. In this case, a CPS *degraded mode* 8mm tape is produced. The Load Tape function initiates the data transfer process using manually inserted 8mm tapes. After selecting the **Load Tape** menu option in the MPD Options menu, you are prompted to mount the tape. Then the Load Tape dialog window (Figure 3-6) that summarizes the contents of the tape appears. You will be asked if you want to proceed with data transfer. After confirmation, the system proceeds with the data transfer in the same manner as in the CPS-initiated case (see Paragraph 3.2.1).

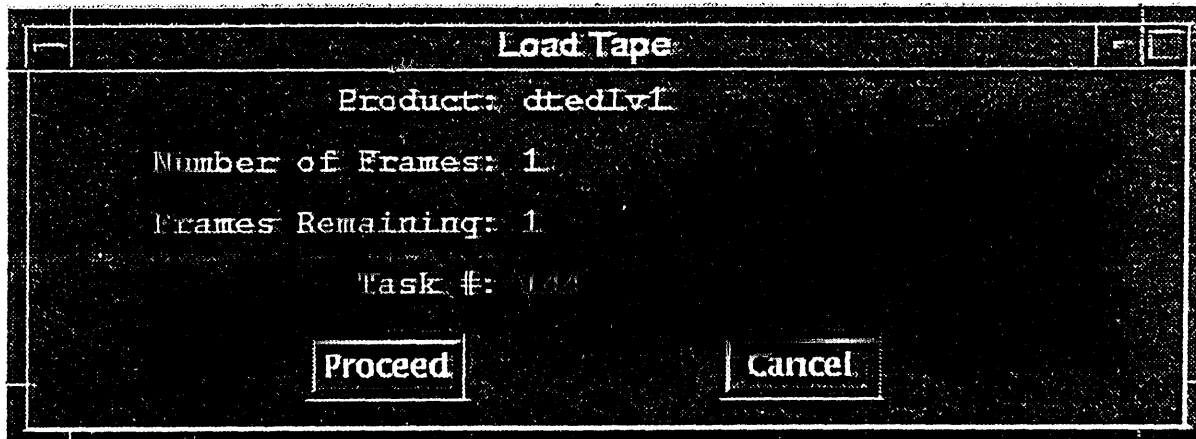


Figure 3-6. Load Tape Dialog Window

## 4 Displaying CMS Data

### 4.1 Purpose

Display CMS data provides geographic displays showing the availability of processed CMS data for each product. Display CMS data also provides the ability to view the actual CMS data.

### 4.2 Startup of Display CMS Data

To enter the Display CMS Data module, choose the **Display CMS Data** item on the CDS Executive (see Figure 2-8). This brings up the CDS VIEW COVERAGE window (see Figure 4-1) and the associated PRODUCTS window (see Figure 4-2).

### 4.3 View Coverage

View coverage allows you to examine a geographic representation of coverage data in the processed data catalog. In this way, you can examine each of the products supported by CDS.

The CDS VIEW COVERAGE window, as shown in Figure 4-1, is composed of the following major sections. The top section contains a menu bar and a color-coded status bar with display information. The middle section contains the map display. The bottom section contains display control buttons and an **Exit** button.

*Hint About the View Coverage Geographic window:*

*On initial entry into Display CMS Data, no product is selected. Entering certain modes and applying some annotations has no effect on the geographic display until a product has been selected from the PRODUCTS window. In addition, the View Frame and View Media Locator modes do not take effect until a product has been selected. Two annotations that require a product to be chosen are Continuous Frame Number and WWMC Grid.*

The CDS VIEW COVERAGE window is initially in Zoom mode. When you have displayed the desired area and chosen a product from the PRODUCTS window, you can invoke the View Media Locator mode to display the media cell grid (yellow grid lines). In this mode, when you click inside a cell, the mode display area at the bottom of the CDS VIEW COVERAGE window contains a readout of the media locator number for the designated cell. Each cell represents one side of one EOD. This information indicates which EOD or 8mm tape contains the frames for the designated geographic region.

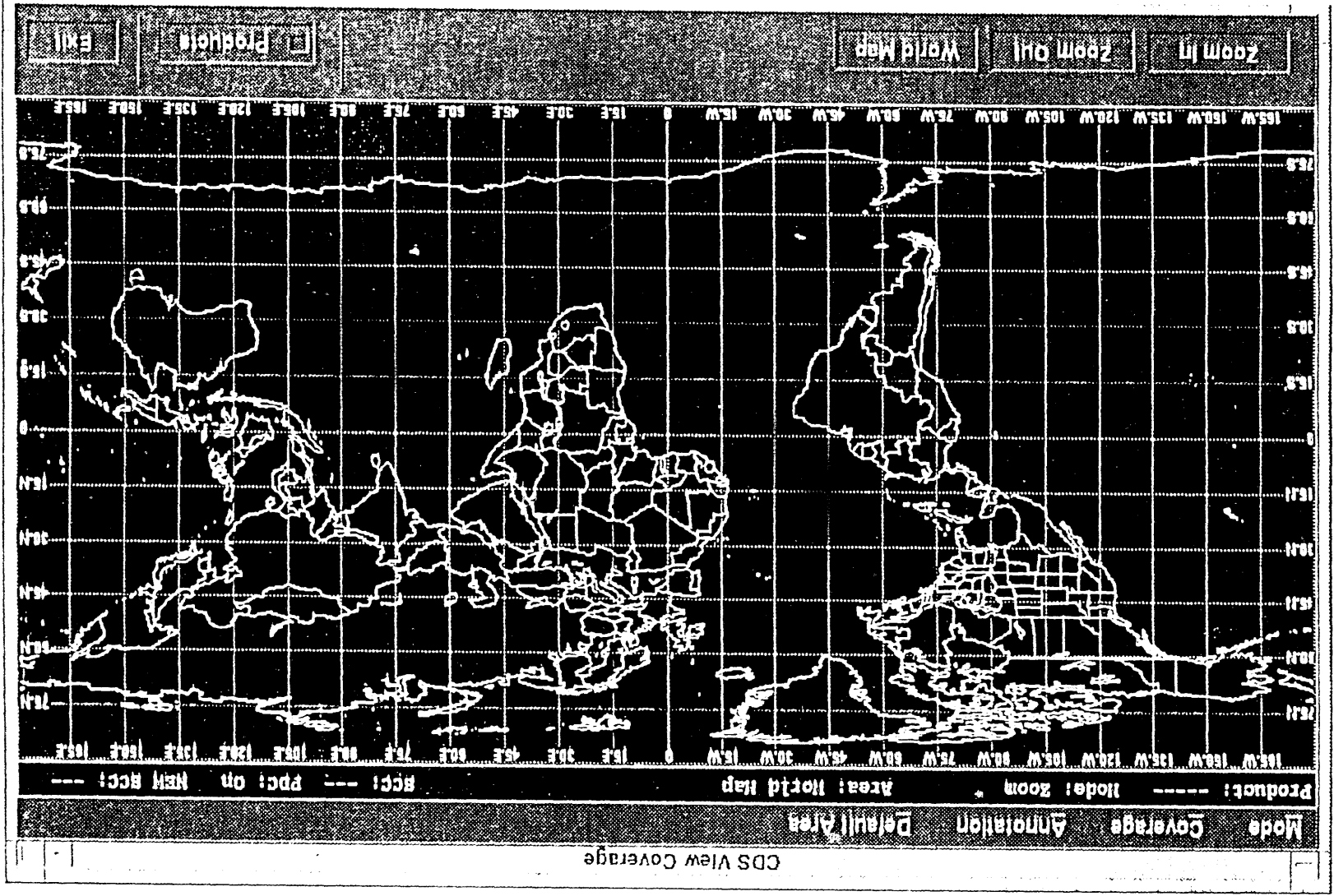


Figure 4-1. CDS View Coverage Window

The media type used to store the data in a selected cell is identified in the media locator number on the readout. Under some circumstances, you can change the storage of coverage data from EOD to 8mm tape, or vice versa. Use the radio buttons in the left corner of the mode display area. This function is described in Paragraph 4.3.1.

Another function you can use in displaying CMS data is the capability to view CMS frames. This function is described in Paragraph 4.3.2.

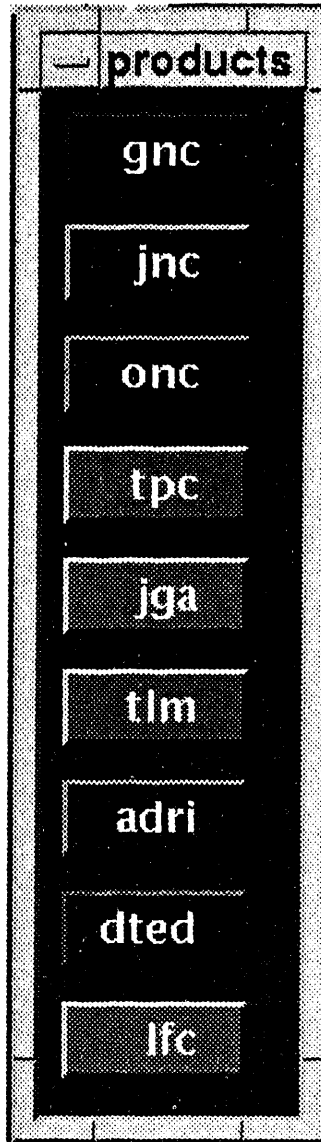


Figure 4-2. Products Window

As described in the following how-to box, while working in the CDS VIEW COVERAGE window, you can view media coverage for any CDS product by clicking on the appropriate product buttons in the PRODUCTS window (Figure 4-2). [You can also view or change the media locator, or view frames by selecting corresponding modes in the CDS VIEW COVERAGE window (Figure 4-1).] See subsequent how-to boxes for an explanation.

To View coverage:

1 - Click on the **Display CMS Data** item in the CDS Executive.

This brings up the CDS VIEW COVERAGE window and the PRODUCTS window.

2 - Select a desired product from the PRODUCTS window.

3 - While in Zoom mode, you may zoom in or out, or view the world map.

You can view media coverage for any CDS product by clicking on the desired product button in the PRODUCTS window.

4 - Click on the **Exit** button to exit this window.

#### 4.3.1 Change Media

You must be in View Media Locator mode (Figure 4-3) to change media that are assigned to a selected cell in the geographic display. When in this mode, the media radio buttons are visible in the lower left corner of the CDS VIEW COVERAGE window. If these buttons are not visible, select the **View Media Locator** item in the **Mode** menu.

To View/Change Media Locator:

- 1 - Choose the **View Media Locator** item in the Mode menu.

The World Wide Media Cell grid is displayed as an overlay. The coverage information for the selected product is displayed in color-coded form on the geographic map.

- 2 - Click in the chosen map area.

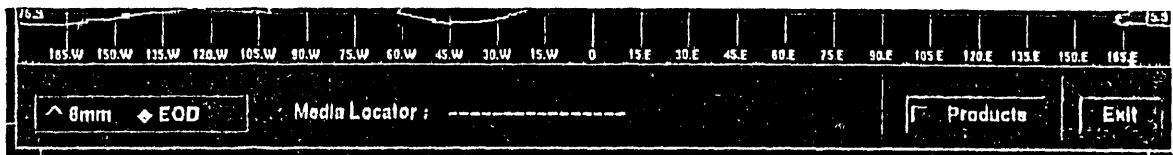
The media locator number associated with that area is displayed in the media locator readout field at the bottom of the window.

To the left of the media locator is a group of media radio buttons. One of these buttons is highlighted to reflect the media type of the current media locator.

In the View Media Locator mode, you may request to change media (for instance, from EOD to tape or vice versa) by clicking on the radio button of the desired media. (See Paragraph 4.3.1.) However, a media change is not possible if processed frames have been archived for the indicated cell or any of its eight related cells.

In the View Frames mode, you can view frames associated with the selected cell (see Paragraph 4.3.2).

- 3 - Click on the **Exit** button to exit the VIEW COVERAGE Window.



**Figure 4-3. Mode Display in Media Locator Mode**

The medium containing the data for the selected cell is shown in the media locator readout at the bottom of the VIEW COVERAGE window (see Figure 4-1). The locator number indicates whether the medium is 8mm tape or EOD. The media assignment may be changed under the following conditions:

Changing from 8mm Tape to EOD

- If no data are currently stored on the 8mm tape, you can change from 8mm tape to EOD.
- Otherwise, you cannot change from 8mm tape to EOD in the Display CMS Data module. You must perform the swap media function in the Manage Processed Data to do this.

### Changing from EOD to 8mm Tape

- If no data are currently stored on any of the eight EOD sides, you can change from EOD to 8mm tape.
- Otherwise, you cannot change from EOD to 8mm tape in the Display CMS Data module. You must perform the swap media function in Manage Processed Data to do this.

#### *Hint About EOD and 8mm Tape Storage:*

*In the worldwide media cell database, eight EOD sides equal one 8mm tape. This ratio is due to differences in the capacity of the media. The media locators reflect the mapping of the eight EOD cells to the one 8mm tape cell. Thus, for example, the set of EODs:*

*JGA\_EOD\_00001\_A  
JGA\_EOD\_00001\_B  
JGA\_EOD\_00001\_C  
JGA\_EOD\_00001\_D  
JGA\_EOD\_00001\_E  
JGA\_EOD\_00001\_F  
JGA\_EOD\_00001\_G  
JGA\_EOD\_00001\_H*

*is equivalent to the 8mm tape  
JGA\_8MM\_00001.*

*When you select any one of the media cells and press the radio button corresponding to the desired medium, the change will be stored in the worldwide media cell database.*

### 4.3.2 View CMS Frames

You must be in View Frames mode to view the frames that are associated with a selected media in the geographic display. When in this mode, the **View Frames** button is visible in the lower left corner of the CDS VIEW COVERAGE window (Figure 4-1). If this button is not visible, select the **View CDS Frame(s)** item in the **Mode** menu.

