NEC

APPLICATIONS MANAGER (APM)

OPERATIONS MANUAL for OS5

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Chapter 1 Introduction

The Applications Manager

The name 'Applications Manager' (APM) refers to the menu-driven manager of a multi-application environment. It also refers to the communication platform that interfaces that application environment with remote systems and PBX functionality. (Please see Figure 1-1.)

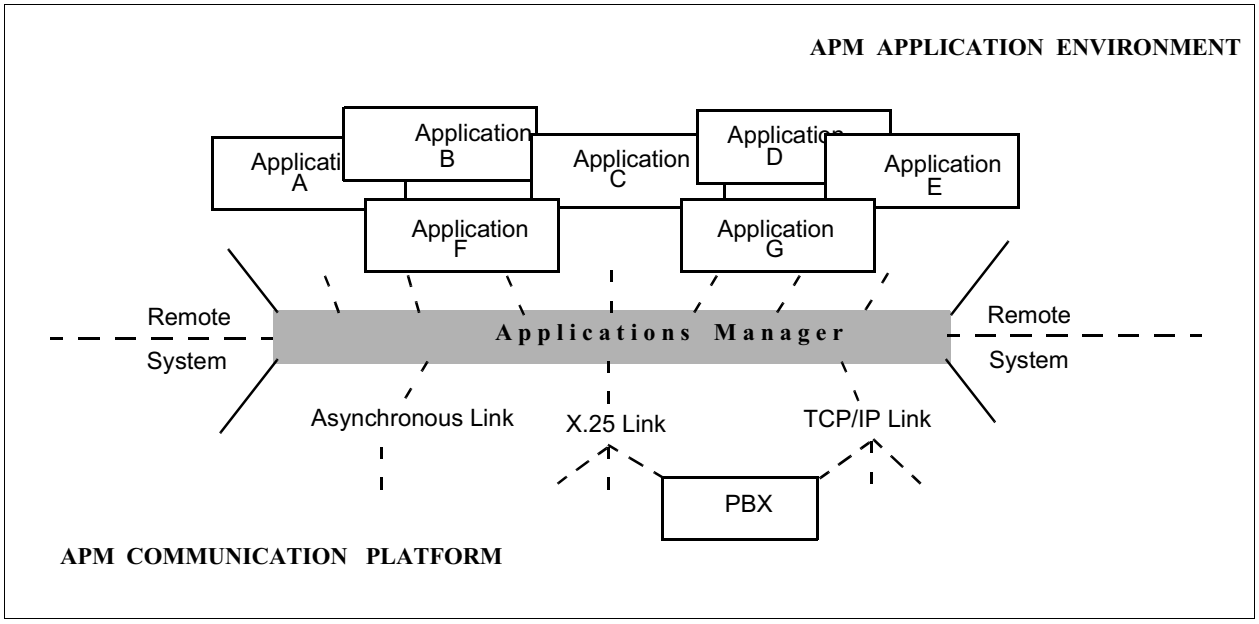


Figure 1-1 Applications Manager

APM functionality in these environments can be summarized briefly as follows:

- **APM Application Environment** – The APM menuing system consists of an Operator Interface which presents a series of interactive menus, data entry screens, and information displays and a Monitor Process which performs APM system control functions and communication exchanges as a background process. The Monitor activates Operator Interface commands, displays and logs system messages, and manages the transfer of multi-application messages. Specific areas of APM menu support include the following:
  - APM, OAI, and Host System Configuration
  - OAI and Non-OAI Application Configuration
  - Database Creation and Maintenance
  - OAI System Initialization and Termination
  - Application Initialization and Termination
  - System and Application Status Monitoring and Reporting
  - Transfer, Display and Log Maintenance of System, Application and Error Messages

The Applications Manager (Cont)

APM supports both OAI and a non-OAI applications, applications which function as background processes or provide complex user interfaces, and applications that are configured into groups with defined interdependencies.

- **APM Communication Platform –** The APM platform management component enables the system administrator and application developers to manage the APM and its files as well as to test and debug applications that are to be governed by the APM. Specific areas of APM platform support include the following:
  - APM Initialization and Termination
  - Application and Software Package Installation and Removal
  - Debugging Facilities, with Link Tracing and Simultaneous File Viewing Capabilities
  - Configuration of UAP
  - APM File Archiving
  - PBX Simulator for Application Testing
- **Remote System Communication –** The APM supports communication with a remote system via the following two components:
  - Remote Host Communication Interface (HCI) – enables applications from remote systems to communicate with APM-supported applications. Using the HCI, for instance, an application on a remote system (in another building or another city) can update the database of an APM-supported application that interacts through OAI with a local NEAX IMS. The remote system can be a PC with MS/DOS, a machine on an ethernet network, or another UAP. (Refer to Host Communications for more information.)
  - Database Manager (DBM) – performs database functions as requested by local and remote applications through the Host Communications Interface. (Refer to the APM Programming Manual for more information about the DBM.)

The Host Communications Interface and the Database Manager are accessed by applications and not through the APM menuing system. For this reason they are both addressed in the **APM Programming Manual** rather than in this manual.

Manual Organization

This manual describes in detail the APM's management functionality in both the application and the platform environment via the APM menuing system. The remainder of **Chapter 1** provides general information about the APM Operator Interface, including descriptions of its structure, security, and screens. **Chapter 2** provides detailed descriptions of the APM platform management processes that are accessed through the APM Platform Administration Main menu. **Chapters 3 through 5** provide detailed functional descriptions of the three major menus of the APM Operator Interface – System Administration, System Operations, and Database Entry. The descriptions contained in these chapters follow the hierarchy of the menu structure in an attempt to present information and procedural guidance at the point at which it is most required by the menu user. **Chapter 6** presents the error messages that may be displayed and the procedures that are necessary for recovery from them.

Related Documents

- **APM Installation Manual** – Provides detailed procedural instructions in the installation of the APM to various operating system, including link software packages and applications.
- **APM Programming Manual –** Prepared for the developer of an application that is to be supported by the APM and provides guidelines for application design, the function and parameter definitions for specific routines and utilities, and error recovery procedures. This manual also includes access and user information for the Database Manager.
- **Specific Application Operations Manuals, User Guides, and Installation Guides –** Provide application-specific information on the installation and use of applications developed for the APM environment.
- **Remote Host Communication Interface –** Provides information on software installation, configuration, and programming of remote systems for communication with APM applications.
- **PBX Simulator Operations Manual –** Provides detailed reference and procedural information in the use of the OAI/PBX Simulator for application testing.

APM Platform Main menu

Entry from the login displays the APM Platform Main menu. This menu provides access to the APM platform management functionality, the PBX Simulator, and the APM system interface. (Please see Figure 1-2.)

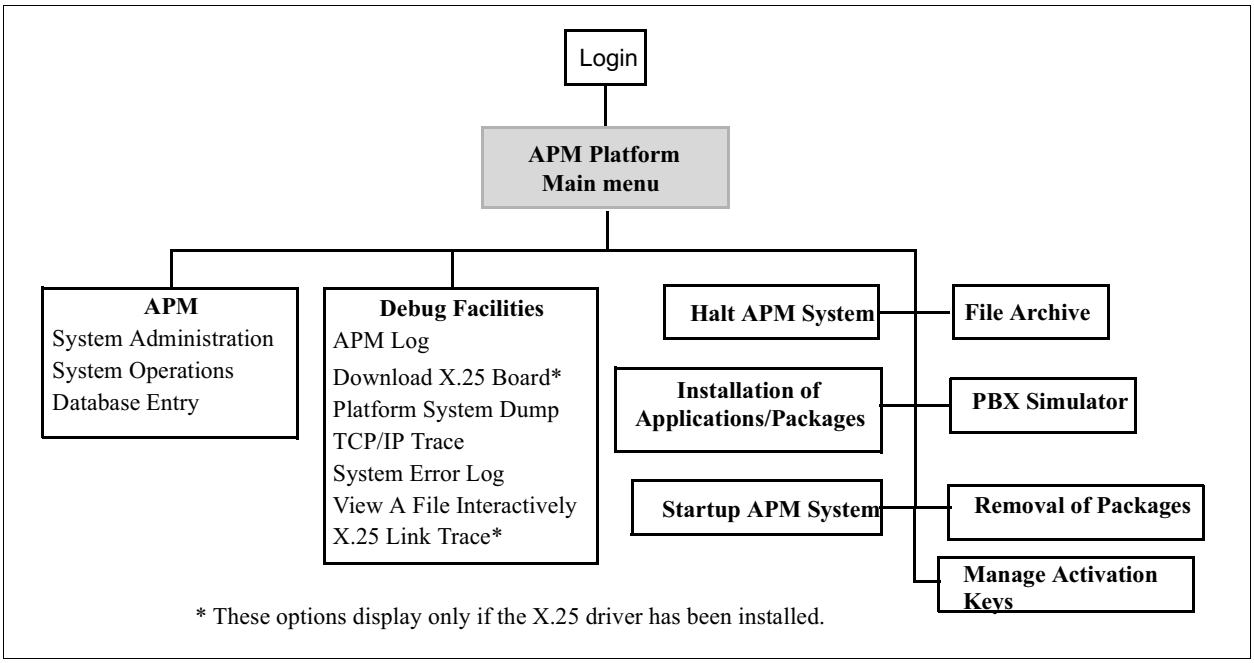


Figure 1-2 APM Platform Menu System

The APM option on the APM Platform Main menu displays the APM password security screen which provides access to the three menu systems of the APM interface. These are described briefly under the APM option on the APM Platform Main menu and thoroughly in the remaining chapters in this manual.

Chapter 2 Platform Management

When the "**apmadm"** login name is entered, the following APM Platform Administration Menu displays with the options that are described below:

(Please see Figure 2-1.)

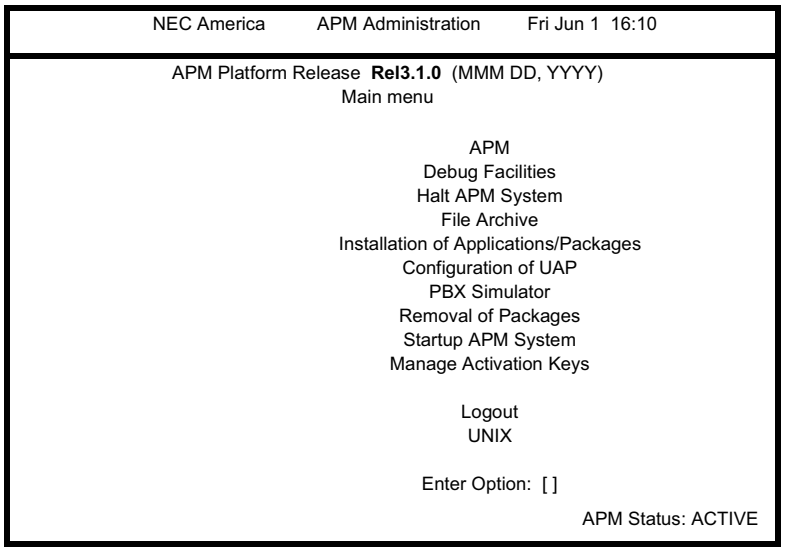


Figure 2-1 APM Platform Management

Notes

The APM Platform Administration Main menu provides the following features:

- **APM –** Provides access to the Applications Manager (APM) through its password security screen.
- **Halt APM System –** Removes all APM processes and system data structures but does not re-initialize the system.
- **Debug Facilities –** Used to troubleshoot any communication problem in the APM platform between the UAP and the PBX and to monitor APM message logs.
- **File Archive –** Displays a menu of file system management tools.
- **Installation of Applications/Packages –** Used to install application software and layer software packages.
- **Configuration of UAP –** Used to change various settings of the UAP such as time, timezone, and name of the UAP as well as to setup the UUCP/CU files.
- **PBX Simulator –** Provides access to the PBX Simulator if it is installed. If the PBX Simulator is not installed, this option does not appear on the Main menu.
- **Removal of Packages –** Used to remove software packages from the system.
- **Startup APM System –** Removes all APM processes and system data structures and then re-initializes the entire APM system.
- **Manage Activation Keys** - Used to maintain application license information.

- **Logout –** Returns the cursor to the UAP login prompt.
- **UNIX –** Provides entrance into the */oai* directory at the operating system level. Refer to a UNIX System Programmer's Reference Manual if necessary. Enter **Ctrl D** to return to the UAP login prompt.

Procedure

Action	Result
Enter the first letter of the desired APM Platform Administration Main menu option at the prompt and press RETURN.	The desired option displays. **Note:** *After the selection is made, there is a pause while the system reads in the file of the option selected.*
To exit the APM Platform Administration Main menu: Select the **Logout** option and press RETURN.	

APM

The APM option on the APM Platform Administration Main menu provides access to the APM password screen for entry at the Administrator, Operator, or DataEntry level of security. (Please see Figure 2-2.)