To View the CMS frames:

- 1 - Ensure the mode is View Frame(s).
- 2 - Select a desired product by clicking on a product button in the PRODUCTS window.
- 3 - Click on a desired frame in the geographic display.
- 4 - Click on the **View Frame(s)** button.

The FRAME VIEWER window and associated control panel are displayed. Operation of the frame viewer function is described in the following paragraphs.

#### 4.4 Frame Viewer Operation

The FRAME VIEWER window is shown in Figure 4-4. This window displays a cutout of a geographic map, centered on the subject frame that was selected in the VIEW COVERAGE window. The window is resizable so you can enlarge or reduce the degree of geographic area coverage.

##### *Hint About Viewing Frames:*

*The frame you chose initially is the subject frame. When the EOD containing the subject frame is located and loaded, activating the frame viewer enables you to view any frame contained on that EOD. Another frame can be displayed by choosing a new frame from the FRAME LIST window.*

The mouse button operations have special definitions while the cursor is positioned within the FRAME VIEWER window, as described in Table 4-1.

Figure 4-5 shows the control panel associated with the FRAME VIEWER window. The functions supported in the control panel are described in Table 4-2. The five windows associated with these functions are shown in Figures 4-6 and 4-6a.

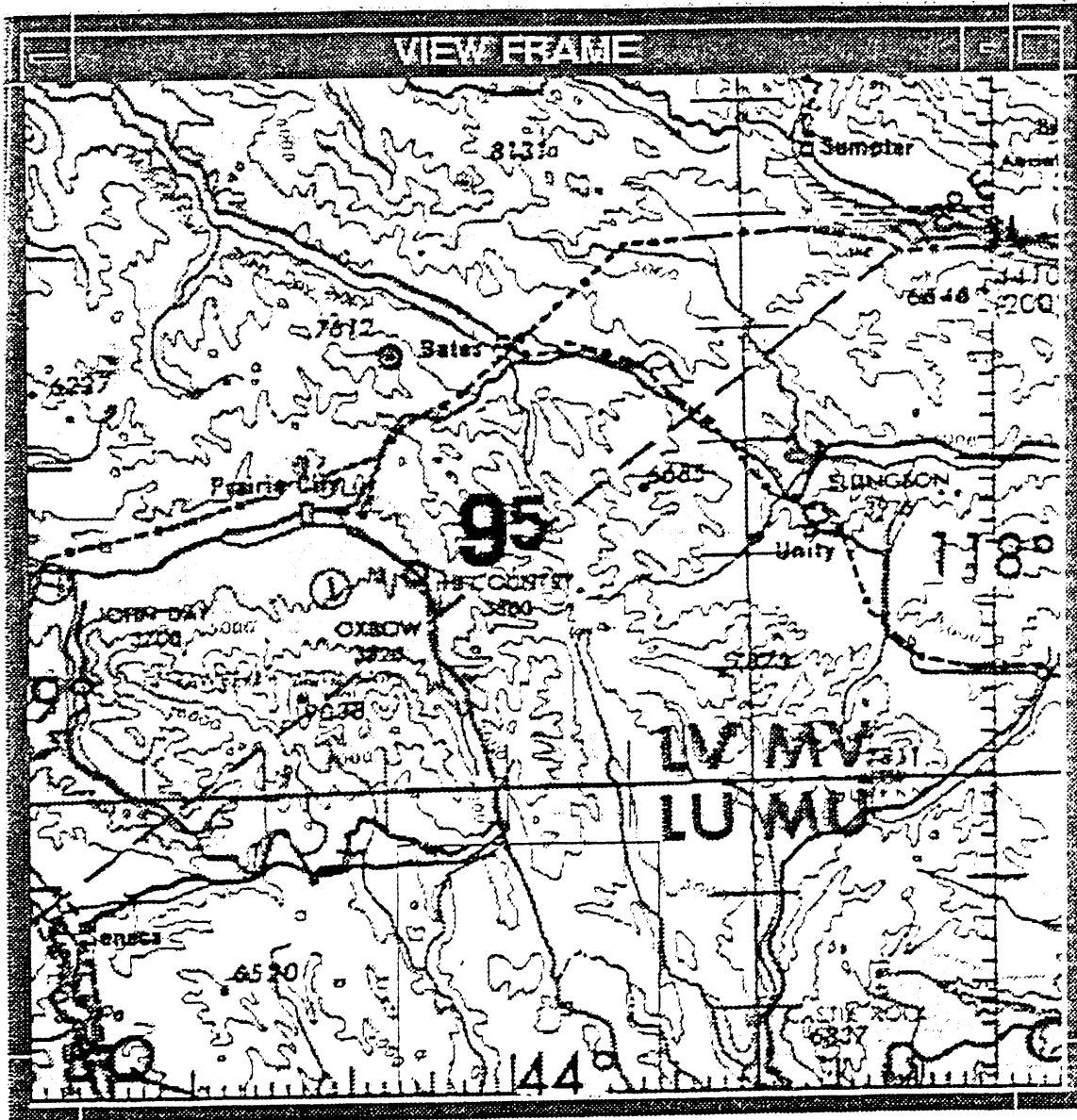


Figure 4-4. Frame Viewer Window

Table 4-1. Mouse Button Behavior for Frame Viewer

<u>Button</u>	<u>Function</u>
1 (left)	When in magnify mode, designates area to be magnified.
2 (middle)	Brings up SUBFRAME HEADER window(s) for the subframe in which the button was pressed.
3 (right)	Toggles ON/OFF subframe in FRAME VIEWER.

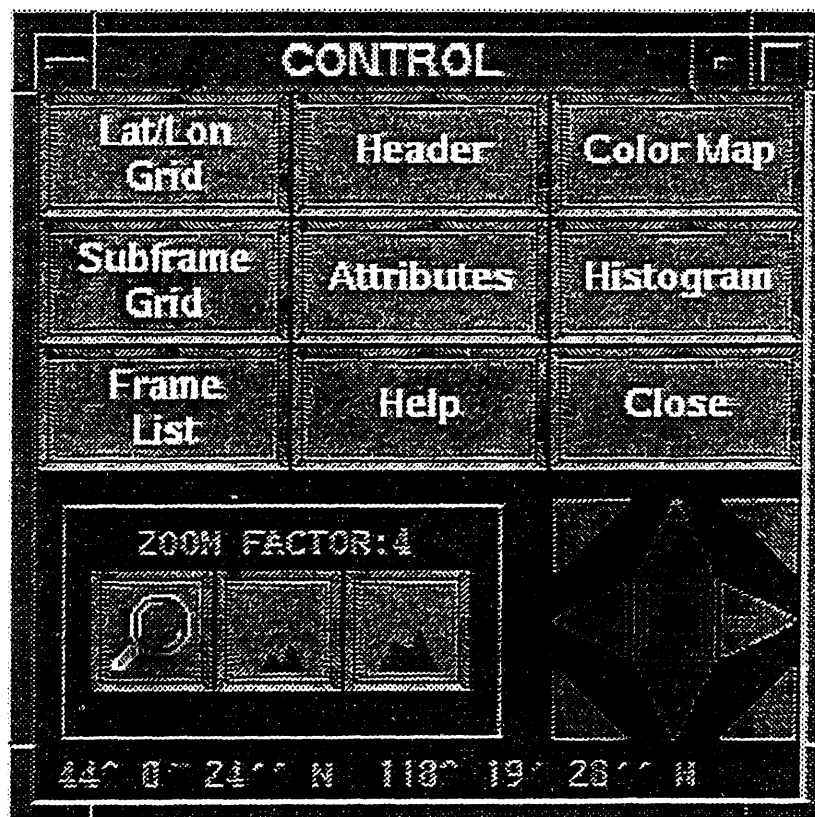


Figure 4-5. Frame Viewer Control Panel Window



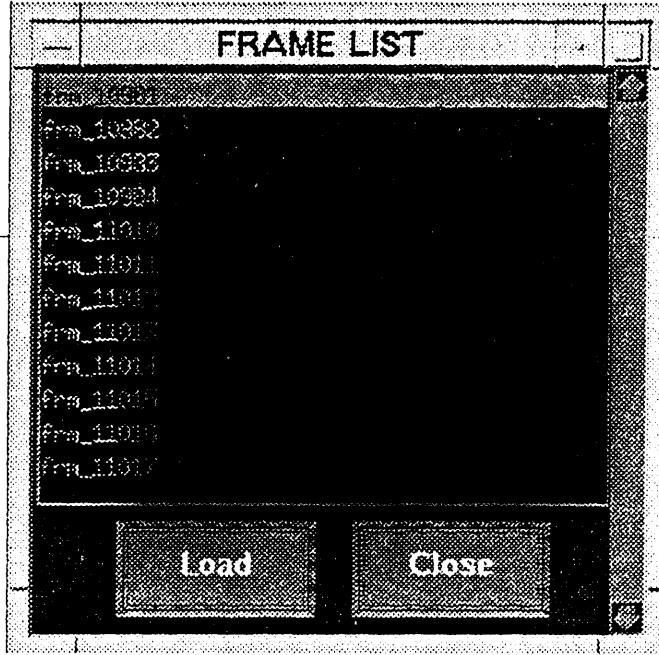


Figure 4-6a. Frame Viewer Information Windows

**Table 4-2. Frame Viewer Control Buttons**

<u>Button</u>	<u>Function</u>
Lat Lon Grid	Toggles ON/OFF the lat lon grid overlay in the FRAME VIEWER window.
Header	Brings up SUBJECT FRAME HEADER window for the selected frame in the FRAME VIEWER display.
Color Map	Brings up the COLOR MAP window that lists all 255 values of the color map.
Subframe Grid	Toggles ON/OFF the subframe grid overlay in the FRAME VIEWER window.
Attributes	Brings up the SUBJECT FRAME ATTRIBUTES window that lists subject frame attributes.
Histogram	Brings up the HISTOGRAM window that shows the number of times each color in the color map is used.
Frame List	Brings up the FRAME LIST window that lists all available frame files on the mounted EOD.
Help	Brings up the HELP window (not implemented).
Close	Closes FRAME VIEWER window and associated CONTROL window.
<u>Icons Used in Control Panel</u>	
Magnifying Glass	Toggles magnify mode ON/OFF (magnify mode displays a magnified area in a separate MAGNIFICATION window (see Figure 4-7).
Small Mountain	Zoom Out display in MAGNIFICATION window.
Large Mountain	Zoom In display in MAGNIFICATION window.
Pan Control Arrows	Pan diagonally as well as up, down, left, and right; center box is the <i>home</i> button.
Continuous Lat Lon	Reports position of cursor in FRAME VIEWER and MAGNIFICATION windows.

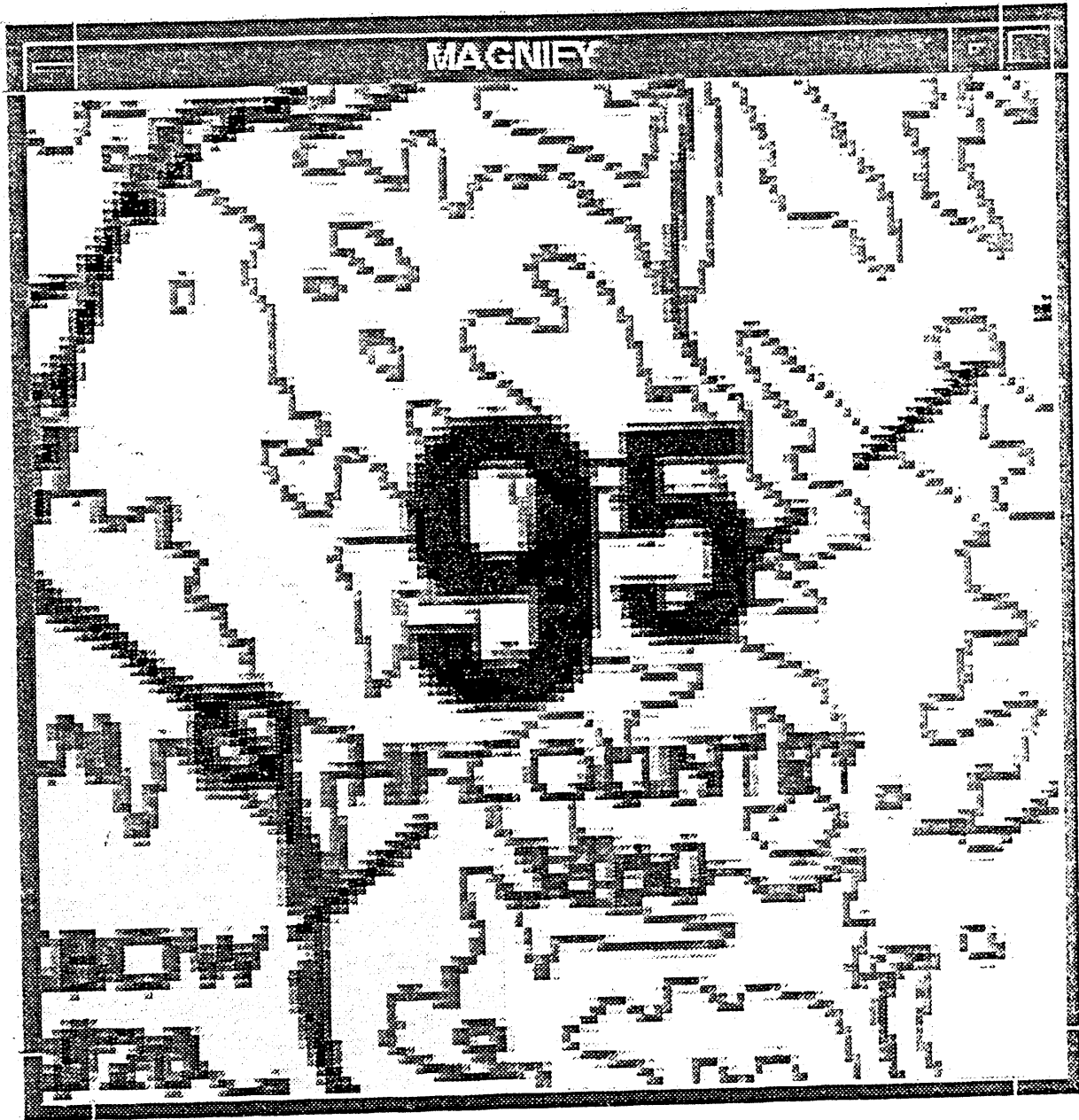


Figure 4-7. Frame Viewer Magnification Window

## 5 Managing Production Orders

### 5.1 Purpose

The Manage Production Orders (MPO) function allows you to select CMS data from the various products and control their arrangement on the output media. This component offers interactive displays enabling you to prepare a PO, which contains the complete specification for a theater database. This designation of CMS data for inclusion in the PO is referred to as creating a PO.