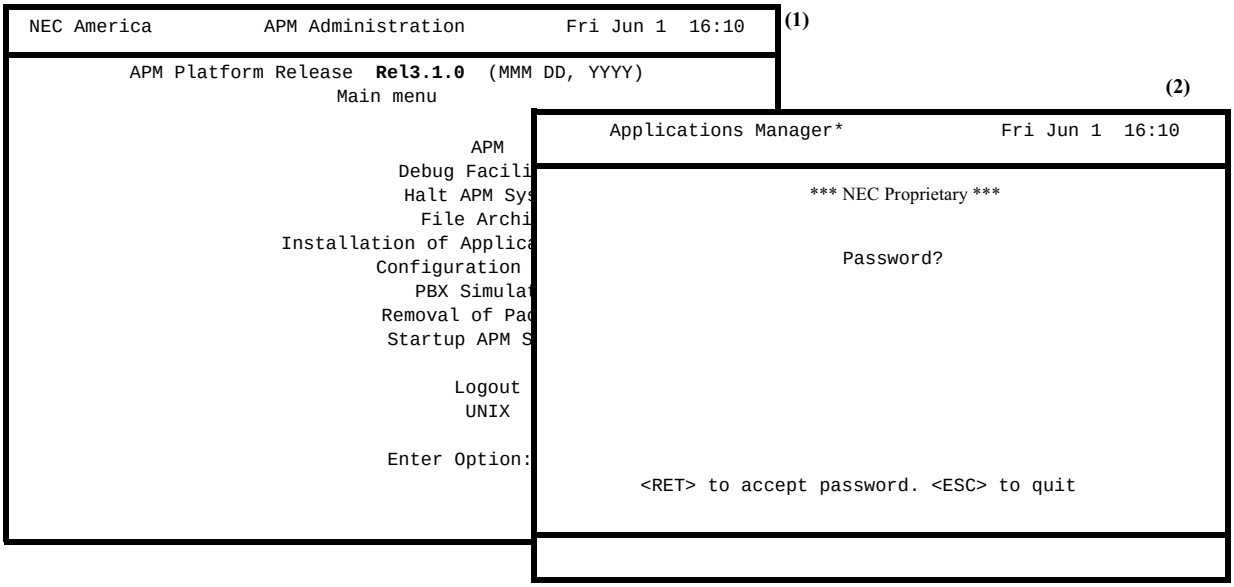


Figure 2-2 APM Entry

Notes

The APM consists of three major menu systems each of which is entered through password security and each of which represents a different degree of restriction within the overall system. These three menus are briefly described below and in detail in the chapter indicated for each.

- System Administration – – Default Password **apm0** (Chapter 3)

  The Administrator menu is used to configure and control the APM system and the applications supported by it. Since the APM Administrator requires full system access, this level of security is the least restricted. The Administrator should be familiar with the OAI system architecture and the APM's interaction with it. This level of security provides indirect access to the Operator and DataEntry levels and direct access to the System Administration functions that are summarized below: (Please see Figure 2-3.)

  - Configuring the OAI system
  - Configuring applications
  - Creating master and application databases
  - Defining process control values
  - Maintaining menu security

Notes (Cont)

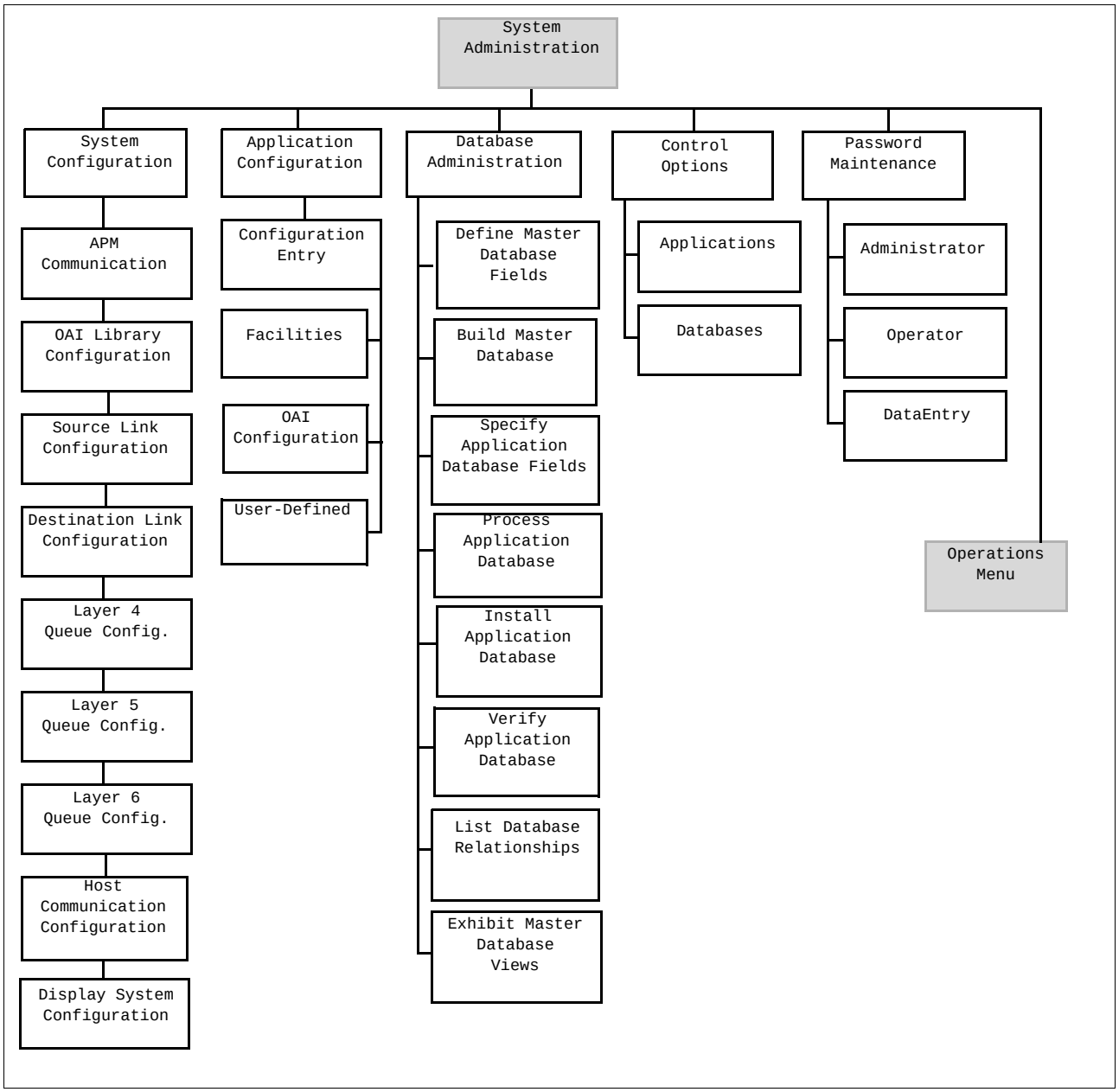
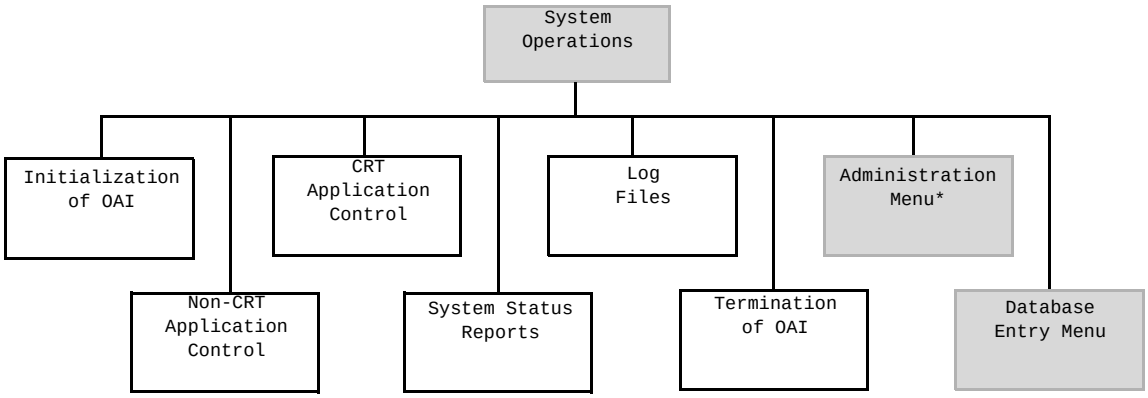


Figure 2-3 System Administration

Notes (Cont)

- **Operator –** Default Password **apm1** (Chapter 4)
  The System Operations menu is used to monitor and manage daily operation of the APM system and its applications. This mid-range level of security is provided for System Operators who are responsible for managing the daily operation of the system. The Operator should be functionally familiar with the APM and its role in the OAI system. This level of security provides access to the Database Entry level and, from the Database Entry Menu, return access to the Operations Menu. The System Operations Menu provides the functions that are summarized below: (Please see Figure 2-4.)
  - Initializing the OAI system
  - Controlling application initialization and termination
  - Monitoring operational status of active applications
  - Viewing system log files
  - Terminating the OAI system



* Option included on Operations menu only if APM was entered via the Administrator password.

Figure 2-4 System Operations

- **Data Entry –** Default Password **apm2** (Chapter 5)
  The Data Entry menu is used to enter records, change existing records, delete records, and view data in the master database files. This level of security is the most restricted, allowing only data entry operations. This level is used by OAI Data Entry personnel who require easy access to enter data to the master database and who require the least amount of knowledge about the APM systemwide structure. Entry of the designated DataEntry password provides access only to the Database Entry subsystem. (Please see Figure 2-5.)

Notes (Cont)

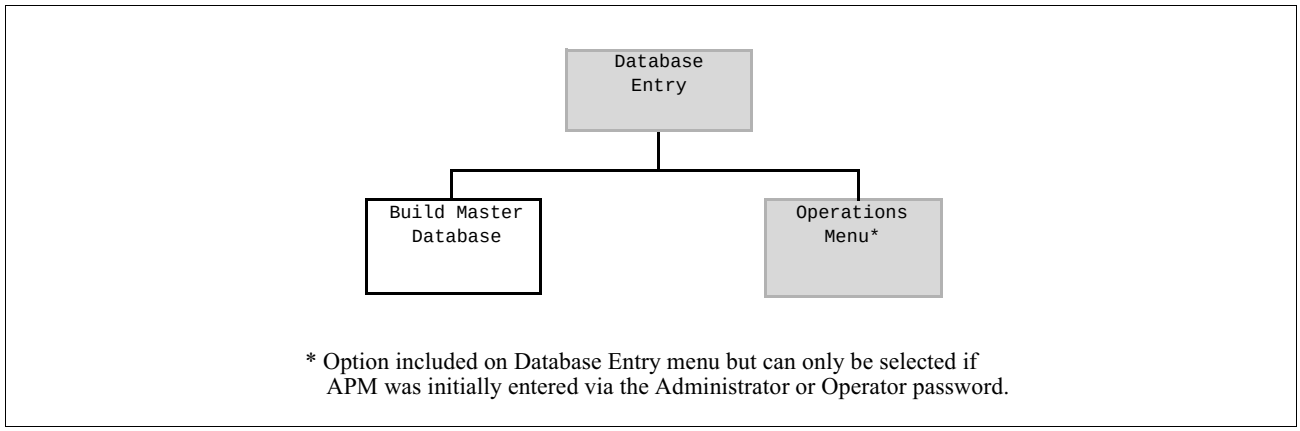


Figure 2-5 Database Entry

- **Password Entry –** Once the APM is initiated, security is implemented at the first screen, Password Entry. When a valid password is entered at the Password Entry screen, the menu corresponding to the security level of the password displays. Entry of a password displays the menu which is the highest authorized for that password. If an unrecognized password is entered, an "Invalid Password" message displays. Pressing ESC directs the user back to the system login prompt.
- **Direct Menu Entry –** Direct movement is permitted between levels of security that are equal to or lower than the level initially entered from the password entry screen. The System Administration menu provides an option of moving directly to the System Operations menu and from there to the Database Entry menu, without returning to the Password Entry screen. Similarly, the System Operator can move directly to Database Entry without going through the Password Entry screen. However, access to a higher security screen (i.e., System Operations) from a lower security screen (i.e., Database Entry) is restricted according to the password in effect. If, for instance, the Operator password was originally entered, the system operator can move directly from the Database Entry screen to the System Operations screen. But, direct movement from the System Operations screen to the System Administration screen is prohibited to the Operator. Likewise, the data entry password prohibits movement to either of the other two menus from the Database Entry menu.
- **Screen Format –** A typical APM screen includes the following five components: (Please see Figure 2-6.)

Notes (Cont)

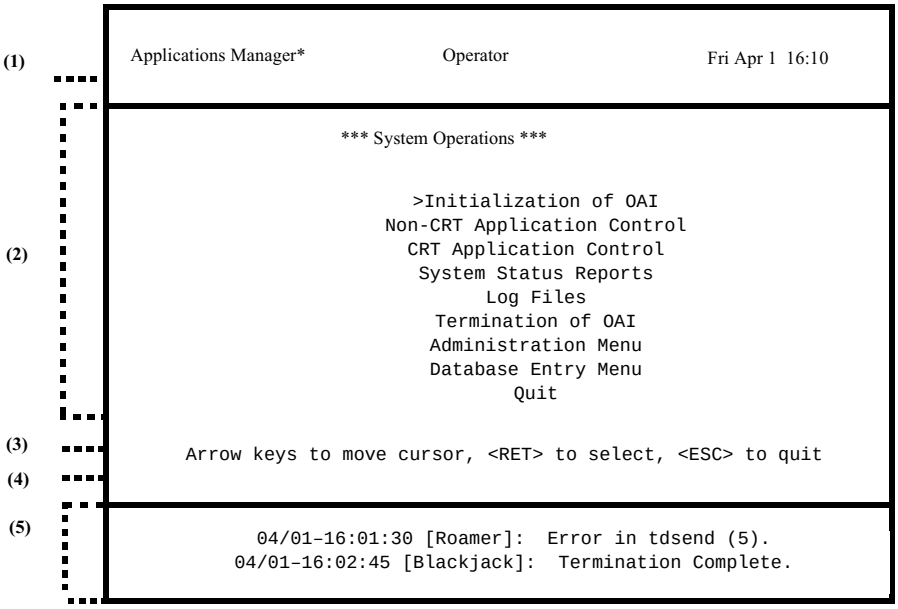


Figure 2-6 Screen Format

Header

The top line of the screen identifies the Applications Manager, the security level in effect (Administrator, Operator, Data Entry), and an approximate date and time of the display, updated about every minute.