The MPO function also offers interactive displays enabling you to specify the arrangement of the selected CMS data on the output media. This arrangement specification is called allocating a PO. The MPO function allows you to create and apply default areas as in the Display Processed Data module. In addition, it allows for the creation of Work Areas. These are similar to Default Areas, but have subtle differences.

You need not allocate a PO immediately after creating it. A PO must be allocated, however, before it can be executed by the Build Theater Database Module. The number of available POs cannot exceed 100.

### 5.2 Startup of Manage Production Orders

To enter the MPO module, select the **Production Orders** item on the CDS Executive (Figure 2-8). This brings up the MANAGE PRODUCTION ORDERS window shown in Figure 5-1. This window lists current POs by name, creation date, and allocation status (**Allocated**, **Not Allocated**). Six buttons are available in the MANAGE PRODUCTION ORDERS window: **View**, **Create**, **Edit**, **Allocate**, **Delete**, and **Exit**.

The **Exit** button closes the MANAGE PRODUCTION ORDERS window and returns the screen to the CDS Executive. Other PO management functions are described in Sections 5-3 through 5-7.

### 5.3 View Production Order

View mode allows you to view the contents of the PO in detail.

To View a PO:

- 1 - Highlight the name of the PO in the MANAGE PRODUCTION ORDERS window.
- 2 - Click on the **View** button.

The PRODUCTION ORDER window will be displayed (see Figure 5-2).

CDS: Manage Production Orders				
newtapepo2	Jun 17, 1993	Allocated	EOD	/
newtapepo	Jun 17, 1993	Allocated	EOD	
newtapepo3	Jun 17, 1993	Allocated	EOD	
jncpo	Jun 17, 1993	Allocated	EOD	
tpcpo2	Jun 18, 1993	Allocated	EOD	
tpcpo	Jun 18, 1993	Allocated	EOD	
tpcpo3	Jun 25, 1993	Allocated	EOD	
tpcpo4	Jun 25, 1993	Allocated	EOD	
lfcpo2	Jul 01, 1993	Allocated	EOD	
lfcpo	Jul 01, 1993	Allocated	EOD	
lfeponew	Jul 01, 1993	Allocated	EOD	
libya-crap	Jul 26, 1993	Allocated	EOD	
sunny-libya	Jul 28, 1993	Allocated	EOD	
libyaclubmed	Jul 30, 1993	Allocated	EOD	
jga_test	Aug 10, 1993	Allocated	EOD	

View    Create    Edit    Allocate    Delete    Exit

Figure 5-1. Manage Production Orders Window

Click on the **Exit** button to close the PRODUCTION ORDER REVIEW window.

The PRODUCTION ORDER REVIEW window displays the following information:

PO name	alphanumeric
PO type	Not allocated = -1 Allocated to 8mm tape = 0 Allocated to 4mm tape = 1 Allocated to EOD = 3
Creation date	DD MMM YY
Allocation date	DD MMM YY
Total number of frames	numeric
User comments	alphanumeric
Media size in megabytes per output EOD side	numeric

Number of output media sides with allocation	numeric
Number of output media with allocation	numeric
Work Areas	alphanumeric
List of all selected frames:	
product	alpha
frame number	numeric
allocation	binary converted to octal

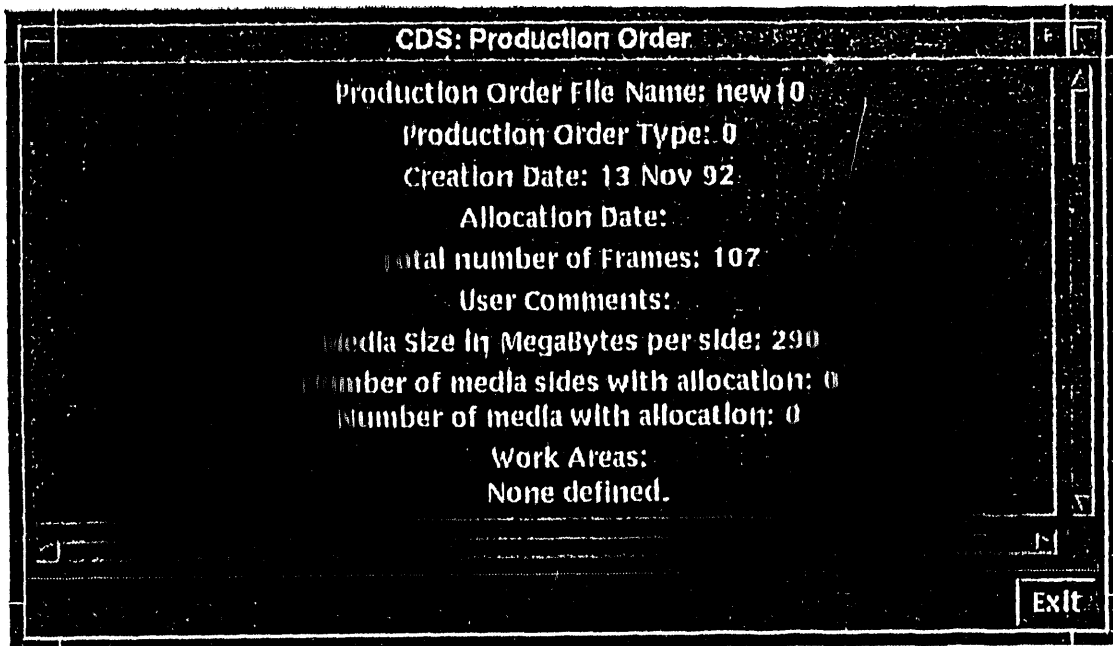


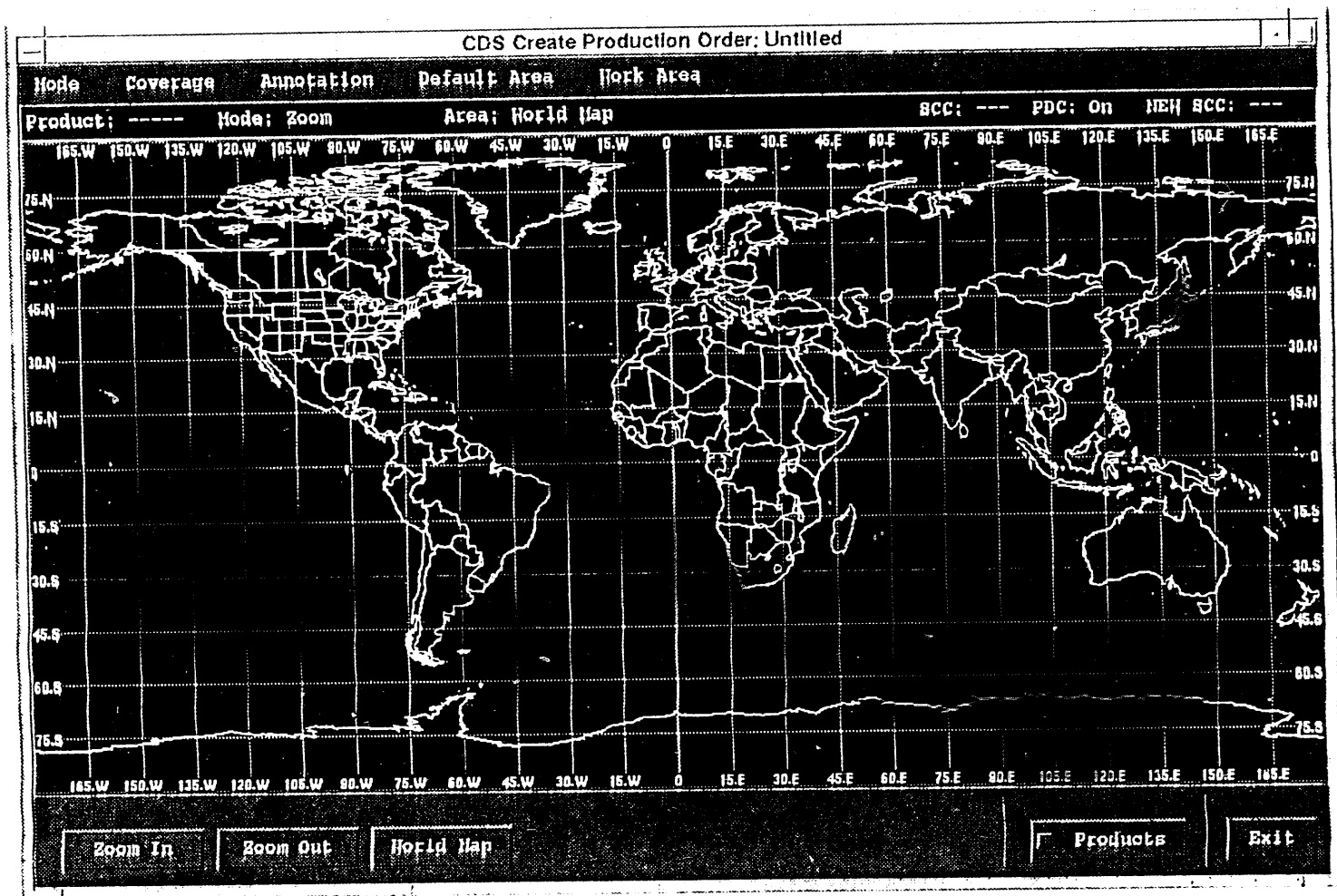
Figure 5-2. Production Order Review Window

#### 5.4 Create PO

The Create function allows you to select the frames from each product that are to be included in a PO. This function results in a new PO.

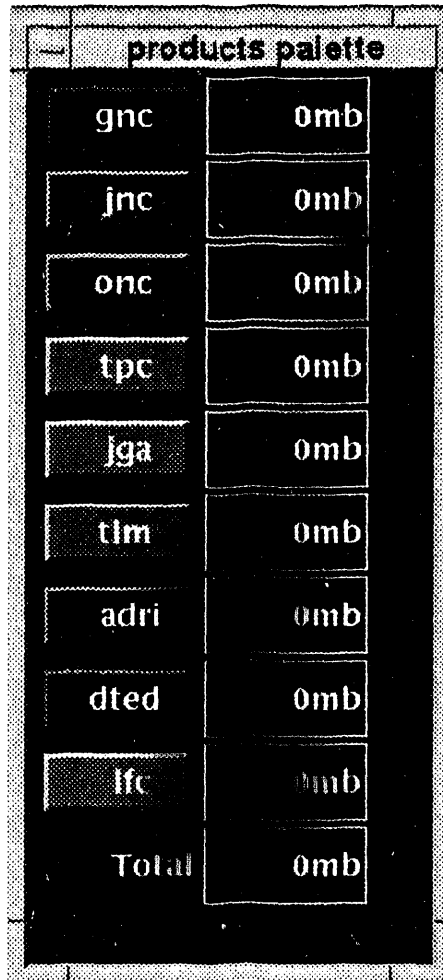
The CREATE PRODUCTION ORDER window, as shown in Figure 5-3, is comprised of the following major sections. The top section contains a menu bar and a color-coded status bar with display information. The middle section contains the map display. The bottom section contains display control buttons and an **Exit** button.

Accompanying the CREATE PRODUCTION ORDER window is a PRODUCTS window (Figure 5-4) containing a column of color-coded product buttons. When one of the buttons is clicked to select a product, the color of the status bar in the CREATE PRODUCTION ORDER window changes to match the selected product. At the same time, the available and selected frames for the selected product are displayed on the map grid in the current product color (if they lie within the range of the current Default Area or Work Area).



5-5

Figure 5-3. Create Production Order Window



products palette	
gnc	0mb
jnc	0mb
onc	0mb
tpc	0mb
jga	0mb
tim	0mb
adri	0mb
dted	0mb
lfc	0mb
Total	0mb

**Figure 5-4. Products Window**

The CREATE PRODUCTION ORDER window opens with the following default settings. The mode is set to Zoom mode, the coverage is set to View Processed Data, and the annotation selections are set to display the World Shoreline Map (showing coastline/political boundaries) and the lat lon grid overlay.

To Create a PO:

1 - Click on the **Create** button in the **MANAGE PRODUCTION ORDERS** window.

The **CREATE PRODUCTION ORDER** window (Figure 5-3) and the **PRODUCTS** window (Figure 5-4) appear.