Note: *If the system is initialized, an asterisk will immediately follow the words **Applications Manager.***

Menu Area

The large area of the screen is used for data displays such as menus, file displays or data entry fields.

Note: *Whenever application names are listed, those that are initialized are followed by an asterisk.*

Command Line

The line at the lower portion of the screen displays available commands (e.g., Add, Modify, Delete) and instructional information (<RET> to select, <ESC> to quit, etc.). The commands are generally selected by using the arrow keys or by entering the first letter of the desired command, followed by RETURN to accept the selection.

Message Line

The line immediately below the command line displays operating messages, such as confirmation of actions taken as requested. These messages are in direct response to actions taken on the screen.

Status Window

The lowest portion of the screen displays real-time application and system-generated messages without interruption to the interactive screen functioning.

- **Screen Types –** There are three basic types of screens used in the APM interface menus:

  Menu – The interactive menu screens are used for easy selection of options which lead to further displays when chosen. (The screen in Figure 2-5 is a menu.) Movement of the cursor among options on a menu is performed using the arrow keys. Selections are made by either positioning the cursor on the option or by entering the first letter of the option, then pressing RETURN. When options are file names, selection can only be made by movement of the cursor. Pressing ESC once at any time restores control to the previous menu. To exit a menu, press ESC twice or select the **Quit** command and press RETURN.

  Data Entry – Data entry screens are used for the addition of new data, deletion of the old, or modification of existing data. (Please see Figure 2-7.)
  A data entry screen usually contains a command line that identifies the operations that are available. A command is selected either by entering its first letter or by using the arrow keys to position the cursor on it. The selected command is then highlighted, and it is accepted when RETURN is pressed. After the appropriate command has been selected, the fields are highlighted one-by-one for data manipulation. On most of these screens, the arrow keys provide movement among fields, and pressing RETURN accepts the entry (or deletion). To exit a data entry screen, press ESC to return to the command line and select the **Quit** command, or press ESC twice. There are necessary exceptions to these general guidelines (e.g., entries contained on a scroll and displayed by toggle action), but detailed instructions in this manual make clear the different operating procedures when they occur.

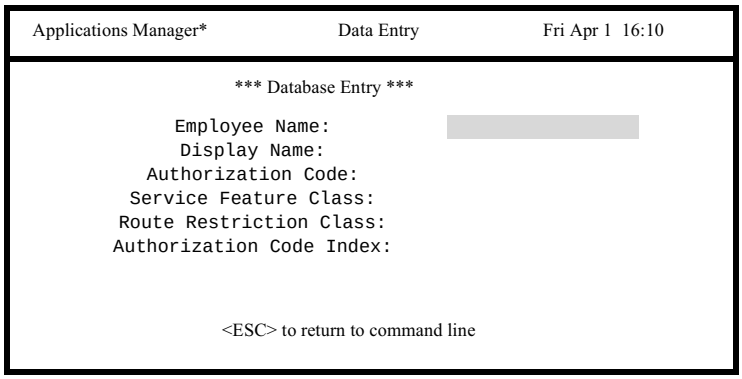


Figure 2-7 Data Entry Screen

Notes (Cont)

Information Display – Information display screens are view-only displays which require no data manipulation (Please see Figure 2-8.)
These screens are generally used to display status information and are exited using the ESC key.

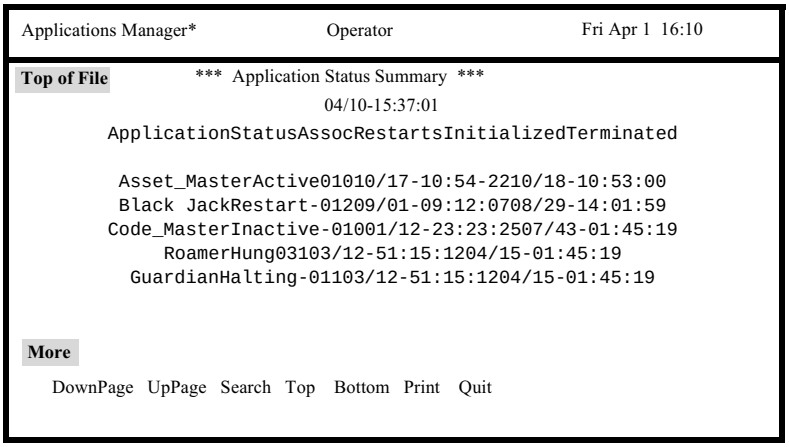


Figure 2-8 Information Display Screen

- **General Keyboard Functionality –** The following key usage is generally consistent throughout the APM menus:

  ESCAPE – Exits the current screen display and returns to the previous display; if used in an incomplete record, the portion of data entered to the record before the ESCAPE is lost.

  RETURN – Generally implements any selected command or accepts any the data just entered.

  <Shift>**d** or **u** – Moves down (d) or up (u) a page of display; same function as selecting the DownPage or UpPage commands respectively.

  PF1 – On a VT100 terminal, this key moves the display up one page.

  PF2 – On a VT100 terminal, this key moves the display down one page.

  PF3 – On a VT100 terminal, this key moves the display to the top of the file.

  PF4 – On a VT100 terminal, this key moves the display to the bottom of the file.

  Arrow Keys – Move the cursor among fields, among options in a menu, among commands in a command line.

  First Letter – When used with the cursor on a menu or on a command line, moves the cursor to the next word that begins with that letter.

Selections of menu options and command items are performed by positioning the cursor on the desired option or command and pressing RETURN to accept the selection. Deletions (e.g., database record, file) and changes to a database or file generally require confirmation before they are performed.

Procedure

Beginning with System Administration, the remainder of this manual provides detailed instructions in the use of the APM menus for system and application management.

Action	Result
On the APM Platform Administration Main menu, select the APM option and press RETURN **(1)**.	The APM password screen displays for entry of the Administrator, Operator, or Data Entry password. Refer to the corresponding chapter in this manual for detailed reference information and procedural instructions.
To exit the APM Administrator, Operator, or Data Entry menus: Select the **Quit** option and press RETURN, or press ESC.	The APM password screen redisplays.
To exit the APM password screen: Press ESC.	The APM Platform Administration Main menu redisplays.

Halt APM System

The Halt APM System option on the APM Platform Administration Main menu is used to terminate the APM system. (Please see Figure 2-9.)

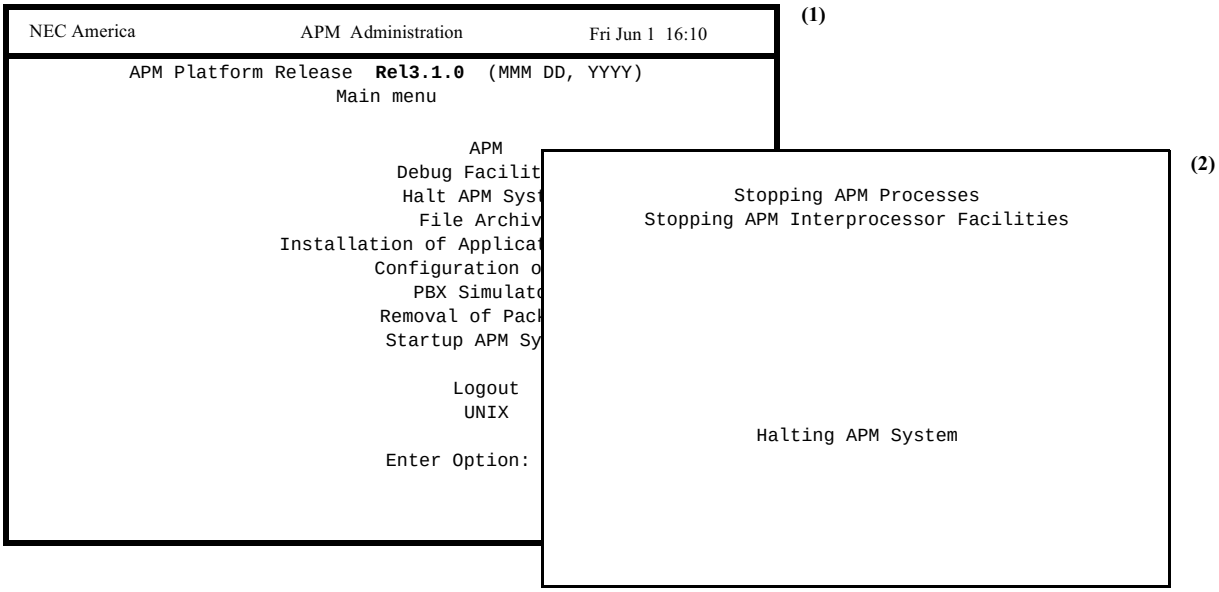


Figure 2-9 Halt APM System

Notes

When the APM is terminated using this option, messages are displayed indicating that the APM system is being stopped, the APM processes are being stopped, the interprocessor facilities are being stopped. Then, a message indicates the termination is completed, and the APM Status is indicated as HALTED.

Halting the APM terminates it everywhere it is in use, and other users are abruptly returned to the APM Platform Administration Main menu with system status indicated as 'Halted'. We recommend that you notify all current APM users that you are planning to stop the system before you implement the Halt APM System option to prevent this abrupt termination.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the Halt APM option and press RETURN **(1)**.	A prompt requests confirmation.
Enter **Y** to confirm the request and terminate the APM, or enter **N** to cancel the request.	Messages indicate status of the request **(2)**, then control is returned to the APM Platform Administration Main menu.

Debug Facilities

Overview

The Debug Facilities option on the APM Platform Administration Main menu is used by the system administrator and/or application developers to troubleshoot any communication problem in the APM platform between the UAP and the PBX and to monitor APM message logs. (Please see Figure 2-10.)

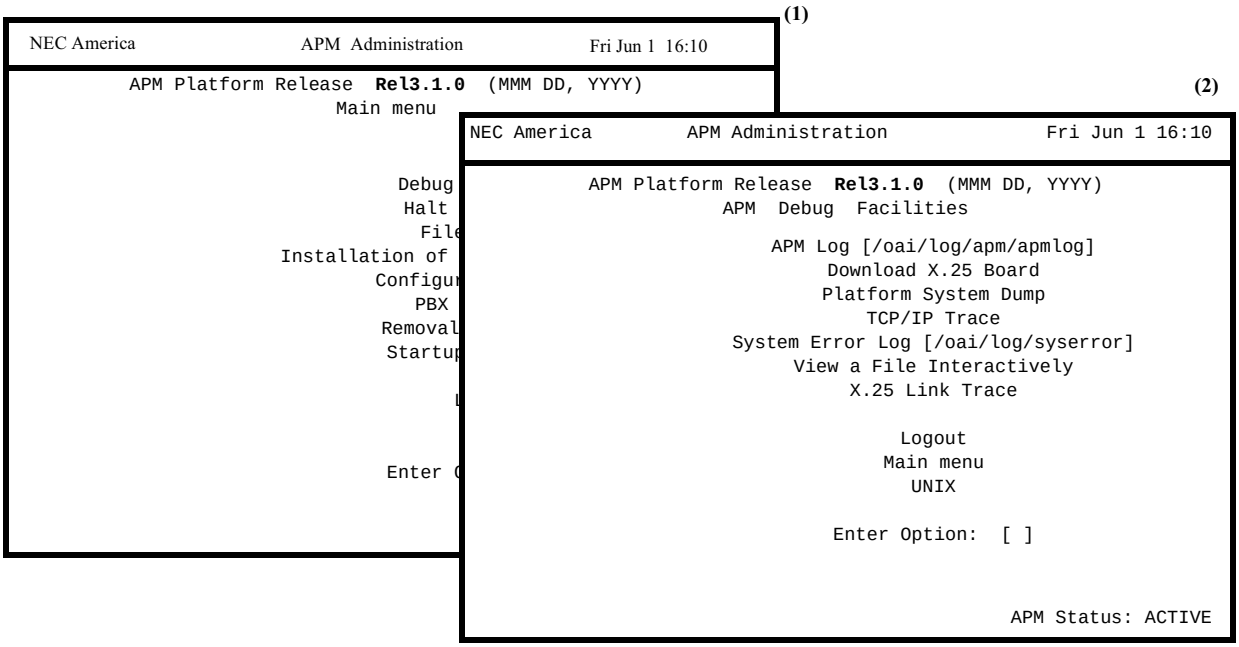


Figure 2-10 Debug Facilities

Notes

Selection of the Debug Facilities option displays a menu of the following options:

- **APM Log –** Provides easy access to the default APM system message log in a real-time display that scrolls messages onto the screen as they are appended to the bottom of the actual file.
- **Download X.25 Board –** Downloads the original configuration to the X.25 board if it is installed. If it is not installed, this option is not included on the Debug Facilities menu.
- **Platform System Dump –** Downloads the overall system configuration, dumping all the OAI queues and shared memory into a file for user access.
- **TCP/IP Trace –** Starts a trace file to document all TCP/IP link transactions between the APM and the PBX. If TCP/IP is not installed, this option is not included on the Debug Facilities menu.
- **System Error Log [/oai/log/syserror] –** Provides easy access to the default APM system error log in a real-time display that scrolls messages onto the screen as they are appended to the file.