2 - Click on a product in the **PRODUCTS** window to select a product.

The color of the selected product will appear in the status bar, together with the name of the product. The available frames for the product will be displayed in the appropriate color on the map.

3 - Use the Define Area mode functions to add areas, remove areas, and apply areas in any desired sequence for each product placed in the PO.

The first time the **Apply Area** button is clicked on, a dialog box prompts you to name the PO.

4 - When you are finished, click on the **Exit** button.

A dialog window will appear with the name of the PO and three buttons: **Save**, **Don't Save**, and **Cancel**.

5 - If you want to save the PO, use the **Save** button.

If you prefer to exit without saving the PO, click on the **Don't Save** button. Or, if you no longer want to exit, use the **Cancel** button. If you choose to continue with the exit, a second dialog window will appear so that you can enter a comment.

6 - Type a comment (up to 30 characters long) and click on **Save**. The PO will be saved to disk. If you choose **Cancel**, the dialog box closes and the screen returns to the **CREATE PRODUCTION ORDER** window, without saving the PO.

The **Mode** menu item in the menu bar provides four modes to support creation of POs: Zoom (the default), Define Area, View by Frame, and View Media Locator. The Zoom and Media Locator modes are common across all geographic displays and are described in Section 2.2.2. The View by Frame mode provides product information for a single point on the geographic map; the data are shown in an auxiliary window (the **VIEW PRODUCT BY FRAME** window). The Define Area mode supports the basic tools (Add, Remove, Undo, and Undo All) for defining the PO.

The Define Area mode provides the display area controls shown in Figure 5-5. Display area controls include the **Add**, **Remove**, and **Undo** radio buttons (that are mutually exclusive), the **Undo All** button, and the **Apply Area** button. The Add operation is the default for the Define Area mode.

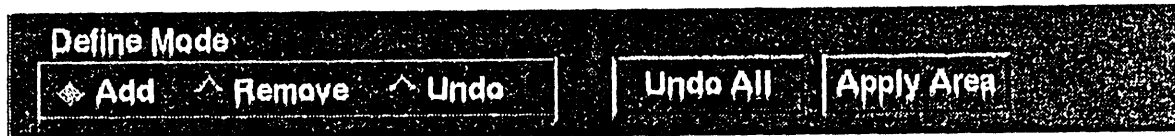


Figure 5-5. Display Area Controls

You can create and modify a defined area using successive applications of the **Add**, **Remove**, and **Undo**/**Undo All** buttons. The **Add** button allows you to increase the defined area by boxing a geographic area in the display. The **Remove** button allows you to selectively remove areas within a box defined in Add mode, so the selected CMS data can be reduced and further tailored. When **Remove** is employed, the remove box is displayed in the map region with a heavier border to distinguish it from an add box. The effect of a remove box is to delete the designated area from the PO.

Because a certain amount of trial and error is expected in defining an area using the **Add** and **Remove** buttons, two undo operations are provided to help alleviate errors and confusion. **Undo** allows you to selectively remove previously-drawn boxes. When you click on the **Undo** button, you can remove any Add or Remove box in the display by positioning the mouse inside the box to be removed and clicking the left button. If you click on an area occupied by two or more overlapping boxes and click on **Undo**, a dialog box appears asking you to indicate which box you want to remove. You can repeatedly click on a box and on **Undo** to continue removing boxes. The **Undo All** button deletes all of the boxes that have been drawn.

The **Apply Area** button gathers CMS frame information for all frames within the defined area for the currently selected product, so that it can be saved to a PO file.

The first time the **Apply Area** button is clicked on, a dialog window appears (see Figure 5-6) that requests a name for the PO. Type a unique name for the PO and click on the **Save** button. Subsequent clicks on the **Apply Area** button will not require you to type a name. Now the PO has a unique name that is displayed in the title box of the CREATE PRODUCTION ORDER window.

*Hint About Display Area Controls:*

Click on the **Apply Area** button after the currently selected product has the appropriate Add Area and Remove Area boxes drawn in place. Any portion of the area of the currently selected product that lies within the boundaries made by the Add Area boxes and not within the Remove Area boxes will be cross-hatched.

When the **Apply Area** button has been used, the displayed information is updated. Areas selected for the PO are now cross-hatched. The amount of data, in megabytes, selected for each product is shown in the PRODUCTS window. This helps you keep track of the physical size of the selected data in the PO. Also, the total storage requirement (for all products that have been applied to the PO) is displayed at the bottom of the PRODUCTS window. Due to rounding errors, the product sizes will not always add up exactly to the total. However, when the frame file size totals are computed, the actual sizes are used.

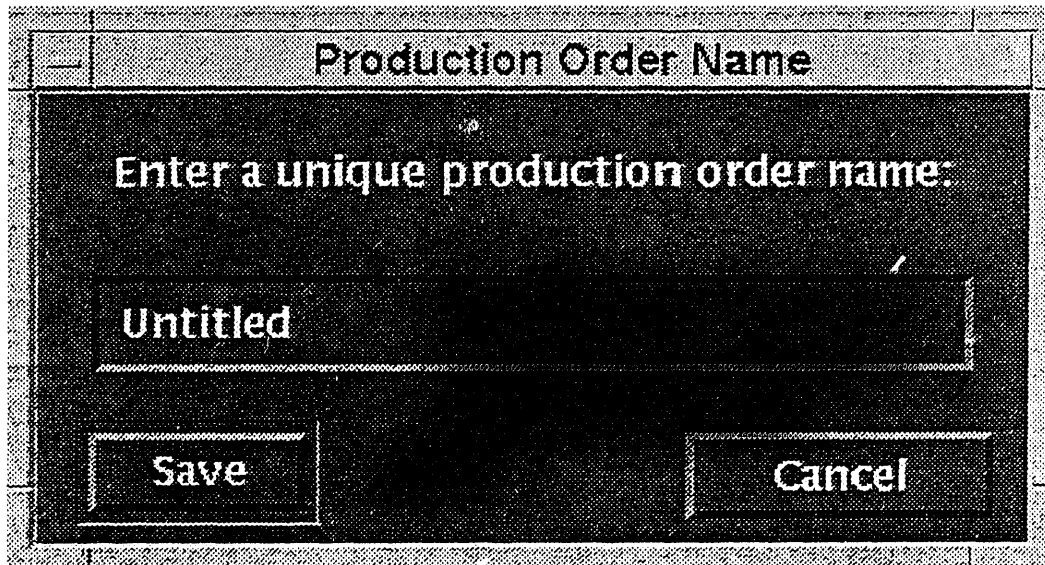


Figure 5-6. Production Order Name Dialog Window

*Hint About Sequence of Operations:*

*You may freely define areas, remove areas, and apply areas repeatedly in any desired sequence. Each time the **Apply Area** button is selected, CDS automatically checks the frames for the particular product selected and adds or subtracts the amount of data currently being saved for eventual allocation. You may select a product; define an area that encompasses the entire product; apply that area; remove unwanted areas; apply the removed areas; and so forth until the exact area desired for a PO is obtained. This sequence of operations or any similar sequence that you find most useful may be repeated for each product to be placed in the PO.*

*Also, note the Add Area and Remove Area boxes remain active until you click on the **Undo All** button. In this manner, you may use the same **Apply Area** and **Remove Area** buttons from product to product to enable consistent product coverage.*

## 5.5 Edit Production Order

The **Edit Production Order** function allows you to change the designation of product data that has been included in a previously defined PO. The EDIT PRODUCTION ORDER window is identical in appearance and operation to the CREATE PRODUCTION ORDER window (Figure 5-3). Refer to Section 5.4 for detailed instructions.

To Edit a PO:

- 1 - Highlight the name of the PO in the MANAGE PRODUCTION ORDERS window.
- 2 - Click on the **Edit** button.

The EDIT PRODUCTION ORDER window will appear.

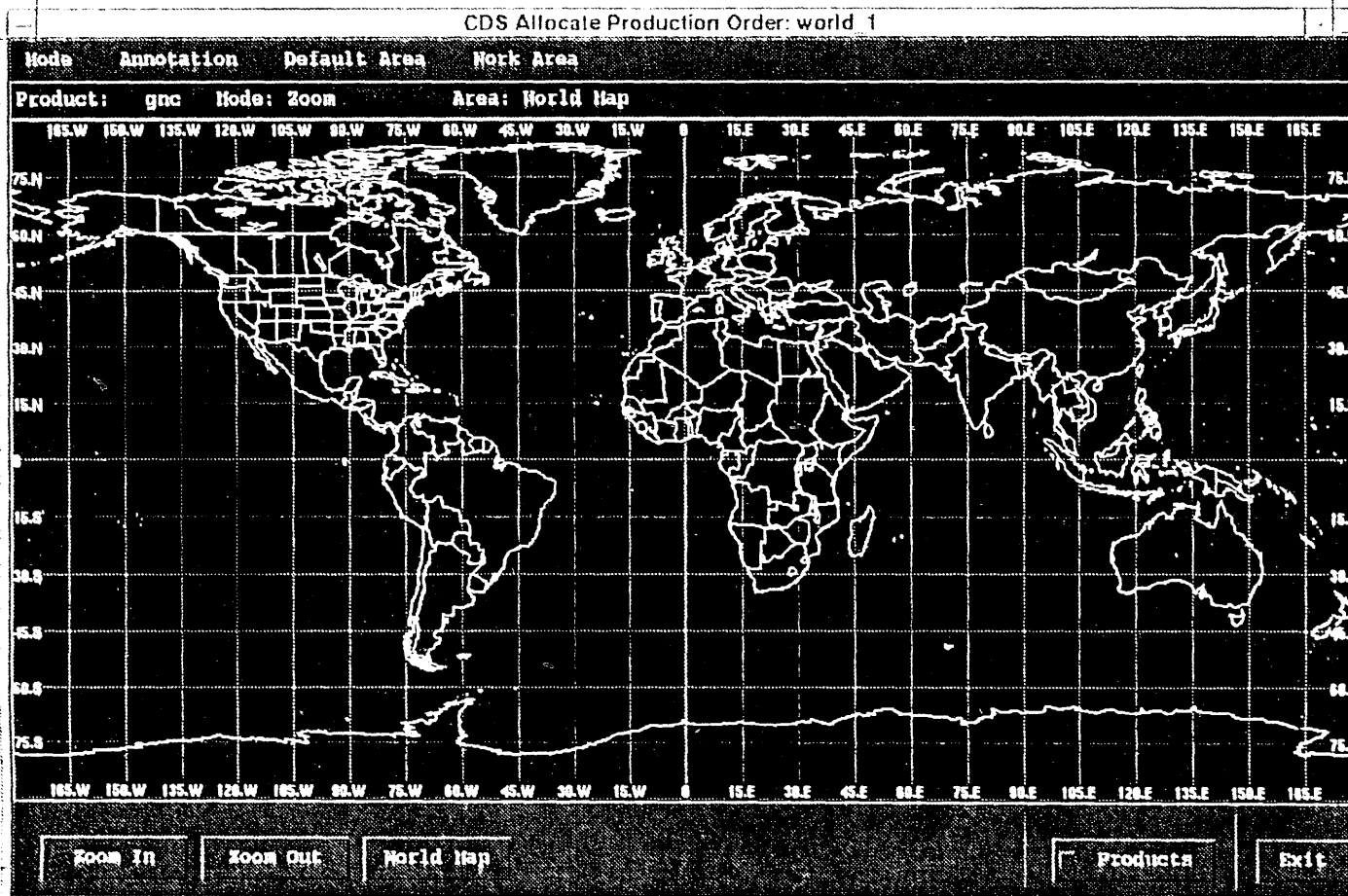
*Hint About Editing POs:*

*Caution: If you choose to edit a predefined PO, all allocation information for the edited version of the PO will be discarded. The edited PO will need to be allocated before it can be executed by the Build Theater Database module.*

## 5.6 Allocate Production Order

The **Allocate** function allows you to allocate space on output media to contain the selected CMS frame files. Allocation is the second phase in creating a PO (data selection is the first phase, as described in Section 5.4).

The **ALLOCATE PRODUCTION ORDER** window, as shown in Figure 5-7, is nearly identical to the **CREATE PRODUCTION ORDER** window. One exception is that it does not contain a **Coverage** menu item in the menu bar. Another exception is the Define mode (**Define Allocation** in the mode menu) produces an **Apply** button in the mode display area (corresponding to the **Apply Area** button in the **CREATE PRODUCTION ORDER** window). Another exception is the **ALLOCATE PRODUCTION ORDER** window displays only the coverage that has been selected for inclusion in this PO — *not* the entire processed data catalog. When the window is opened, the default mode is **Zoom**.



5-12

Figure 5-7. Allocate Production Order Window

To Allocate a PO:

- 1 - Highlight the name of the PO in the MANAGE PRODUCTION ORDERS window.
- 2 - Click on the **Allocate** button.

The ALLOCATE PRODUCTION ORDER and the PRODUCTS windows will be displayed.

- 3 - Select a product from the PRODUCTS window.
- 4 - Use the left mouse button to click and drag on the map display to create a box that surrounds the area of interest.
- 5 - Use the **Zoom In** button to zoom into the area of interest.
- 6 - Select **Define Allocation** mode in the Mode pull-down menu.

The mode display area at the bottom of the ALLOCATE PRODUCTION ORDER window will change to reflect the mode change. (See Figure 5-8.)

- 7 - Use the **Add** and **Remove** buttons, as required, to indicate which frames to allocate.
- 8 - Click the **Apply** button.

A pop-up window (ALLOCATE PO TO MEDIA) will appear, showing the frame size of boxed areas (Figure 5-9).

- 9 - Click on one or more media sides to designate the frame destination.
- 10 - Click on the **Allocate** button in the ALLOCATE PRODUCTION ORDER TO MEDIA window.

A dialog window appears to confirm the allocation.

- 11 - Examine the allocation data in the ALLOCATE PRODUCTION ORDER TO MEDIA window.

If the allocation is satisfactory, activate the **Yes** button in the dialog window. Otherwise, use the **Cancel** button.

The media side button is no longer selected. The allocated area is now indicated by cross-hatching on the map display.



Figure 5-8. Mode Display Area in Define Allocation Mode

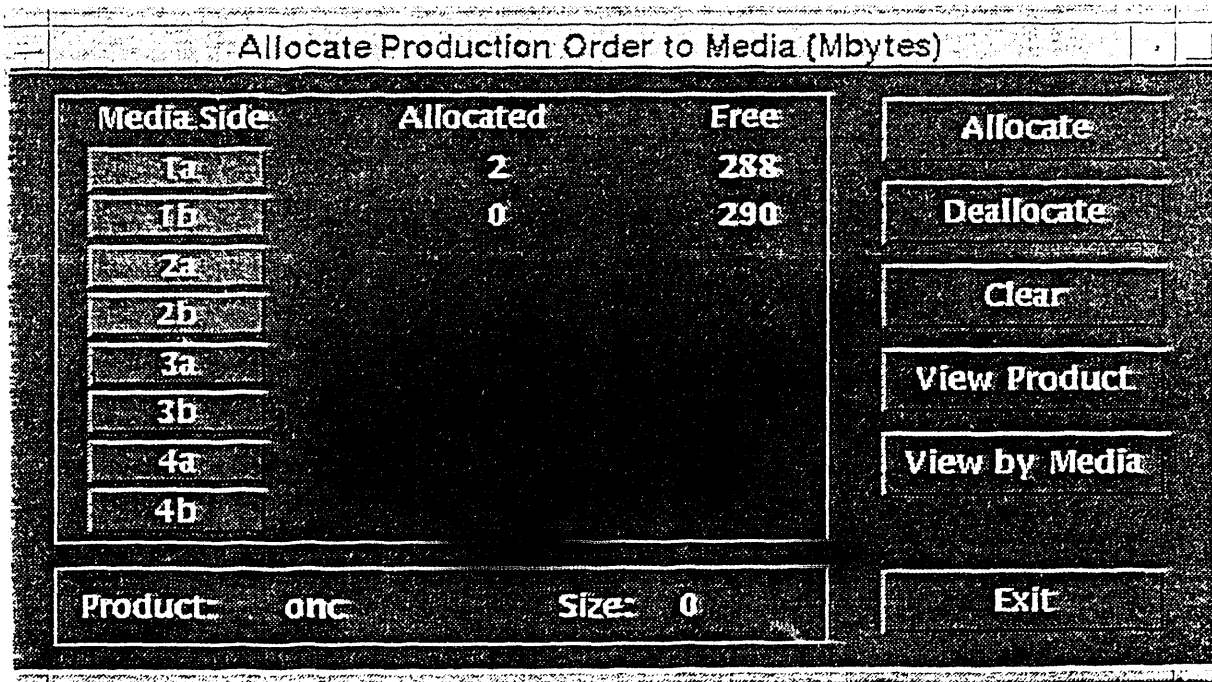


Figure 5-9. Allocate Production Order To Media Window

Hint About Re-Allocating POs:

*You may allocate a PO that has already been allocated. However, you may not add any new data in this case—you may only change the allocation.*

*Note: Unlike the case of editing POs, when you allocate a pre-existing PO, the previous allocation data are not discarded.*

The ALLOCATE PRODUCTION ORDER TO MEDIA window (Figure 5-10) has several buttons besides the **Allocate** button. The **Deallocate** button is used to remove individual frames or areas from the allocation. Using a process similar to allocation, you must designate which frames and which media sides are to be removed. The **Clear** button is used to clear an entire media side. That is, the button is used to remove all frames from one or more designated media sides.

The **View Product** button displays the ALLOCATION BY PRODUCT window (Figure 5-11) with additional information on what has been allocated. In particular, it shows the total allocation in the PO, and the allocation by product. You can examine how much has been allocated, and how much still needs to be done.

The **View by Media** button links the allocation shown in the ALLOCATE PRODUCTION ORDER window to the geographical map display. It allows you to see frame allocation by media side. When you click on the **View by Media** button, the map display is changed to indicate what has been allocated for the current product to the media side or sides selected in the ALLOCATE PRODUCTION ORDER window. While you are in the View by Media mode, a dialog box is displayed reminding you this mode is in use (see Figure 5-12). To return to the normal map display supporting the allocation function, you must click on the **Yes** button in the View by Media dialog box.

To Deallocate a PO:

- 1 - Highlight the name of the PO in the MANAGE PRODUCTION ORDERS window.
- 2 - Click on the **Allocate** button.

The ALLOCATE PRODUCTION ORDER and the PRODUCTS windows will be displayed.

- 3 - Select a product from the PRODUCTS window.
- 4 - Using the left mouse button, click and drag on the map display to create a box that surrounds the area of interest.
- 5 - Use the **Zoom In** button to zoom into the area of interest.
- 6 - Select **Define Allocation** in the Mode pull-down menu.

The mode display area at the bottom of the ALLOCATE PRODUCTION ORDER window will change to reflect the mode change. (See Figure 5-8.)

- 7 - Use the **Add** and **Remove** buttons, as required, to indicate frames to deallocate.
- 8 - Choose the **Apply** button.

The ALLOCATE PRODUCTION ORDER TO MEDIA window will appear, showing the frame size of boxed areas (Figure 5-10).

- 9 - Click on one or more media sides to designate the frame destination.
- 10 - Click on the **Deallocate** button.

A dialog window will appear to confirm the deallocation.

- 11 - Examine the allocation data in the ALLOCATE PRODUCTION ORDER TO MEDIA window. If the information is correct, use the **Yes** button in the dialog window. Otherwise, click on the **Cancel** button.

To Clear one or more media sides:

- 1 - Click on one or more media sides (in the ALLOCATE PRODUCTION ORDER TO MEDIA window) to designate the EODs from which you wish to clear all previously allocated frames.
- 2 - Click on the **Clear** button.

A dialog window will appear to confirm the clear operation.

- 3 - To proceed with the clear of designated media sides, click on the **Yes** button in the dialog window. Otherwise, choose the **Cancel** button.

The display in the Allocate Production Order to Media window will be updated to reflect the clear operation on the selected media sides.

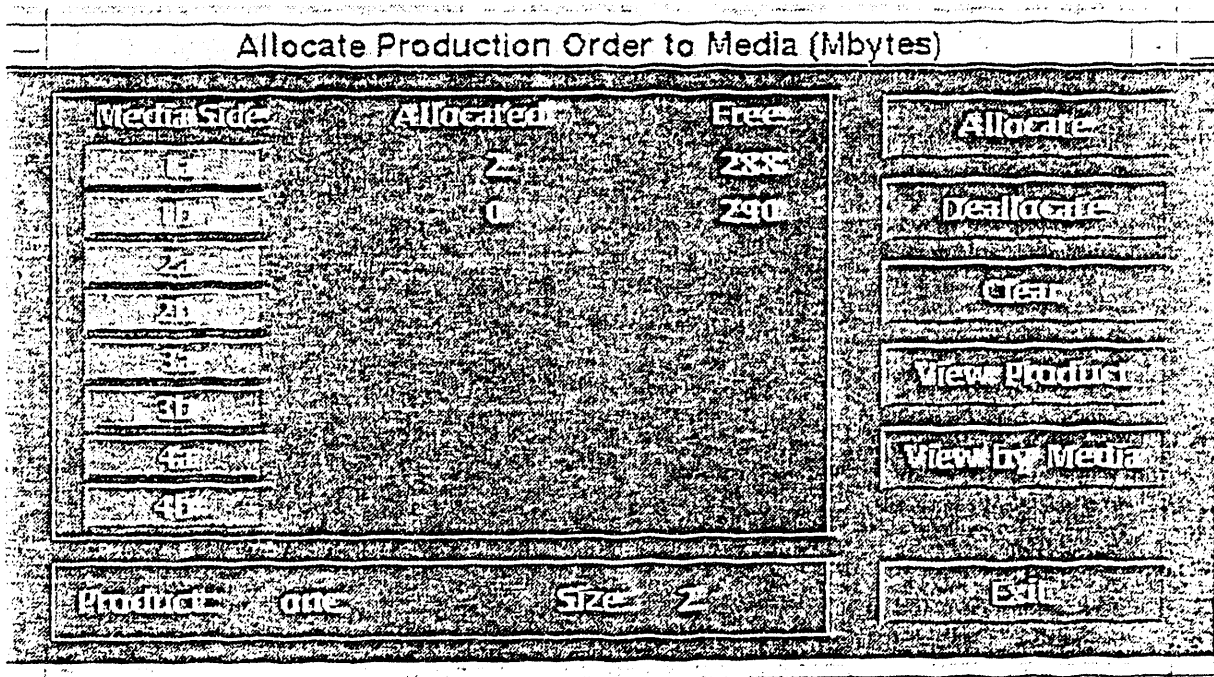


Figure 5-10. Allocate Production Order to Media Window  
Showing the Frame Size of Boxed Areas

Product	Total	Unallocated	Allocated
gnc	0	0	0
jnc	0	0	0
anc	2	0	2
enc	0	0	0
rcg	0	0	0
elm	0	0	0
adm	0	0	0
ctrd/vr	0	0	0
lfc	0	0	0
all	2	0	2

Exit

Figure 5-11. Allocation by Product Window

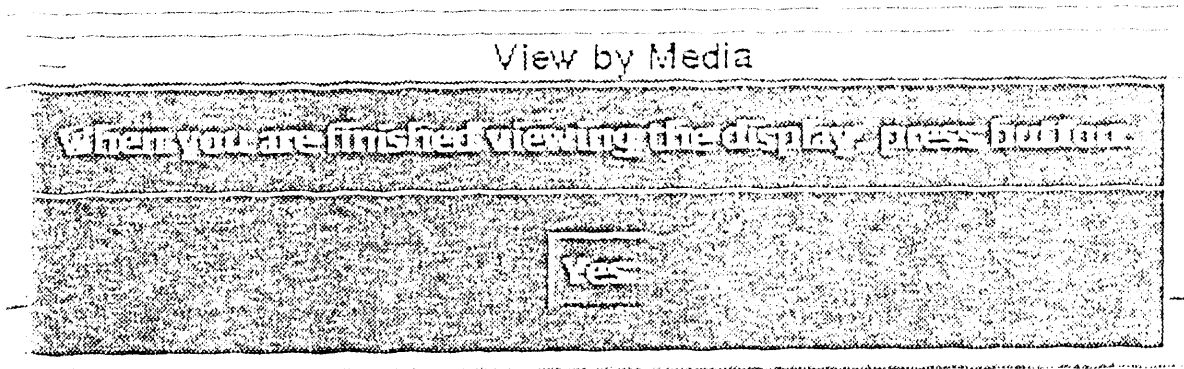


Figure 5-12. View by Media Mode Dialog Window

To View by media:

- 1 - Click on one or more media sides (in the Allocate Production Order to Media window) to designate which EODs you wish the display to represent.
- 2 - Click on the **View by Media** button.

The geographic map display will change to identify the frames selected for the current PO overlaid by the frames that are currently allocated to the selected EOD side(s).

- 3 - A dialog window will appear to allow you to indicate when you are finished viewing the current display. When you are finished, click on **Yes**.

The geographic map will revert to the original display of selected and allocated frames.

*Hint About Multiple Allocations:*

*Frames can be allocated to multiple EOD sides. Areas on the geographic map display that are cross-hatched (SW to NE) indicate frames that have been allocated to at least one side of one EOD. Therefore, deallocating a frame may not remove the cross-hatching; the frame may still be allocated to another media side.*

*For example, if a frame is allocated to two EOD sides and subsequently de-allocated from one of the two sides, the display will still show allocation for that particular frame.*

The **View by Media** button on the ALLOCATE TO PRODUCTION ORDER window is a good way to find areas that are allocated to multiple media.

## 5.7 Delete Production Order

To delete a PO, select the line in the list of POs displayed in the MANAGE PRODUCTION ORDERS window (Figure 5-1). With the line highlighted, click on the **Delete** button. A dialog box will require you to confirm this deletion.

## 6 Building Theater Databases

### 6.1 Purpose

The Build Theater Database function creates customized theater databases for Commercial Control Communication Computers and Intelligence (C4I) systems. CDS uses the information saved in a PO to generate a theater database. Building a theater database requires you to mount input media (EODs or 8mm tapes) from the Processed Data Archive and to mount output EODs on the CDS peripherals. CMS frames selected for inclusion in the PO are copied from the input media to the output media and organized as specified in the PO. The output, EODs and the theater database they contain, can then be distributed to C4I systems.

### 6.2 Startup of Building Theater Databases

To enter the Build Theater Database module, click the **Build Theater DBs** item on the CDS Executive (see Figure 2-8). This action displays a dialog box as shown in Figure 6-1. Choices available in the Build Theater Database module are: **Create Theater Database**, **Replicate Theater Database**, **View Execution Log**, and **Exit**.

**Exit** closes the Build Theater Database menu and returns control to the CDS Executive. The other functions are described in Sections 6.3, 6.4, and 6.5.