Notes (Cont)

- **View a File Interactively –** Displays any selected file, scrolling new messages onto the screen as they are appended to the file. This option can be invoked with a non-existent file so that, as the file is created through another process, it appears on this screen display.
- **X.25 Link Trace –** Starts a trace file to document all X.25 link transactions between the APM and the PBX. If it is not installed, this option is not included on the Debug Facilities menu.
- **Logout –** Returns the cursor to the UAP login prompt.
- **Main menu –** Exits the Debug Facilities option and redisplays the APM Platform Administration Main menu.
- **UNIX –** Provides entry to the /oai directory at the operating system level. Refer to a UNIX System Programmer's Reference Manual if necessary. Enter <**ctrl**>**d** to return to the UAP login prompt or type **apmadm** at the UNIX prompt to re-enter the APM Platform Administration Main menu.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the Debug Facilities option and press RETURN **(1)**.	The APM Debug Facilities menu displays, and the cursor is positioned at the prompt **(2)**.
To exit the Debug Facilities option: Enter either **M**(Main menu), **L** (to logout) or **U** (to move to the UNIX prompt) and press RETURN.	The APM Platform Administration Main menu displays.

APM Log

The APM Log option on the APM Debug Facilities menu is used to display and/or print the current APM log file. (Please see Figure 2-11.)

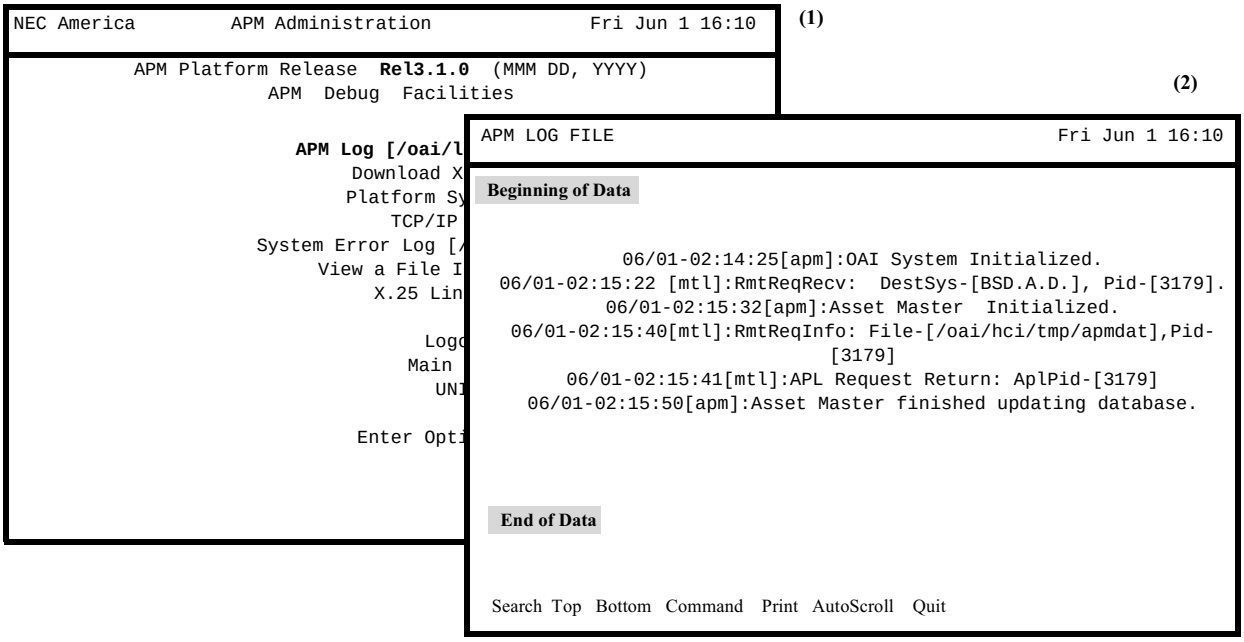


Figure 2-11 APM Log

Notes

The Log File contains system messages about processes completed, transactions in progress, and other responses to system commands. The messages are date- and time-stamped (i.e., 06/01-02:14:25) and notated to indicate the application or system that the message concerns (i.e., [apm], [mtl]).

The Log File display can reflect real-time activity in the file when it is in **AutoScroll** mode which is turned on and off by toggle of the RETURN when the cursor is positioned on the **AutoScroll** command. In **AutoScroll** mode, indicated by the notation **A–S** in the bottom right-hand corner of the screen, new messages are scrolled onto the screen as they are appended to the file.

This option allows developers to activate the APM on multiple screens for purposes of application testing and debugging. For instance, this **APM Log** of system messages can be brought up on one screen while the **System Error Log** option can be brought up on another APM screen while, at the same time, application trace information can be displayed on another screen via the **View a File Interactively** option. Depending upon the type of link in service, either the **TCP/IP** or the **X.25 Trace** option can also be brought up on another screen to enable the developer to review raw data as it crosses the link at the same time. With all of these options set on AutoScroll mode, all four displays dynamically reflect application and system activity interactively.

The Print command also makes it possible to take hardcopy snapshots of either the current screen or the current file contents.

Procedure

Action	Result
On the APM Debug Facilities menu, select the APM Log option and press RETURN **(1)**.	The default APM system log file displays **(2)**.
To move through the file: Use the arrow keys to move line-by-line through the file or use the **Top** or **Bottom** commands to move directly to the beginning or end of the file.	
To search for a text string: Select the **Search** command, indicate the pattern to be sought and press RETURN.	When the display is returned to the screen, the designated pattern is highlighted wherever it appears.
To access a pseudo-UNIX prompt: Select **Command** and press RETURN. From the UNIX prompt, press RETURN to return to the APM Log File screen.	A UNIX prompt displays below with the cursor positioned for input. **Note:** *No response or notification is echoed back to the user.*
To print the file: Select the **Print** command, indicate at the prompt whether to print the entire file or just the screen and press RETURN. Press ESC to cancel the request.	The selection is sent to the printer.
To exit the APM Log file display option: Select the **Quit** command and press RETURN.	The APM Debug Facilities menu displays.

Download X.25 Board

The Download X.25 Board option on the APM Debug Facilities menu is used to download the software that controls the board for the X.25 protocol. This option is included in the APM Debug Facilities menu only when the X.25 board is installed. (Please see Figure 2-12.)

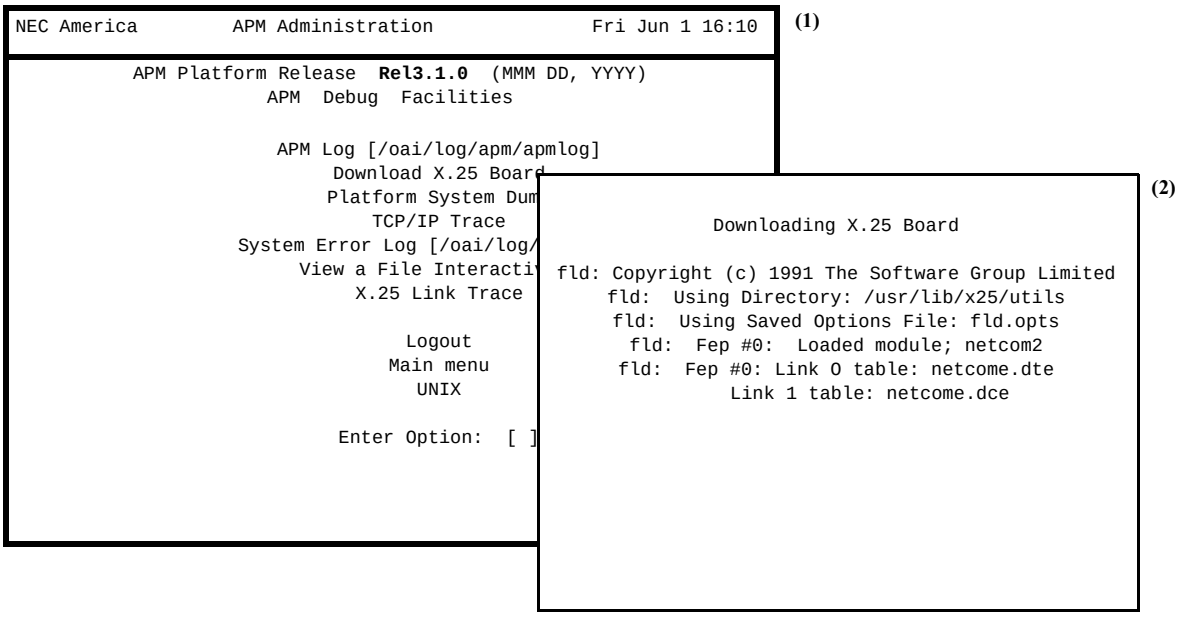


Figure 2-12 Download X.25 Board

Notes

If the X.25 link is not in use, this option will fail and an error message is logged into the system error log.

Before downloading the X.25 board, it is advisable to notify active OAI/ application processes since all active OAI associations are released when this option is implemented.

Procedure

Action	Result
On the APM Debug Facilities menu, select the Download X.25 Board option and press RETURN **(1)**.	The screen displays downloading activity as it occurs **(2)**. When downloading is complete, the APM Debug Facilities menu automatically redisplays.

Platform System Dump

The Platform System Dump option on the APM Debug Facilities menu is used to download the overall system configuration, dumping all the OAI queues and shared memory into a file for user access. (Please see Figure 2-13.)

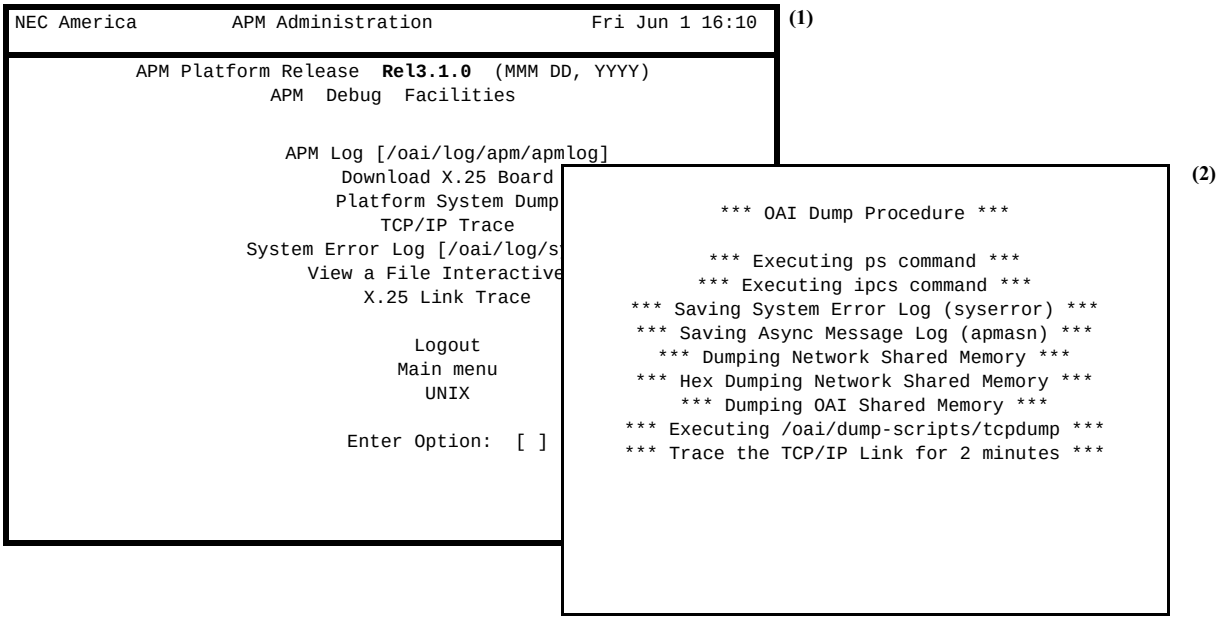


Figure 2-13 Platform System Dump

Notes

When there is an unidentified problem (e.g., applications not able to run), this option is used to obtain a snapshot of the entire system for troubleshooting purposes. This option sweeps the system and dumps everything into a temporary file (*/tmp/dump*) – – including all system, asynch, and error message logs; a 2-minute link trace; all executing commands and process queues; and shared memory.

The temporary file containing the platform system dump can be displayed through the **View a File Interactively** option on the APM Debug Facilities menu.

Procedure

Action	Result
On the APM Debug Facilities menu, select the Platform System Dump option and press RETURN **(1)**.	The OAI Dump Procedure screen lists activities as they are performed **(2)**. The APM Debug Facilities menu automatically redisplays. The results of the platform dump are available in the temporary file */tmp/dump*.

TCP/IP Trace

The TCP/IP Trace option on the APM Debug Facilities menu is used to start a trace file to document all TCP/IP link transactions between the APM and the PBX. This option is included on the APM Debug Facilities menu only if the TCP/IP is installed. (Please see Figure 2-14.)