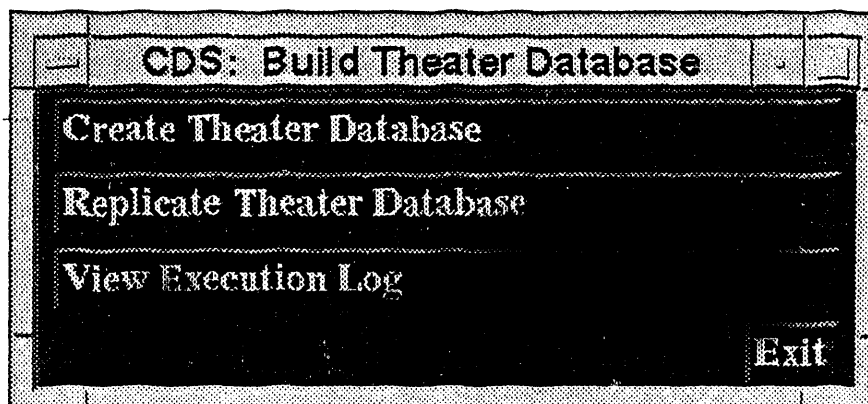


Figure 6-1. Build Theater Database Dialog Menu

### 6.3 Create Theater Database

The Create Theater Database function allows you to generate a theater database on specified output media, based on a specified PO.

To Create a theater database:

1 - Select Build Theater Database on the CDS Executive. Select the **Create Theater Database** item from the Build Theater Database dialog menu.

The PRODUCTION ORDER LOG window will be displayed (see Figure 6-2).

2 - Highlight (click on) a PO in the list displayed in the PRODUCTION ORDER LOG window.

3 - Click the **Create Theater Database** button.

A dialog window will appear, allowing you to enter the theater database name and the destination (see Figure 6-3).

4 - After entering the information, click on the **Done** button.

The THEATER DATABASE window will appear (see Figure 6-4), along with a series of dialog boxes that instruct you to mount the appropriate media (output and input; see Figures 6-5 and 6-6). Follow these instructions and acknowledge them by choosing the appropriate buttons, **Loaded** or **Cancel**.

While CDS builds the theater database from the designated production order, you are kept informed of progress through the THEATER DATABASE window (see Figure 6-4). This window is divided into several panels.

The top panel contains information about the theater database. This information remains static throughout the build.

Beneath the top panel is a second panel containing three scrollable lists. These lists contain the media locators or labels of input or output media required to complete the build of the theater database. As the application is finished reading from or writing to tape or disk, the word **DONE** will appear beside its label in the list.

Below the second panel are two or three more panels that list the drives used to produce the theater database. One panel is provided for each input media type. When a specific drive has no media mounted, the words **DRIVE IDLE** appear beside the drive's descriptor in the list. For media that were mounted on a drive by the user following a prompt by the system, the media locators or labels appear next to the drive descriptors. For all mounted media listed, two numbers are displayed, reflecting how many total frames are to be read or written and how many frames remain to be read or written. As frames are read and written to mounted media, the system updates the second value.

PO Name	Date	Allocation
crash_test2	Apr 13, 1993	Allocated
crash_test	Apr 13, 1993	Allocated
fred2	May 05, 1993	Allocated
Fred	May 05, 1993	Allocated
jog_sleaze	May 10, 1993	Allocated
tapepo	May 14, 1993	Allocated
smalltapepo	May 14, 1993	Allocated
incpo	Jun 17, 1993	Allocated
newtapepo3	Jun 17, 1993	Allocated
newtapepo	Jun 17, 1993	Allocated
newtapepo2	Jun 17, 1993	Allocated
zzzzzzzzzz	Jun 18, 1993	Allocated
yyjhghh	Jun 18, 1993	Allocated
l tape l eod	Jun 18, 1993	Allocated
lksadjklcd	Jun 18, 1993	Allocated
ffdfd	Jun 18, 1993	Allocated

Figure 6-2. Production Order Log Window

Theater Database Name: \_\_\_\_\_

Destination: \_\_\_\_\_

Done Cancel

Figure 6-3. Create Theater Database Dialog Window

CDS: Theater Database			
Production Order: crash_test		Theater Database Name: test	
Creation Date: 02 Mar 93		Theater Database Destination: pri	
Allocation Date: 02 Mar 93			
Comment: cindy's big po			
Allocated output media: 1			
<b>Input Tape List</b>		<b>Input EOD List</b>	<b>Output EOD List</b>
DTXD_0M4_00015		JNC_EOD_00001_H ONC_EOD_00002_D ONC_EOD_00002_B TPC_EOD_00005_D TPC_EOD_00005_F	OM_224_A OM_224_B
Tape Input Drives			
Device	Current Media	# Frames To Extract	# Frames Remaining
/dev/rmt0h	DRIVE IDLE	---	---
EOD Input Drives			
Device	Current Media	# Frames To Extract	# Frames Remaining
/dev/rz3c	DRIVE IDLE	---	---
/dev/rz4c	DRIVE IDLE	---	---
/dev/rz13c	DRIVE IDLE	---	---
EOD Output Drives			
Device	Current Media	# Frames To Copy	# Frames Remaining
/dev/rrz10c	DRIVE IDLE	---	---
# Frames on Temporary Disk	Total Percent Completion		Cancel Build Theater Database
0	0		

Figure 6-4. Theater Database Window

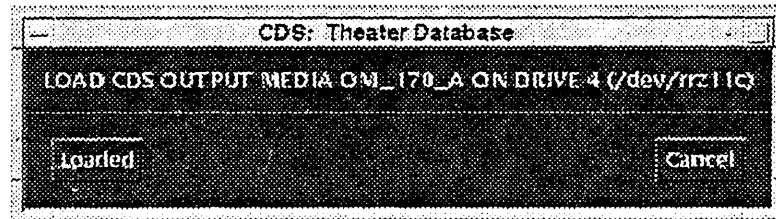


Figure 6-5. Load Output Media Prompt Window

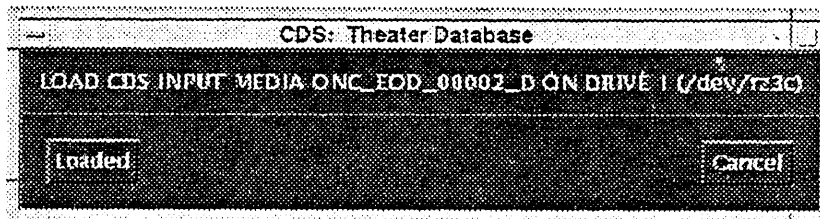


Figure 6-6. Load Input Media Prompt Window

The bottom panel contains three items: the number of frames on the temporary disk space, a percentage complete indicator, and a **Cancel Build Theater Database** button. The number of frames on temporary disk increases as frames are read from input media and decreases as frames are written to output media. The total percentage completion slider bar and value gradually increase as the build progresses. Finally, the **Cancel Build Theater Database** button enables you to cancel the build while it is in progress. More information on the cancel function can be found in a hint box following this discussion.

The number of EODs requested at one time by the Build Theater Database function depends on the number of physical drives and the number of media involved. A maximum of four EOD drives can be used by the Build Theater Database function. The order in which the EODs are requested is:

- Output EODs
- Input EODs

When the system is finished reading/writing data, the dialog boxes disappear and a system message is displayed in the system message line of the CDS Executive:

**Theater database execution complete.**

*Hint About Output EOD Media:*

*Output EOD media, used by Build Theater Database, must be formatted (ULTRIX file system is not required).*

*Hint About Building Theater Databases:*

*Each output media (EOD) is assigned a unique media identifier. When the Build Theater Database function requires the disk, it will prompt you for it by using its unique identifier. Therefore, be sure to write the identifier on the EOD label for easy reference.*

*Hint About Canceling a Theater Databases:*

*If you find, after starting to build a theater database, that you would like to halt its execution, you may cancel it. To do so, click on the **Cancel** button in any remaining input or output media prompt window. Then, click the **Cancel Build Theater Database** button in the lower right corner of the THEATER DATABASE window. It is necessary to respond to any prompt windows before activating the **Cancel Build Theater Database** button because the application waits for the user to interact with those windows before processing any other user input.*

#### 6.4 View Production Order

The View Production Order function enables you to view the contents of a production order selected from the PRODUCTION ORDER LOG window.

To View a Production Order:

1 - Select the **Build Theater Database** item on the CDS Executive. Then, select the **Create Theater Database** item from the CDS Theater Database dialog box.

The PRODUCTION ORDER LOG window will be displayed (see Figure 6-2).

2 - Highlight (click on) a PO in the list displayed in the PRODUCTION ORDER LOG window.

3 - Click the **View Production Order** button.

The PRODUCTION ORDER REVIEW window will appear.

The contents of the PRODUCTION ORDER REVIEW window and its operation are identical to the information presented in Section 5.3.

## 6.5 Replicate Theater Database

This function allows you to make multiple copies of a theater database. After selecting the **Replicate Theater Database** item in the CDS Executive, the REPLICATE MEDIA window (Figure 6-7) appears. To make the copies, you must indicate the number of copies desired, and then click the **Proceed** button. The system will prompt you to insert input and output media, completing all side A duplication and then all side B copies. An example of a dialog window prompting the user to insert an EOD is shown in Figure 6-8. Corresponding dialog windows are used for side B input media, and for output media sides. Copies of multiple source EOD media may be performed concurrently, limited only by the available EOD drives.

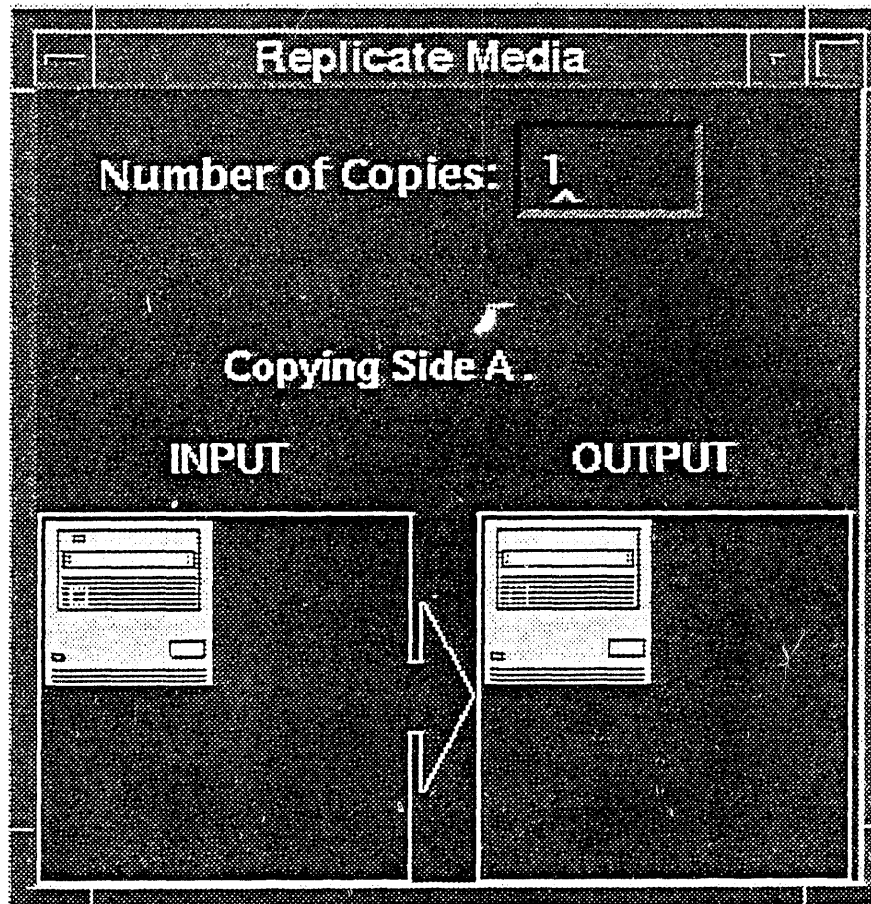


Figure 6-7. Replicate Media Window

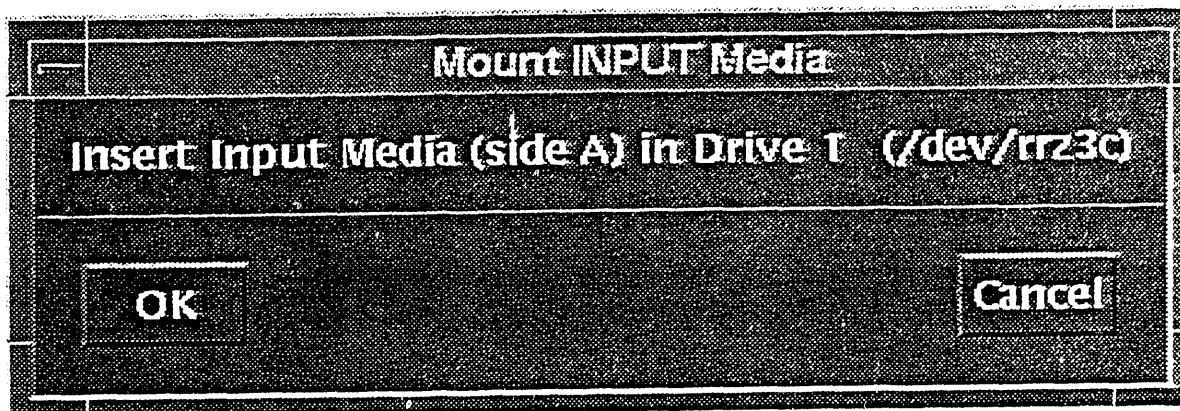


Figure 6-8. Dialog Window Prompting User to Insert EOD

To Replicate a theater database:

- 1 - Select the **Build Theater Database** item on the CDS Executive.
- 2 - Select the **Replicate Theater Database** item from the CSD Theater Database dialog box.

The **REPLICATE MEDIA** window will be displayed (Figure 6-3).

- 3 - Enter the number of copies desired.
- 4 - Click the **Proceed** button, or **Cancel** to return to the CDS Executive.

The **MOUNT INPUT MEDIA** dialog box appears, prompting you to insert side A of the input EOD into a designated drive.

- 5 - Put the desired input EOD into the drive and click on the **OK** button or the **Cancel** button to return to the CDS Executive.

The **MOUNT OUTPUT MEDIA** dialog box appears, prompting you to insert side A of the output EOD into a designated drive.

- 6 - Put the requested output EOD into the drive and select the **OK** button or **Cancel** to return to the CDS Executive.

The replication takes approximately 25 to 30 minutes if the EOD side was fully allocated..

Step 6 is repeated for as many times as the number of copies requested. This completes the replication of side A. Then, Steps 5 and 6 are repeated for side B.

## 6.6 View Execution Log

The execution log contains a record of the theater databases created with CDS. The **EXECUTION LOG** window (Figure 6-9) displays a scrollable list with the following information about each theater database:

- PO name
- PO type (Distributed or Local)
- theater database name
- theater database destination
- date the theater database was created.

COS Execution Log

PO Name	PO Type	TDB Name	TDB Description	Date
PO NAME1	Distributed	tob_name1	tdb_desc1	Aug 29 1992
PO NAME2	Local	tob_name2	tdb_desc2	May 13 1990
PO NAME3	Distributed	tob_name3	tdb_desc3	Jul 14 1992
PO NAME4	Local	tdf	tdf	May 22 1992
PO NAME5	Local	tdf	tdf	May 23 1992
PO NAME6	Local	tdf	tdf	May 23 1992
PO NAME7	Local	tdf	tdf	May 23 1992
PO NAME8	Local	tdf	tdf	May 23 1992
PO NAME9	Local	tdf	tdf	May 23 1992
PO NAME10	Local	tdf	tdf	May 23 1992

Figure 6-9. Execution Log Window

The following buttons are available on the EXECUTION LOG window:

Button	Function
<b>Sort by PO Name</b>	Sorts list in alphabetical order by PO name.
<b>Sort by PO Type</b>	Sorts list in alphabetical order by PO type.
<b>Sort by TDB Name</b>	Sorts list in alphabetical order by theater database name.
<b>Sort by Destination</b>	Sorts list in alphabetical order by destination.
<b>Sort by Date</b>	Sorts list by date with the most recently built theater databases at the bottom (default order).
<b>View Entry</b>	Displays detailed information on a selected entry (see Figure 6-4).
<b>Delete Entry</b>	Deletes the selected entry from the execution log.  <b>WARNING: This operation is permanent and cannot be undone.</b>
<b>Exit</b>	Closes the EXECUTION LOG window.

To View the execution log:

1 - Select the Build Theater Database item on the CDS Executive. Select the **View Execution Log** item from the CDS Theater Database dialog box.

The EXECUTION LOG window will be displayed (Figure 6-9).

2 - Select one of the buttons to sort the information, as desired.

3 - Highlight (click on) a log entry and choose the **View Entry** button to display detailed information on that entry (Figure 6-10).

The EXECUTION LOG ENTRY window in Figure 6-10 contains a scrollable list of the following information:

- each CMS frame included in the theater database
- input media from which the frame was obtained
- output media to which it was copied
- side of the output media on which it was copied.

Frame	Input Media	Output Media	Output Side
fram_197633	JCS ESD 22296 F	CS 12 345	A
fram_197634	JCS ESD 22296 F	CS 12 345	B
fram_198353	JCS ESD 22296 F	CS 12 345	F
fram_198354	JCS ESD 22296 F	CS 12 345	F
fram_198355	JCS ESD 22296 F	CS 12 345	F
fram_198356	JCS ESD 22296 F	CS 12 345	F
fram_197633	JCS ESD 22296 F	CS 12 345	F
fram_197634	JCS ESD 22296 F	CS 12 345	F
fram_198353	JCS ESD 22296 F	CS 12 345	F
fram_198354	JCS ESD 22296 F	CS 12 345	F
fram_198355	JCS ESD 22296 F	CS 12 345	F
fram_198356	JCS ESD 22296 F	CS 12 345	F
fram_197633	JCS ESD 22296 F	CS 12 345	F

This is an empty

Exit

Figure 6-10. Execution Log Entry Window

*Hint About Log Entry Entries:*

*Two EXECUTION LOG ENTRY windows may be viewed at the same time. Simply select a second execution log entry in the EXECUTION LOG DISPLAY window and click on the **View Entry** button again.*

*To remove a EXECUTION LOG ENTRY window, click on the **Exit** button in that window.*

## **7 System Administrative Tools**

**TBD**

## 8 System Utilities

### 8.1 Purpose

System Utilities assist in the maintenance of the integrity and current nature of CDS system data. The system utilities functions are user-level administrative tasks that can be executed only when no other CDS processes are running.

### 8.2 Startup of System Utilities

**NOTES:**

*System Utilities may be run only after all other CDS processes have been terminated and you have exited these processes.*

*No other CDS menu item may be started when System Utilities are active.*

To enter the System Utilities module, click on the **Utilities** item on the CDS Executive (see Figure 2-8). This action displays a dialog box as shown in Figure 8-1, with the following items: **Backup/Restore System Files, Export CDS Processed Data Catalog, Import CPS Source Coverage Catalog, View System Configuration File, Create Tape from EOD, and Exit.**

To close the menu without selecting an item, click on **Exit**.

To select an item and open a window that provides the desired system utility function, click on the item in the utilities menu. The available functions are described in Paragraphs 8.3 through 8.6.

### 8.3 Backup/Restore System Files

The Backup/Restore System Files function allows you to copy critical system data files to an 8mm tape. The tape can be used to restore the files to the original directory or to another directory of your choice.

The **BACKUP/RESTORE UTILITY** window is shown in Figure 8-2. This window contains a message field indicating the current status of backup or restore operations. It also contains buttons for backing up, restoring, and exiting the window.

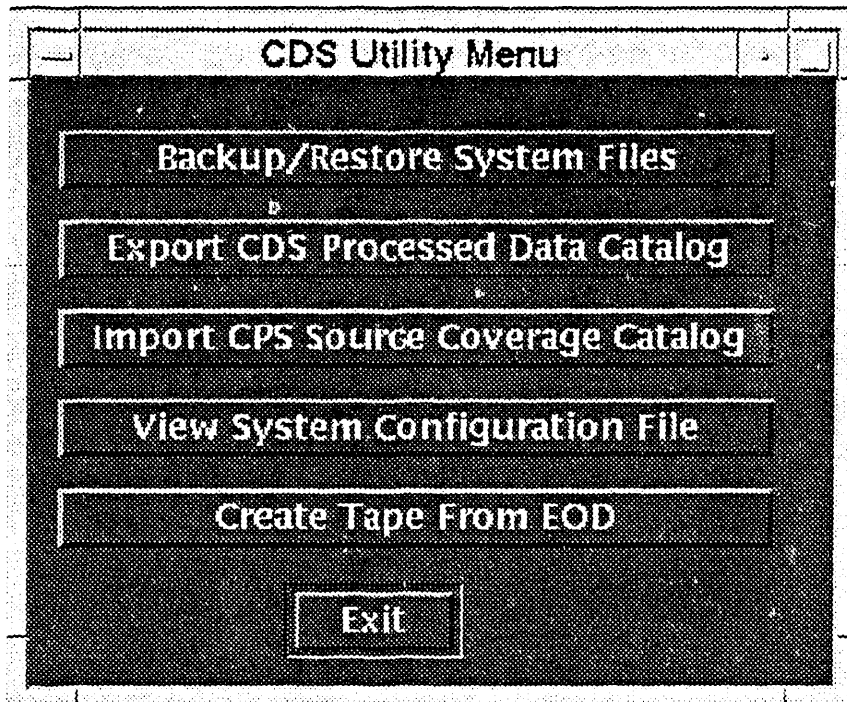


Figure 8-1. System Utilities Dialog Box

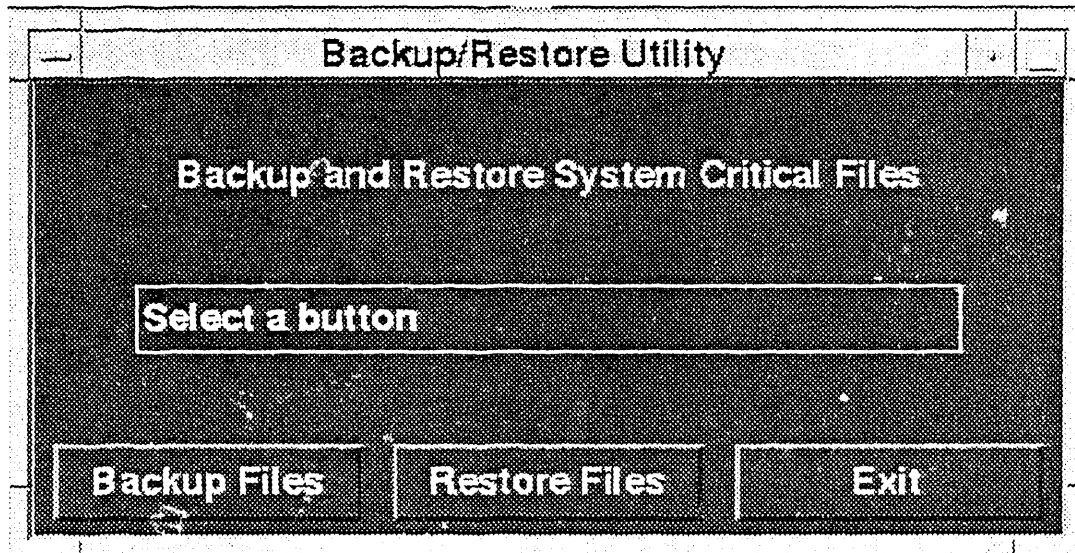


Figure 8-2. Backup/Restore Utility Window



1.0



1.1



1.25



1.4



1.6



2.8



2.5



3.2



2.2



3.6



2.0



4.0



1.8



4.5



5.0



5.6



6.3



7.1



8.0



9.0



10

**2 of 2**

To Backup critical CDS data files:

1 - Select the **Backup/Restore System Files** item in the System Utilities menu.

The BACKUP/RESTORE UTILITY window will appear.

2 - Click on **Backup Files**

The TAPE LOAD dialog window will open with instructions to load a tape in a specified drive.

3 - Load the tape in the drive.

**CAUTION:** All information currently on the tape will be overwritten by the backup files.

4 - Click on **OK** to begin the backup, or **Cancel** to exit the TAPE LOAD dialog window.

The message, **Backup completed**, then appears in the status area of the BACKUP/RESTORE UTILITY dialog box.

5 - Click the **Exit** button to close the BACKUP/RESTORE UTILITY window.

To Restore critical CDS files to the current system execution path:

1- Select the **Backup/Restore System Files** menu item in the System Utilities menu

The BACKUP/RESTORE UTILITY window will appear.

2 - Click on the **Restore Files** button.

The Restore dialog window will appear with an input field and a message field displaying the default path.

3 - Click the **Default Path** button to restore files for the current system execution path. (*To restore to a different path, see the hint box that follows.*)

(The **Cancel** button returns the screen to the BACKUP/RESTORE UTILITY window without performing a restore operation.)

The TAPE LOAD dialog window will appear with instructions to load a tape in a specified drive.

**CAUTION:** Files with the same names in the default path will be overwritten by the backup files.

4 - Click the **OK** button to begin the restore, or **Cancel** to exit the TAPE LOAD dialog window.

A message indicating the status of the restore operation will appear in the status area of the BACKUP/RESTORE UTILITY dialog box.

5 - Click the **Exit** button to close the BACKUP/RESTORE UTILITY window.

In some circumstances, you will need to restore the system files to a location other than the default path. To do this, you need to specify a user path, as described in the following hint box.

*Hint About Restoring Files via the User Path:*

*In the RESTORE dialog window, click in the input field and type the path to be used, for example,*

*/user1/cps/copy\_1*

*Note: The path name must be a directory that already exists.*

*After typing the path name, click the **User Path** button. The TAPE LOAD dialog window will open with instructions to load a tape in a specified drive.*

*Complete the restore operation in the same manner as previously described in Steps 4 and 5 for the default path restoration.*

#### **8.4 Export CDS Processed Data Catalog**

When CDS Processed Data Catalog files have been updated, a copy should be made available for use by CPS. To do so, simply click on the **Export CDS Processed Data Catalog** item in the System Utilities menu. When the coverage data are successfully copied, a system message is displayed. This allows the CPS system to display current geographic coverage for processed CMS data.

#### **8.5 Import CPS Source Coverage Catalog**

When CPS informs CDS that CPS SCC files are available for copying, an alert message is displayed. To begin the copy process, click on the **Import CPS Source Coverage Catalog** item in the System Utilities menu. The system displays an alert message then the copy completes successfully.

#### **8.6 View System Configuration File**

This menu item allows you to view the configuration file. An informational display shows you which devices are connected to the system, the list of supported products, and the directories specified for use by CDS. This is provided to allow you to check for possible configuration errors. If an error is detected, notify your system administrator or refer to the system administration manual.