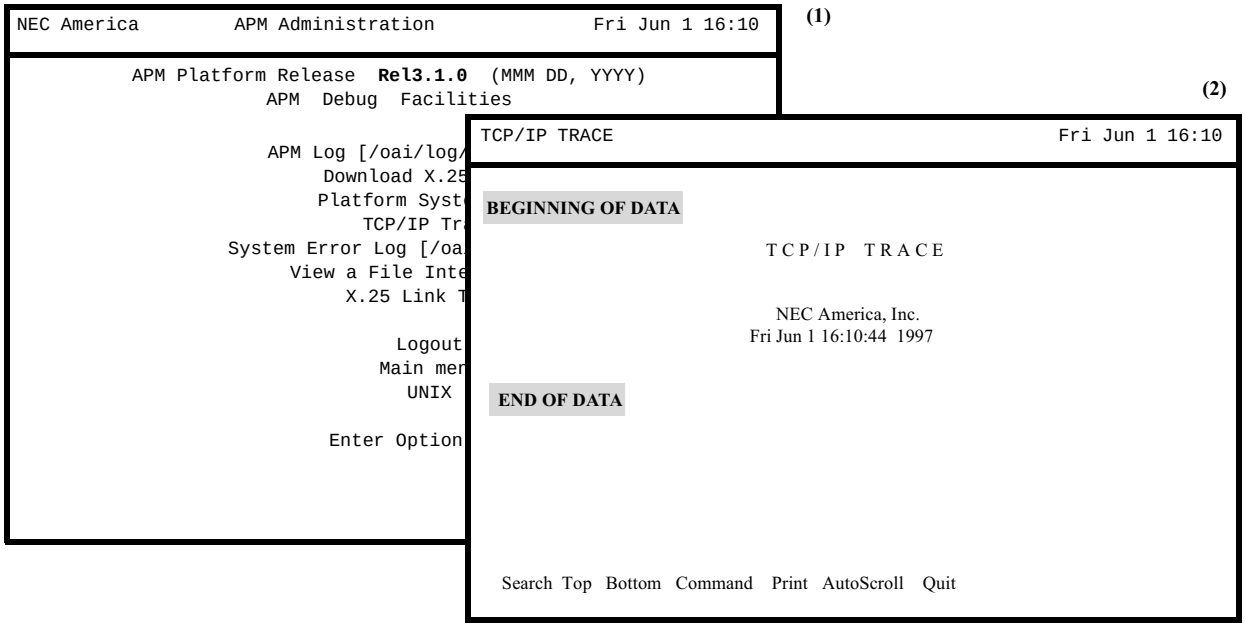


Figure 2-14 TCP/IP Trace

Notes

The TCP/IP Trace file contains the actual X.409 record containing the raw data being exchanged between the UAP and the PBX.

The TCP/IP File display can reflect real-time activity in the file when it is in **AutoScroll** mode. In **AutoScroll** mode, the notation **A-S** appears in the bottom right-hand corner of the screen and new messages are scrolled onto the screen as they are appended to the file. To toggle **AutoScroll** on and off, place the cursor on the **AutoScroll** command and press RETURN.

This option allows developers to activate the APM on multiple screens for purposes of application testing and debugging. For instance, the **APM Log** of system messages can be brought up on one screen while the **System Error Log** option can be brought up on another APM screen. At the same time, application trace information can be displayed on another screen via the **View a File Interactively** option. This **TCP/IP** Trace option can be brought up on another screen to enable the developer to review raw data as it crosses the link at the same time. With all of these options set on AutoScroll mode, all four displays dynamically reflect application and system activity interactively.

The Print command also makes it possible to take hardcopy snapshots of either the current screen or the current file contents.

Procedure

Action	Result
On the APM Debug Facilities menu, select the TCP/IP Trace option and press RETURN **(1)**.	A prompt requests if output is to be sent to a file **(2)**.
To move through the file: Use the arrow keys to move line-by-line through the file or use the **Top** or **Bottom** commands to move directly to the beginning or end of the file.	
To search for a text string: Select the **Search** command, indicate the pattern to be sought and press RETURN.	When the display is returned to the screen, the designated pattern is highlighted wherever it appears.
To access a pseudo-UNIX prompt: Select **Command** and press RETURN. From the UNIX prompt, press RETURN to return to the TCP/IP file display.	A UNIX prompt displays below with the cursor positioned for input. **Note:** *No response or notification is echoed back to the user.*
To print the file: Select the **Print** command, indicate at the prompt whether to print the entire file or just the screen and press RETURN.	The selection is sent to the printer.
To exit the TCP/IP Trace file display: Enter <**ctrl**>**c** and press RETURN.	The APM Debug Facilities menu displays.

System Error Log

The System Error Log option on the APM Debug Facilities menu is used to display and/or print the current APM log of system error messages. (Please see Figure 2-15.)

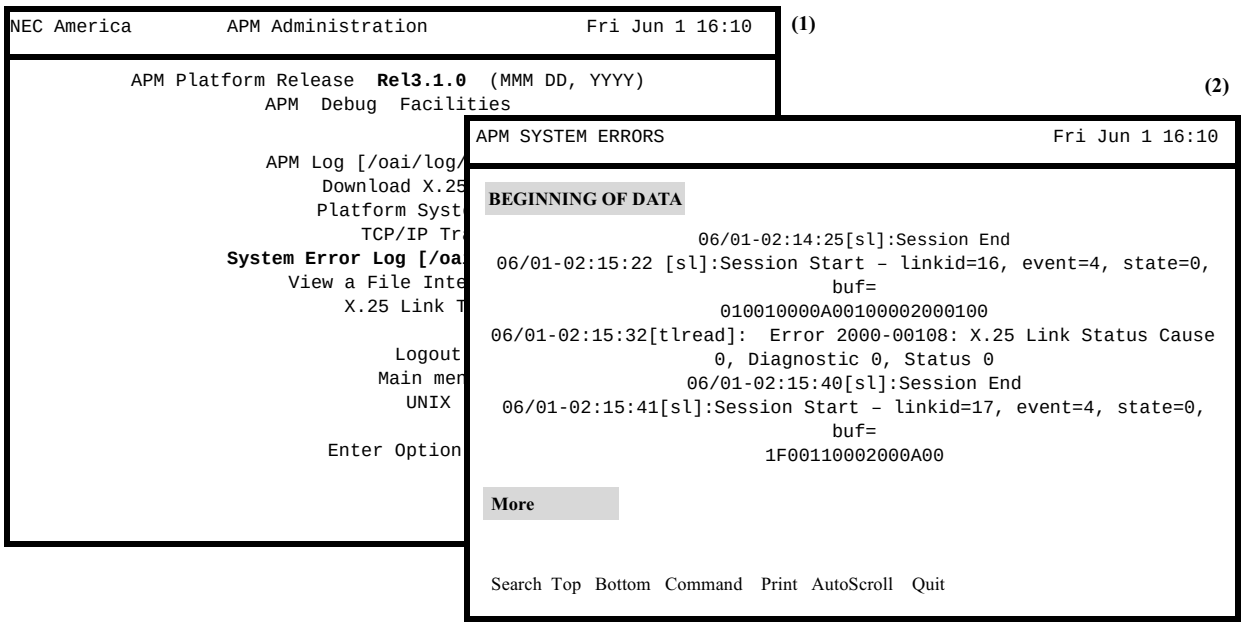


Figure 2-15 System Error Log

Notes

The System Error File contains system error messages that occur in response to system commands. The messages are date- and time-stamped (i.e., 06/01-02:14:25) and notated to indicate the application or system that the error concerns (i.e., [apm], [mtl]).

The System Log File display can reflect real-time activity in the file when it is in **AutoScroll** mode. In **AutoScroll** mode, the notation **A-S** appears in the bottom right-hand corner of the screen and new messages are scrolled onto the screen as they are appended to the file. To toggle **AutoScroll** on and off, place the cursor on the **AutoScroll** command and press RETURN.

This option allows developers to activate the APM on multiple screens for purposes of application testing and debugging. For instance, the **APM Log** of system messages can be brought up on one screen while this **System Error Log** option can be brought up on another APM screen. At the same time, application trace information can be displayed on another screen via the **View a File Interactively** option. Depending upon the link used, the **TCP/IP** or **X.25** Trace option can be brought up on another screen to enable the developer to review raw data as it crosses the link at the same time. With all of these options set on AutoScroll mode, all four displays dynamically reflect application and system activity interactively.

The Print command also makes it possible to take hardcopy snapshots of either the current screen or the current file contents.

Procedure

Action	Result
On the APM Debug Facilities menu, select the System Error Log option and press RETURN. **(1)**	The APM System Error file displays. **(2)**
To move through the file: Use the arrow keys to move line-by-line through the file, or use the **Top** or **Bottom** commands to move directly to the beginning or end of the file.	
To search for a text string: Select the **Search** command, indicate the pattern to be sought and press RETURN.	When the display is returned to the screen, the designated pattern is highlighted wherever it appears.
To access a pseudo-UNIX prompt: Select **Command** and press RETURN. From the UNIX prompt, press RETURN to return to the System Error file screen.	A UNIX prompt displays below with the cursor positioned for input. **Note:** *No response or notification is echoed back to the user.*
To print the file: Select the **Print** command, indicate at the prompt whether to print the entire file or just the screen and press RETURN.	
To exit the APM System Error Log File display option: Select the **Quit** command and press RETURN.	The APM Debug Facilities menu displays.

View a File Interactively

The View a File Interactively option on the APM Debug Facilities menu is used to display any file in the APM system on the screen. (Please see Figure 2-16.)

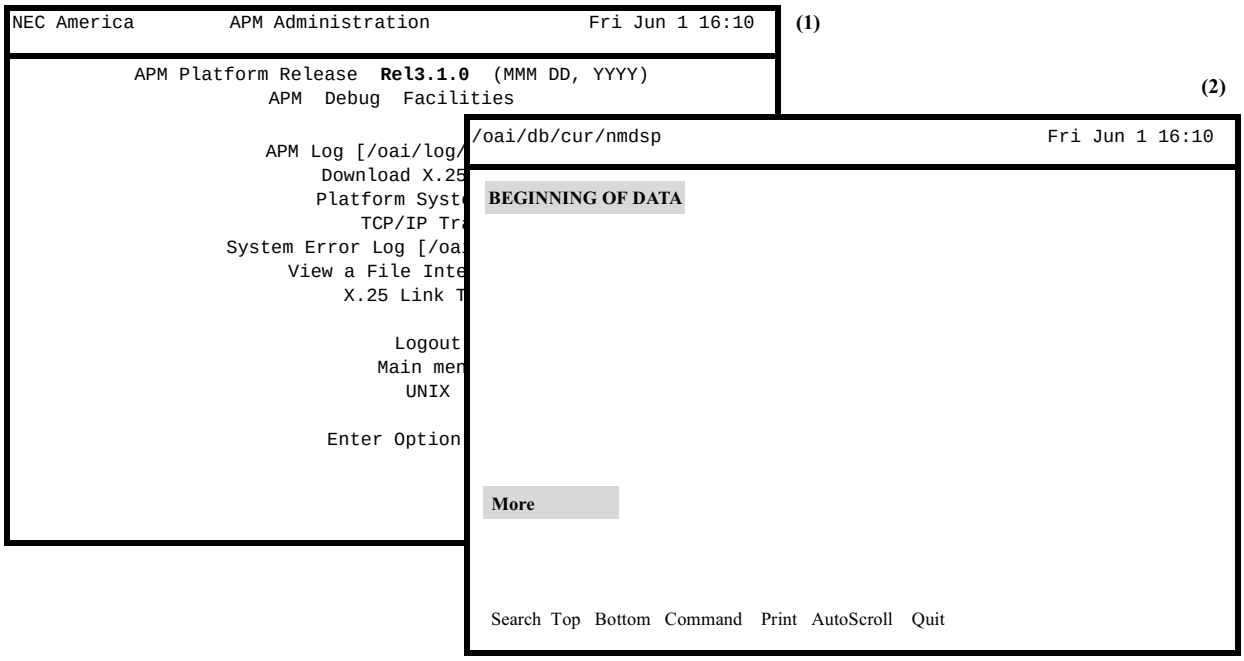


Figure 2-16 View File Interactively

Notes

This file display can reflect real-time activity in the file when it is in **AutoScroll** mode. In **AutoScroll** mode, the notation **A-S** appears in the bottom right-hand corner of the screen and new messages are scrolled onto the screen as they are appended to the file. To toggle **AutoScroll** on and off, place the cursor on the **AutoScroll** command and press RETURN.

This option allows developers to activate the APM on multiple screens for purposes of application testing and debugging. For instance, the **APM Log** of system messages can be brought up on one screen while the **System Error Log** option can be brought up on another APM screen while. At the same time, application trace information can be displayed on another screen via the **View a File Interactively** option. The **TCP/IP** or **X.25** Trace option can then be brought up on another screen to enable the developer to review raw data as it crosses the link at the same time. With all of these options set on AutoScroll mode, all four displays dynamically reflect application and system activity interactively.

This option can be entered, a file named that does not exist, and the AutoScroll mode turned on. When the application begins to run, any generated messages will automatically (and immediately) be written into the file and into the display for viewing by the application tester or developer.

The Print command also makes it possible to take hardcopy snapshots of either the current screen or the current file contents.

Procedure

Action	Result
On the APM Debug Facilities menu, select the View a File Interactively option and press RETURN **(1)**.	A prompt requests the file path and name for retrieval.
At the prompt, enter the full path and filename and press RETURN.	The named file displays **(2)**.
To move through the file: Use the arrow keys to move line-by-line through the file, or use the **Top** or **Bottom** commands to move directly to the beginning or end of the file.	
To search for a text string: Select the **Search** command, indicate the pattern to be sought and press RETURN.	When the display is returned to the screen, the designated pattern is highlighted wherever it appears.
To access a pseudo-UNIX prompt: Select **Command** and press RETURN. From the UNIX prompt, press RETURN to return to the file display screen.	A UNIX prompt displays below with the cursor positioned for input. **Note:** *No response or notification is echoed back to the user.)*
To print the file: Select the **Print** command, indicate at the prompt whether to print the entire file or just the screen and press RETURN.	The file is sent to the printer.
To exit the File Display option: Select the **Quit** command and press RETURN.	The APM Debug Facilities menu displays.