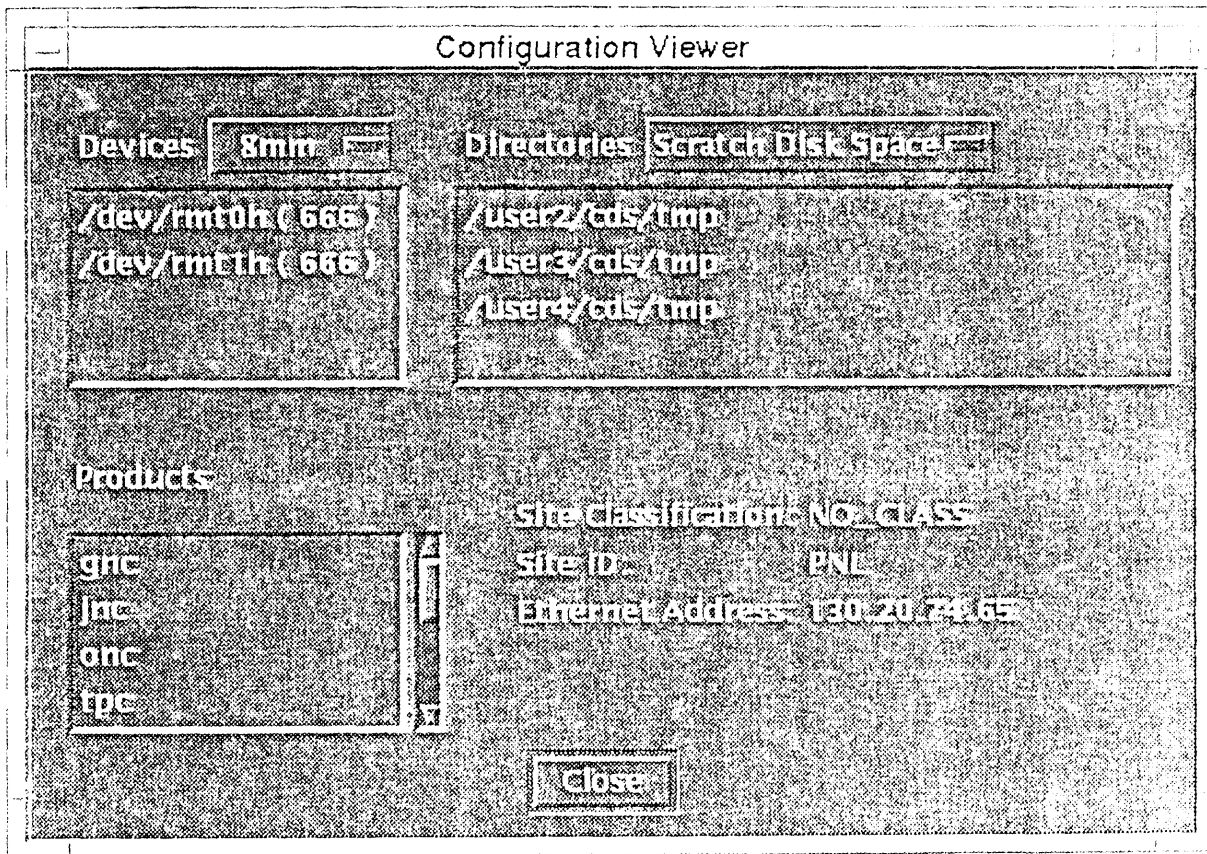


Figure 8-3. Configuration Viewer Window

The CONFIGURATION VIEWER window is shown in Figure 8-3. This window displays information on available devices, directories, and products. You can select the device type and directory lists (shown at the upper left and right, respectively). The products list (shown at the lower left) is static and cannot be changed.

To choose a device type, click and hold down the mouse button with the pointer over the **Devices** option menu button. The option menu will appear (Figure 8-4). Select the type of device by releasing the mouse button when the desired device type is highlighted. The resulting list shows the names of all system devices of the specified type (such as all 8mm tape drives, or all CD-ROMs).



Figure 8-4. Devices Option Menu Selections

To choose a directory, click and hold down the mouse button with the pointer over the **Directories** option menu button. The option menu will appear (Figure 8-5). Select the directory by releasing the mouse button when the desired directory is highlighted. The resulting list shows the names of all directories of the specified type.

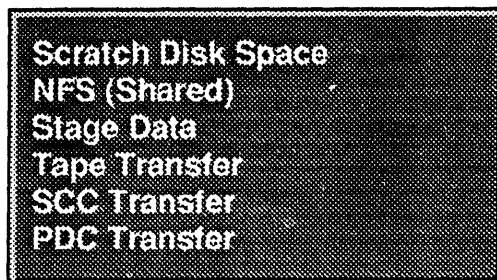


Figure 8-5. Directories Option Menu

Other data shown in the CONFIGURATION VIEWER window are the Site Classification, the Site ID, and the Ethernet Address of the site.

When you are finished viewing the configuration file, click on the **Close** button to shut the CONFIGURATION VIEWER window.

The CREATE TAPE from EOD menu item is provided to allow the distribution of processed CMS data to other CDS sites. This feature can be utilized to reduce the amount of preprocessing required at a site, as well as the source media required for the operation of a site.

A tape produced from this operation will be identical to a tape created by a CPS system operating in degraded mode. It can be used by a CDS system through the Load Tape option of the MPD menu. However, only a single processed data archive EOD side can be copied to a tape. Copying multiple EOD sides to the same tape is not supported.

To create a tape with this function, click on the create tape from EOD menu item in the CDS utility menu. A dialog window will appear (titled mount 8mm) requesting the output tape to be inserted in a specified tape drive. Press **OK** when the tape is inserted. A second dialog window

then appears (titled: Mount EOD) requesting the input EOD to be inserted in a specified EOD drive. Press **OK** when the EOD is inserted. Both dialog windows provide the ability to cancel. Once the copy is in process a dialog window is displayed (titled MKDMT) with a **Processing** message that is updated. A cancel button is provided to terminate the copy process. When the copy completes or is canceled a message is displayed in the CDS banner.

To Create Tape from an Archive EOD:

1 - Click on the Create Tape from EOD menu item in the CDS UTILITY MENU

The MKDMT window will appear overlaid by the MOUNT 8MM window

2 - Insert the 8mm output tape in the indicated tape drive. Press **OK**.

The MOUNT EOD window will appear.

3 - Insert the archive EOD side you wish to copy to tape in the indicated EOD drive. Press **OK**.

The MKDMT window will indicate that this function is processing your request. A cancel button is provided to terminate the copy function before completion. When the copy is complete, the CDS banner will contain the following message: "MKDMT: process has been completed."

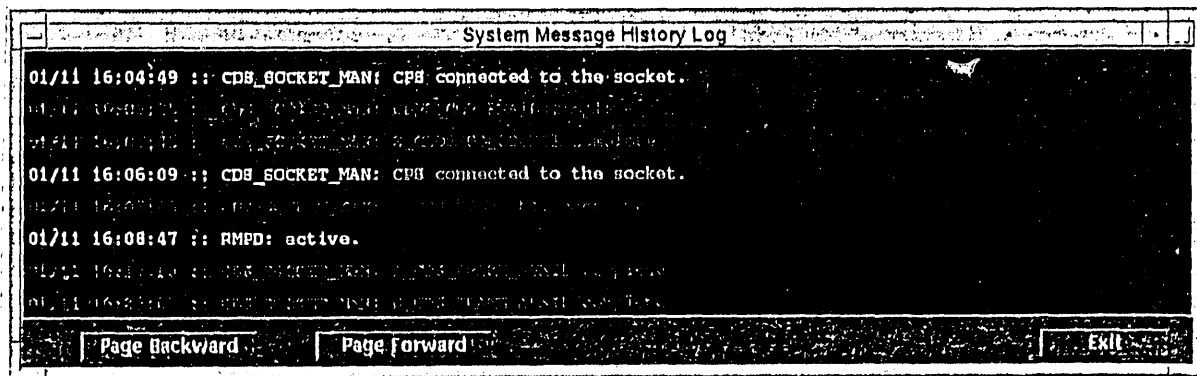
4 - To exit the utilities menu, press **Exit**.

## Appendix A: System Messages

Five types of system messages are defined for CDS (see Table A-1). As shown in the table, system messages are color-coded according to the message type. All messages, except diagnostic messages, appear on the system message line of the CDS Executive display. A list of all system messages (including diagnostics) encountered in the current session may be found in the SYSTEM MESSAGE HISTORY LOG window. To view this window, click on the **Log** button on the second line of the CDS Executive display. Figure A-1 is an example of the SYSTEM MESSAGE HISTORY LOG window.

**Table A-1. System Message Types**

<u>Error Code</u>	<u>Type of Message</u>	<u>Color</u>	<u>Message Description</u>
D	Diagnostics	Blue	Informational, but not essential
A	Alerts	White	Informational
W	Warnings	Yellow	Potential problem that may require user intervention
E	Errors	Red	System recoverable error
F	Fatal Errors	Red	Nonrecoverable error; user should restart system



**Figure A-1. System Message History Log Window**

## Appendix B: Glossary

### B.1 List of Acronyms

<u>Term</u>	<u>Definition</u>
ADRI	ARC Digital Raster Imagery
ARC	Equal Arc-second Raster Chart/Map
CDPS	CMS Data Production System
CDROM	CD-ROM, Compact Disk Read-Only Memory
CDS	CMS Distribution Subsystem
CMS	Common Mapping Standard
CPS	CMS Preprocessing Subsystem
DTED	Digital Terrain Elevation Data
EOD	Erasable Optical Disk
GNC	Global Navigation Chart
GUI	Graphical User Interface
JNC	Jet Navigation Chart
JGA	Joint Operations Graphics - Air
LFC	Low Flying Chart
MPD	Manage Processed Data
MPO	Manage Production Orders
MSS II	Mission Support System II
NFS	Network File System
NW-SE	Northwest-to-Southeast
ONC	Operational Navigation Chart
OSF	Open Software Foundation
PDC	Processed Data Catalog
PO	Production Order
RMPD	Receive and Manage Processed Data
SCC	Source Coverage Catalog
TDB	Theater Database

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Acronym

TLM

TPC

WWMC

Definition

Topographic Line Map

Tactical Pilotage Chart

World Wide Media Cell Database

## **B.2 Definitions of Frequently Used Terms**

<b>Allocation</b>	The process by which the user designates the destination EOD side for previously selected CMS frames in the current PO.
<b>Cascade menu</b>	A pull-down menu within a another pull-down menu (not currently used in CDPS).
<b>Click</b>	Act of rapidly pressing and releasing one of the buttons located on the mouse.
<b>Degraded mode</b>	Mode in which CPS and CDS have no socket connection for transferring frames.
<b>Display</b>	See Window.
<b>Dragging</b>	Act of pressing and holding down the first mouse button while moving the mouse.
<b>Execution Log</b>	An alphanumeric database that contains a historic record of theater databases that have been created on a particular CMS Distribution Subsystem (CDS).
<b>Frame</b>	Unit of distribution for CMS data.
<b>Icon</b>	Window that has been shrunk into a small button for conserving space on the display.
<b>Media Locator</b>	A label assigned to each of the media in the Processed Data Archive that uniquely identifies that media. The media locator identifies the type of media (EOD or 8mm tape), the product type of the CMS data on the media, the unique number of the media, and the media side (for EODs).
<b>Media Log</b>	An alphanumeric database that contains a list of the CMS frames that are stored on each media in the processed data archive.
<b>Motif</b>	Commercial toolkit of graphical functions for writing applications using X Windows.
<b>Mouse</b>	Device used to move the pointer across the screen for selecting items and moving windows.

<u>Term</u>	<u>Definition</u>
Option menu button	One that looks like a pushbutton, except it has a minus sign that appears three-dimensional to the right of the button text.
Pane	A portion of a window that can be resized by the user.
Pointer	Screen image controlled by the mouse to allow user interaction with applications running in X Windows.
Pop-up menu	Menu displayed when the right mouse button is depressed (not currently used in the CDPS).
Preprocessing	CPS function for converting data in various formats to the CMS format.
Processed Data	Source data that has been converted by CPS (preprocessed) to the CMS frame file format.
Processed Data Archive	The collection of EODs and 8mm tapes that store CMS frame data.
Processed Data Catalog	Database containing coverage information about the processed CMS data that are available.
Production Order	A data file that contains a list of selected CMS frames and their allocation scheme. Executing a PO creates a theater database.
Pull-down menu	One activated by pressing the left mouse button and dragging the pointer to highlight or outline the desired section.
Pushbutton	Generally associated with a single action. Activated by clicking on it with the mouse.
Radio button	Set like a toggle button; click on diamond or text to change diamond color; can only be reset by choosing another radio button from the group.
Root window	Background against which all other windows are displayed. Also known as the desktop.
Selection	Process in which the user selects the specific CMS frames for one or more products to be included in a PO.

<u>Term</u>	<u>Definition</u>
Separator line	Horizontal line often used on menus to separate items into similar groupings.
Socket	A form of communication, utilized by CPS and CDS for network communication
Source Coverage Catalog	A database containing coverage information about the source data available for preprocessing.
Source Data	Digital map, imagery, and elevation data available for preprocessing. The data are available in various formats and contained on various media types.
Task definition	Process of selecting source data to be preprocessed.
Task number	Unique number assigned to a task when created.
Theater Database	A set of EODs that contain CMS frame data. Theater databases are created by CDS and then distributed to users in the field.
Toggle button	Used to set a state ON or OFF; in appearance a small square pushbutton with text label to the right.
Transfer Log	An alphanumeric database that contains a historic record of the CMS data that have been transferred from the CMS Preprocessor Subsystem (CPS) to the CMS Distribution Subsystem (CDS).
Unix	Operating system that controls the computer and translates user commands into commands the computer understands.
Widget	An object within a screen display, such as a toggle button.
Window	Region on the screen used to display information to the user.
Windows	Network-based graphical interface developed by MIT in 1984.
World Wide Media Cell Database	A database that geographically partitions the world into areas of CMS Data coverage that fit on an EOD side.

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