X.25 Link Trace

The X.25 Link Trace option on the APM Debug Facilities menu is used to start a trace file to document all X.25 link transactions between the APM and the PBX and is included on the APB Debug Facilities menu only if the X.25 is installed. It is necessary to enter the Super-user Root password before the X.25 trace can be implemented. (Please see Figure 2-17.)

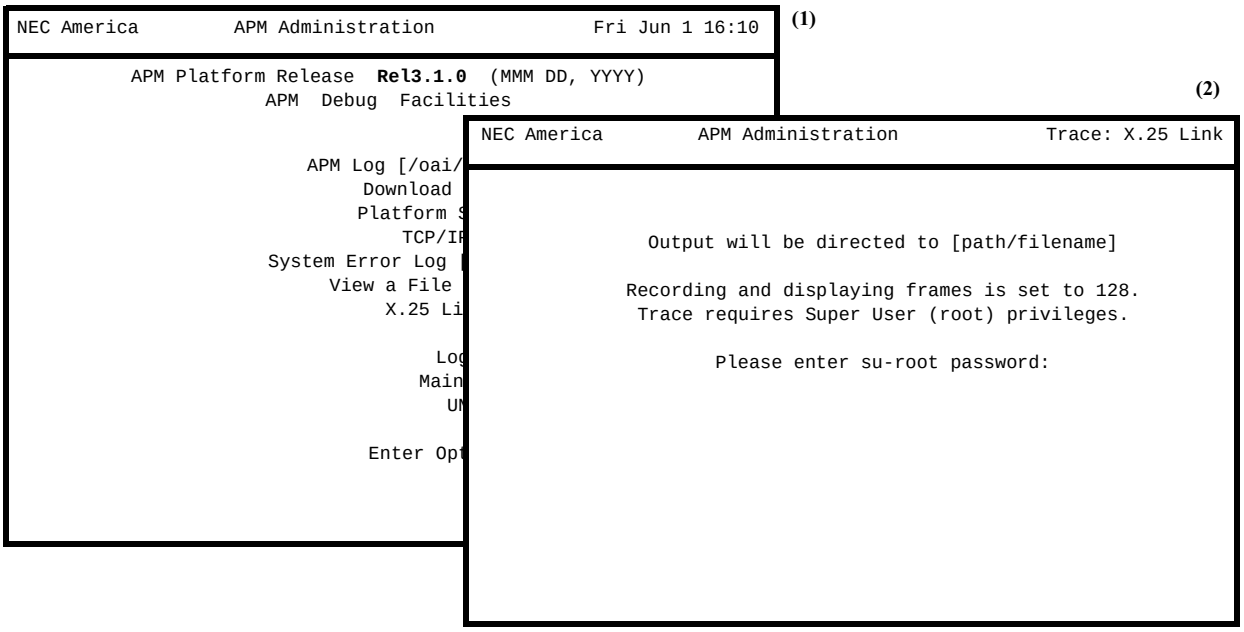


Figure 2-17 X.25 Link Trace

Notes

The X.25 Trace file contains the actual X.409 record of the raw data being exchanged between the UAP and the PBX.

The X.25 file display can reflect real-time activity in the file when it is in **AutoScroll** mode. In **AutoScroll** mode, the notation **A-S** appears in the bottom right-hand corner of the screen and new messages are scrolled onto the screen as they are appended to the file. To toggle **AutoScroll** on and off, place the cursor on the **AutoScroll** command and press RETURN.

This option allows developers to activate the APM on multiple screens for purposes of application testing and debugging. For instance, the **APM Log** of system messages can be brought up on one screen while the **System Error Log** option can be brought up on another APM screen. At the same time, application trace information can be displayed on another screen via the **View a File Interactively** option. This **X.25 Trace** option can be brought up on another screen to enable the developer to review raw data as it crosses the link at the same time. With all of these options set on AutoScroll mode, all four displays dynamically reflect application and system activity interactively.

The Print command also makes it possible to take hardcopy snapshots of either the current screen or the current file contents.

Procedure

Action	Result
On the APM Debug Facilities menu, select the X.25 Trace option and press RETURN **(1)**.	A prompt asks if the output is to be sent to a file.
If output is to be sent to a file: Enter Y(es) and press RETURN. Then, enter the full path and filename and press RETURN. **If output is not to be sent to a file:** Enter N(o) and press RETURN.	The X.25 Trace file is opened and displayed, with a notation indicating the file to which output will be directed, if requested. A prompt requests entry of the Super User root password.**(2)**
Enter the su/root password and press RETURN **(1)**.	X.409 records are recorded and displayed as they are received. The X.25 Trace notation in the top right-hand corner blinks to indicate that the trace is active.
To move through the file: Use the arrow keys to move line-by-line through the file or use the **Top** or **Bottom** commands to move directly to the beginning or end of the file.	
To search for a text string: Select the **Search** command, indicate the pattern to be sought and press RETURN.	When the display is returned to the screen, the designated pattern is highlighted wherever it appears.
To access a pseudo-UNIX prompt: Select **Command** and press RETURN. From the UNIX prompt, press RETURN to return to the X.25 file display.	A UNIX prompt displays below with the cursor positioned for input. **Note:** *No response or notification is echoed back to the user.*
To print the file: Select the **Print** command, indicate at the prompt whether to print the entire file or just the screen and press RETURN.	The selection is sent to the printer.
To exit the X.25 Trace file display: Enter <**ctrl**>**c**.	The APM Debug Facilities menu displays.

File Archive

The File Archive option on the APM Platform Administration Main menu is used to manage the floppy disk storage and retrieval of system files. (Please see Figure 2-18.)

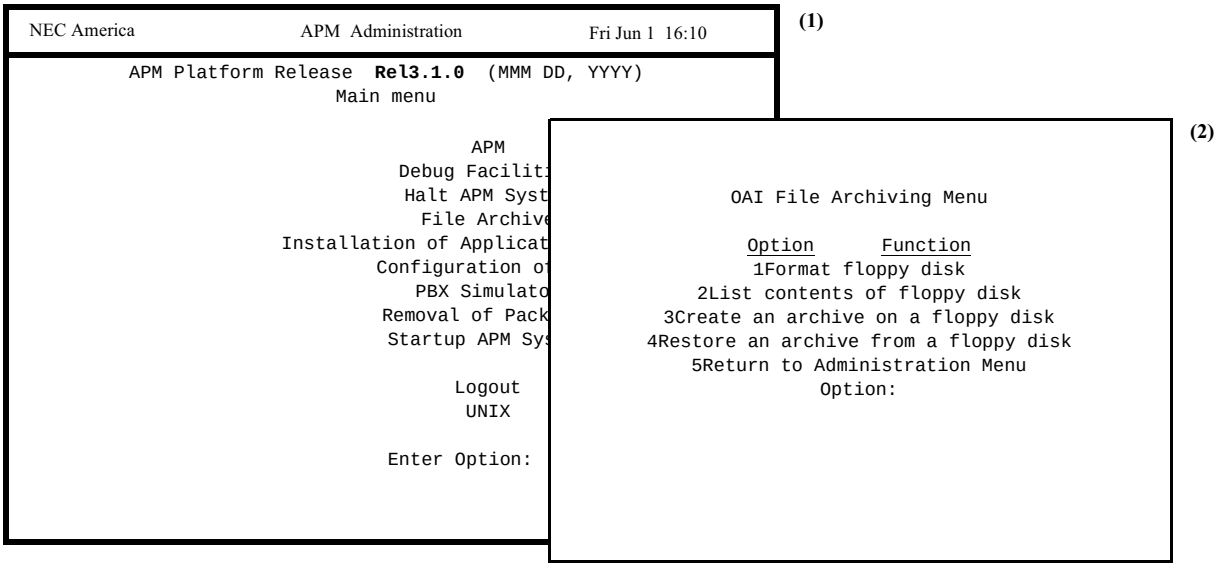


Figure 2-18 File Archive

Notes

Selection of the File Archive option displays a menu of the following options:

- **Format floppy disk** – Used to format a new floppy disk or erase a used disk.
- **List contents of floppy disk** – Used to display the contents of a floppy disk on the screen.
- **Create an archive on a floppy disk** – Used to select and archive any APM file.
- **Restore an archive from a floppy disk –** Used to restore the file(s) on the floppy disk archive file back into the system.
- **Return to Administration Menu –** Used to re-display the APM Platform Administration Main menu.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the File Archive option and press RETURN **(1)**.	The OAI File Archiving Menu displays, and the cursor is positioned at the prompt **(2)**.
Format floppy disk – Insert the floppy disk that is to be formatted, enter **1** at the prompt and press RETURN.	The message **Formatting floppy disk** displays.
List contents of floppy disk – Insert the floppy disk, enter **2** at the prompt and press RETURN.	The message **Reading floppy disk** displays, and the contents of the floppy disk are listed. **Note:** *If the disk cannot be opened, a message to that effect displays, and entry of another option is expected.*
Create an archive on a floppy disk – Enter **3** at the prompt and press RETURN. Enter the number of the desired archive selection at the prompt and press RETURN. Enter the filename to be archived at the prompt and press RETURN, or press RETURN to archive all listed files.	A menu of archive selections displays. (See below.) A list of files displays with a message requesting input of the specific filename(s) or a RETURN to indicate all files. (Please see Figure 2-19.)

```
Option  Archive Selections
     1System Log file
   2System Debugging files
 3System Configuration files
     4System Data files
   5Application Data files
     6Database files
      7APM Log files
8Return to File Archiving Menu

           Option:
```

Figure 2-19 Archive Selections

Procedure (Cont)

Action	Result
To restore an archive from a floppy disk: Insert the floppy disk, enter **4** at the prompt and press RETURN.	The message **Restoring archive. . . .** displays followed by the File Archiving menu.
To exit the OAI File Archiving menu: Enter **5** at the prompt and press RETURN.	The APM Platform Administration Main menu displays.

Installation of Applications/Packages

The Installation of Applications/Packages option on the APM Platform Administration Main menu is used to install application software from release media and to activate platform software packages. (Please see Figure 2-20.)

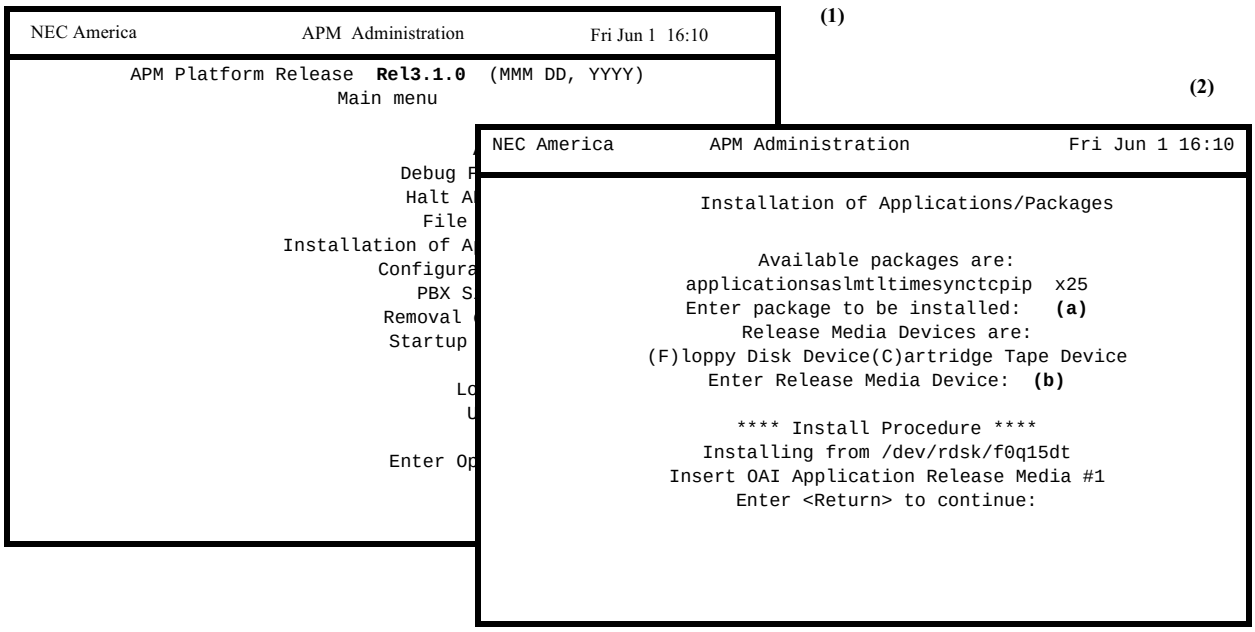


Figure 2-20 Installation of Applications Packages

Notes

For Applications: After completing this procedure, refer to the documentation that accompanies each application for information on how to configure the application in the APM, create any necessary databases in the APM, and make any required assignments for it at the NEAX2400 IMS Maintenance Administration Terminal.

For Other Packages: When one of the platform packages (i.e., asl, mtl, tcpip) is selected, the APM automatically makes the necessary entries to its files thereby enabling it to activate when the OAI is initialized from the APM Operations menu.

The Installation of Applications/Packages option contains the following options:

- **asl** – Asynchronous Session Layer. This gives the Message Transfer Layer (MTL) the capability to communicate with other computers that have a compatible ASL interface through an RS-232 line. Any applications that required this layer to be installed will be indicated in the installation instructions of the application.
- **mtl** – Message Transfer Layer. This enables applications to receive and send files to another computer running a compatible MTL interface. Any applications that required this layer to be installed will be indicated in the installation instructions of the application.

Notes (Cont)

- **timesync** – This is an application that will synchronize the time of the UAP to the time of the PBX. In order for this application to function, the PBX must support the SSFM PBX Date and Time Facility. At the time of this release of the APM Platform, only versions H3 and later of the ICS supported the PBX Date and Time Facility. Versions RDS, HDS and IVS PBXs do not support this feature.

  This application will not function properly if another time synchronization process is already running on the UAP. Examples of UNIX time synchronization processes that cannot function with APM's timesync application are */etc/timed* and */etc/xntpd*.

  When the timesync application runs, it checks the PBX and UAP clocks and begins slowing down or speeding up the UAP clock in order to synchronize the two clocks. The timesync application assumes the PBX and UAP clocks are within 30 minutes of each other and only checks the seconds and minutes. Ignoring the hour eliminates problems with time changes during daylight savings time. The timesync application slows down or speeds up the UAP clock at approximately the rate of .25 seconds to 1 second a minute. This slow rate of adjustment eliminates timing problems that could be caused in the APM Platform/Applications if a faster rate were used. While the timesync application is running, it will log the number of seconds difference in the two clocks every 5 minutes. (A negative value indicates that timesync is slowing the UAP clock down). Once the timesync application sees that the UAP and PBX clocks are in sync, the application terminates.

  When timesync is installed, the default configuration is setup so that the timesync application will initialize at APM Initialization and everyday at midnight. Typically the PBX and UAP times stay within a few seconds of each other over a 24 hour period so the timesync application will only take a few minutes to synchronize the clocks and then terminate. The default configuration uses *OAI1TCP* for the Source Link Name and *PBX1TCP* for the Destination Link Name. These are the only two configuration parameters that may require modification through the APM Application Configuration menus. If desired, you can change the start time of timesync using the System Administration->Control Options menu.

  For SCO UNIX 3.2.4.2, the timesync application requires a UNIX kernel patch to allow the timesync application to skew the clock. This patch is applied during timesync installation and then removed during timesync removal. The UAP must be shutdown and rebooted for the installation/removal of the patch to take affect.

  For SCO OpenServer5 the patch is not required and not applied, but the system should be rebooted after Installation/Removal of the timesync application.

- **tcpip** – TCP/IP layer. This layer allows OAI to communicate to the PBX that also has a TCP/IP interface. This also gives the Message Transfer Layer (MTL) the capability to communicate with other computers that have a compatible APM TCP/IP interface. The TCP/IP layer is installed by default.

Notes (Cont)

- **x25** – X.25 layer. This layer allows OAI to communicate to the PBX that also has a X.25 interface. This also gives the Message Transfer Layer (MTL) the capability to communicate with other computers that have a compatible APM X.25 interface.

Procedure for Floppy Disks

Action	Result
On the APM Platform Administration Main menu, select the Installation of Applications/ Packages option and press RETURN. **(1)**	The Installation of Applications/ Packages screen displays the packages that can be installed. **(2)**
At prompt (a), enter the type of package from the four shown that is to be installed and press RETURN.	If applications is entered, the type of release media that can be read are displayed. **(2)** If any other type of package is indicated, the APM makes the necessary entries and re-displays the APM Platform Administration Main menu.
At prompt (b), enter **f** for Floppy Disk(s). (This is where the application is installed from.) Press **RETURN**.	The installation procedure is begun with a request that the release media be inserted.
Insert Release Media #1 and press **RETURN**.	The contents of the release media are read into the system and displayed on the screen. Afterwards, a prompt asks if all release media has been loaded, as illustrated below:

Procedure for CD-ROM

Action	Result
To install applications in CD-ROM, follow these instructions:	
1. Log in as root in multi-user mode.	
2. Type **mount -r /dev/cd0 /mnt**, and press ENTER.	Now the CD-ROM is mounted.
3. Follow the instructions in the next section to install the application for the Mounted Archive Volume.	The path name will start with /mnt.
4. After the installation is completed, unmount the CD-ROM.	
5. Log in as root in multi-user mode.	
6. Type unmount /mnt, and press ENTER.	

Procedure for Mounted Archive Volume

Action	Result
On the APM Platform Administration Main menu, select the Installation of Applications/ Packages option and press RETURN. **(1)**	The Installation of Applications/ Packages screen displays the packages that can be installed. **(2)**
At prompt (a), enter the type of package from the four shown that is to be installed and press RETURN.	If applications is entered, the type of release media that can be read are displayed. **(2)** If any other type of package is indicated, the APM makes the necessary entries and re-displays the APM Platform Administration Main menu.
At prompt (b), enter **m for mounted volume**. (This is where the application is installed from.) Press **RETURN**.	The following prompt is displayed: "**Enter the complete path to the archive volume**."
The user enters the path name where the file is located. For CD-ROM, the path starts with /mnt.	The installation procedure is begun with a request that the release media be inserted.
Press **RETURN**.	The contents of the release media are read into the system and displayed on the screen. Afterwards, a prompt asks if all release media has been loaded, as illustrated below: (Please see Figure 2-21.)

```
                    Copying . . . .
xoai/app/<appname>,    246930 bytes,    483 tape blocks
   xoai/app/<appname>.ins,   65 bytes,   1 tape block
      xoai/chksum_app,   165 bytes,   1 tape block

     Has all release media been loaded [y or n]?
```

Figure 2-21 Release Media Contents

Action	Result
When all release media has been loaded: Enter **y** at the prompt and press **RETURN.**	Displayed messages indicate the revision and version of the OAI Platform, the application, and the machine type. Validation is completed and the files are installed and processed. The installation is indicated as complete, and the APM Platform Administration Main menu is redisplayed.

Configuration of UAP

The Configuration of UAP option allows you to configure various settings on the computer (UAP), such as the time on the computer and the name of the computer. (Please see Figure 2-22.)

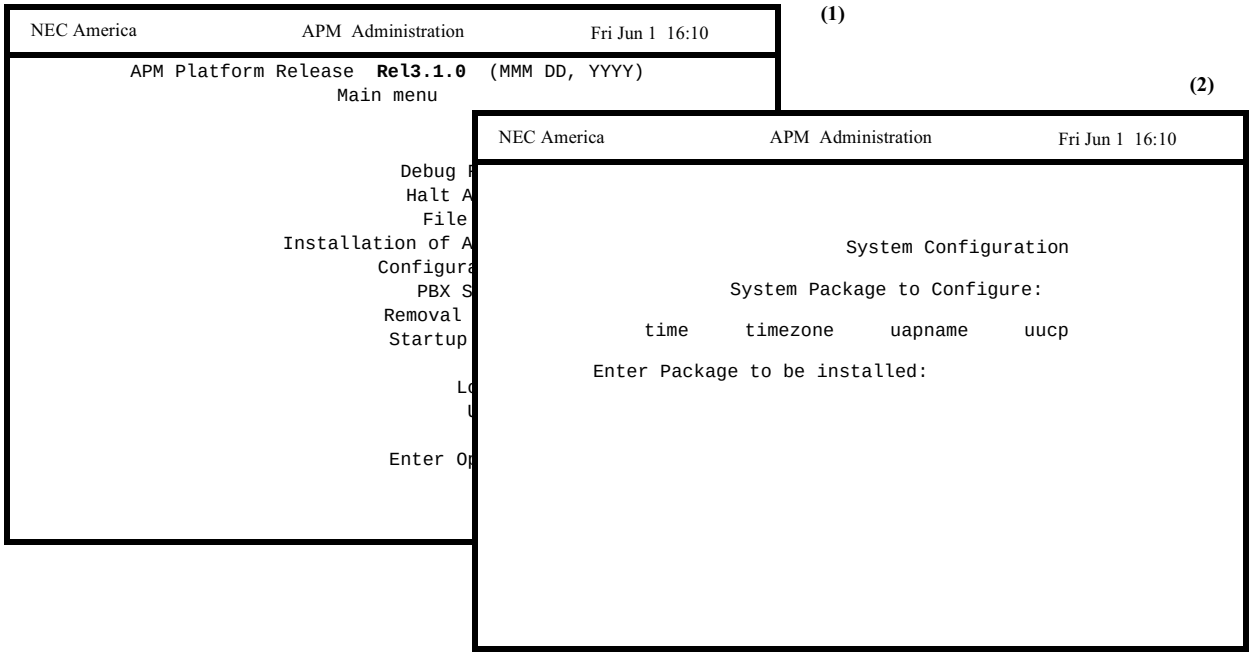


Figure 2-22 System Configuration

Notes

The Configuration of UAP option contains the following options:

- **tcpip** – Allows you to install or remove TCP/IP APM Platform Services as well as add or delete TCP/IP addresses. See Installation of Applications/Packages on page 33 for more information.
- **time –** Allows you to change the current time on the computer (UAP).
- **timezone –** Allows you to change the current time zone on the computer (UAP).
- **uapname –** Allows you to change the name of the computer (UAP).
- **uucp –** Installs/modifies the files necessary for remote dial-in using the standard remote UNIX utilities uucp and cu.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the Configuration of UAP option and press RETURN. **(1)**	The System Configuration screen displays. **(2)**
To exit the configuration of UAP option: Press RETURN.	The APM Platform Administration Main menu displays.

Time

The Time option allows you to change the current time on the computer (UAP). (Please see Figure 2-23.)

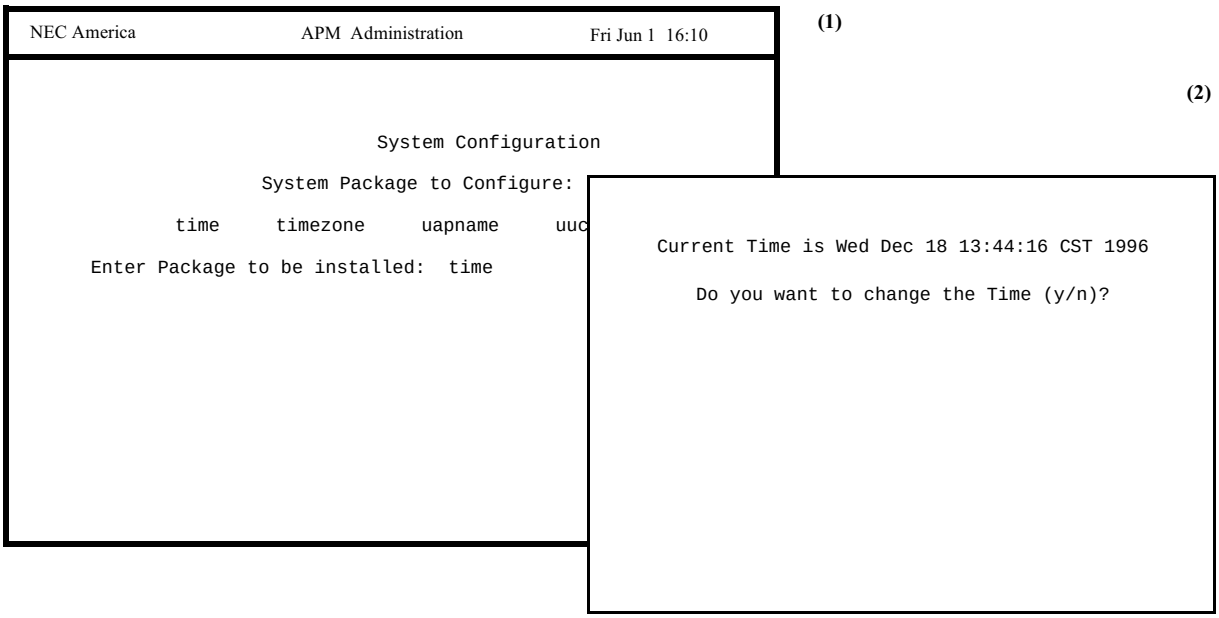


Figure 2-23 System Configuration Time

Notes

Changing the time of the UAP while APM is running can cause timing problems for the system; therefore, you should only change the time when APM is not initialized.

Procedure

Action	Result
On the Configuration of UAP option, type **time** and press RETURN. **(1)**	A screen appears, displaying the current time. **(2)**
To change the time: Type **y** and press RETURN. Type the root password and press RETURN. Enter the new time ([yymmdd]hhmm) and press RETURN.	The UNIX system time changes to the new time entered.
To exit without changing the time: Type **n** and press RETURN.	The APM Platform Administration Main menu displays.

Timezone

The Time Zone option allows you to change the current time zone for the computer (UAP). (Please see Figure 2-24.)

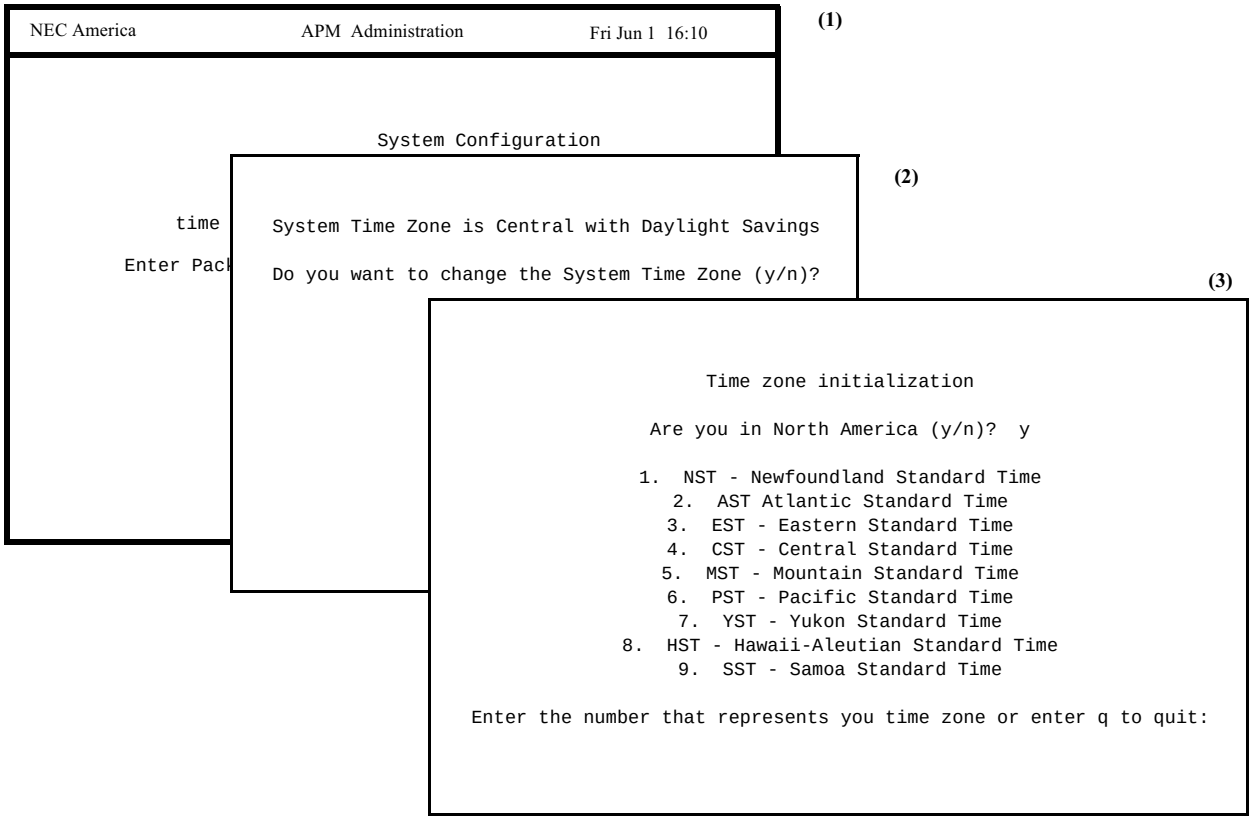


Figure 2-24 System Configuration Time Zone

Notes

If a program is running when you change the timezone, the new timezone is not displayed until you restart the APM.

Procedure

Action	Result
On the Configuration of UAP option, type **timezone** and press RETURN. **(1)**	A screen appears, displaying the current time zone. **(2)**

To change the time zone: Type **y** and press **RETURN**. Type the root password and press **RETURN**. (3) If you are in North America, type **y**. Otherwise, type **n**. Select the appropriate time zone and press **RETURN**.	The default timezone for the system changes to the new value. If programs are running when you change the timezone, the new timezone is not displayed until you restart the APM. The default timezone may be overridden by individual programs or logins.
To exit without changing the time zone: Type **n** and press **RETURN**.	The APM Platform Administration Main menu displays.

UAP Name

This option allows you to change the name of the computer (UAP). (Please see Figure 2-25.)

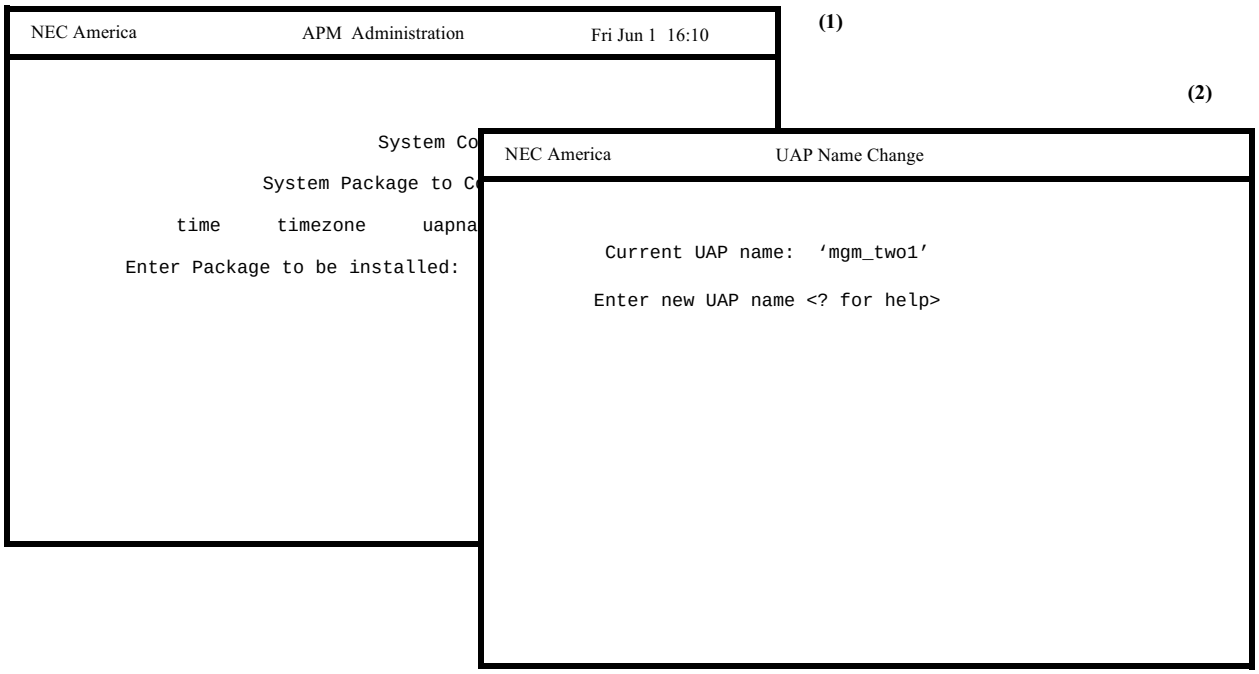


Figure 2-25 UAP Name Change

Notes

The UAP name should contain 4 to 7 alphanumeric characters (upper and lower case a-z and 0-9). This name should reflect the name of the site where the UAP is installed.

Procedure

Action	Result
On the Configuration of UAP option, type **uapname** and press RETURN. **(1)** Then, type the root password and press RETURN.	A screen appears, displaying the current UAP name. **(2)**
To change the UAP name: Type the new name and press RETURN.	The name of the system changes to the new value. This name is used by the UUCP/CU utilities.
To exit without changing the UAP name: How do you exit after you have typed in the root password?	

UUCP

The UUCP option installs and/or modifies the files necessary for remote dial-in using the standard remote UNIX utilities: uucp and cu. (Please see Figure 2-26.)

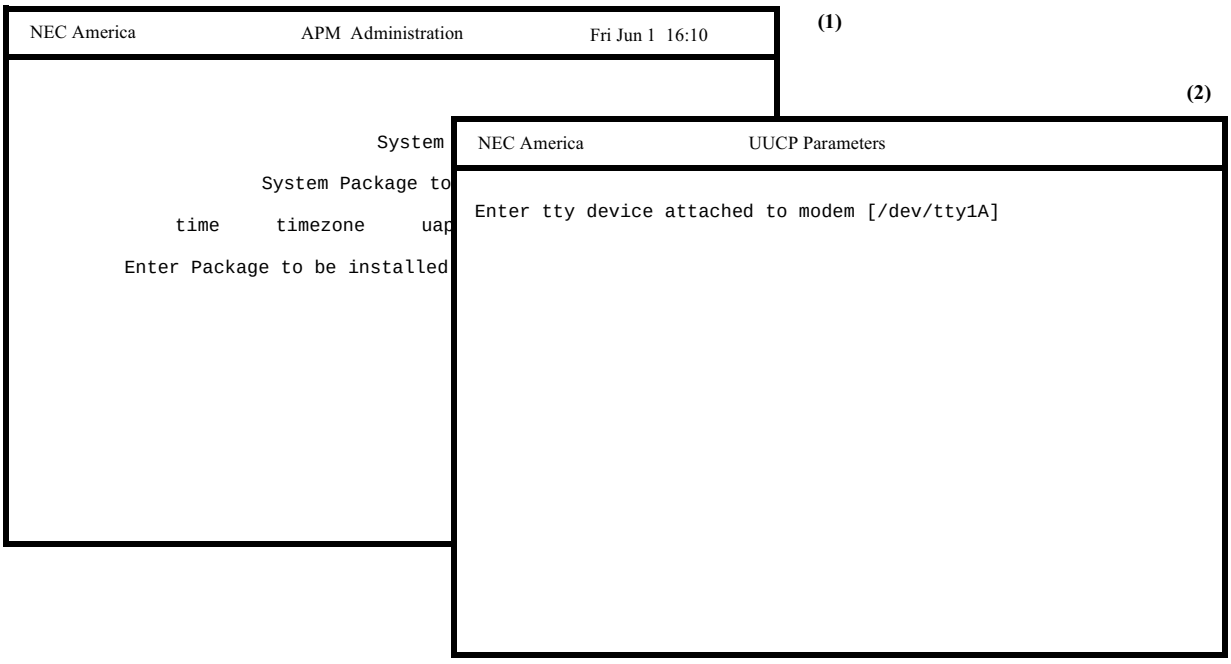


Figure 2-26 UUCP Parameters

Notes

If you have already installed the UUCP, the APM displays the following message: "**US Robotics Modem has been installed** Do you want to continue (y/n):". Enter **y** to continue. Enter **n** to cancel.

Procedure

Action	Result
On the Configuration of UAP option, type **uucp** and press RETURN. **(1)** Then, type the root password and press RETURN.	The APM makes the necessary changes to /usr/lib/uucp/Devices/usr/lib/uucp/ Permissions and the inittab entry for the tty device specified so that a remote computer can dial-in and transfer files. The files are set up to give a 19.2 Kbps connection to the modem.

PBX Simulator

The PBX Simulator option on the APM Platform Administration Main menu is used to access the OAI/PBX Simulator if it is installed. (Please see Figure 2-27.)

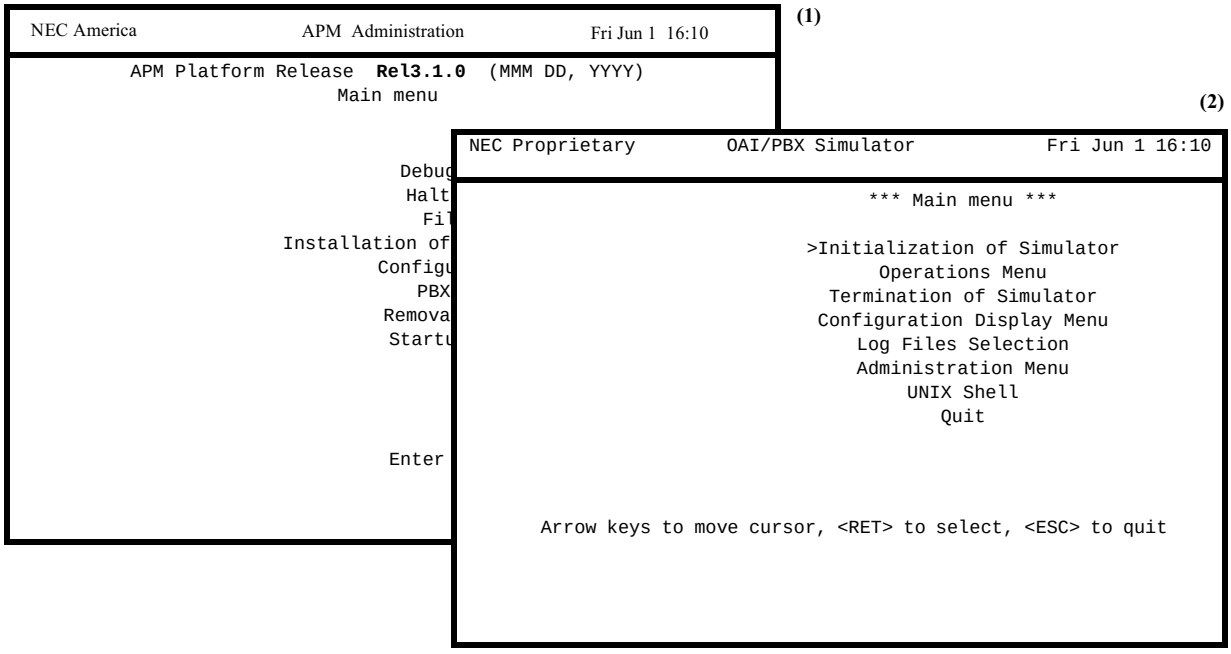


Figure 2-27 OAI/PBX Simulator

Notes

Refer to the PBX Simulator Operations Manual for detailed instructions on using this menu interface for application development and testing.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the PBX Simulator option and press RETURN. **(1)**	The OAI/PBX Simulator Main menu displays. **(2)** Refer to the OAI/PBX Simulator Operations Manual.
To exit the OAI/PBX Simulator Main menu: Select the Quit option and press RETURN, or press ESC.	The APM Platform Administration Main menu is redisplayed.

Removal of Packages

The Removal of Packages option on the APM Platform Administration Main menu is used to remove a platform package from the APM system. (Please see Figure 2-28.)

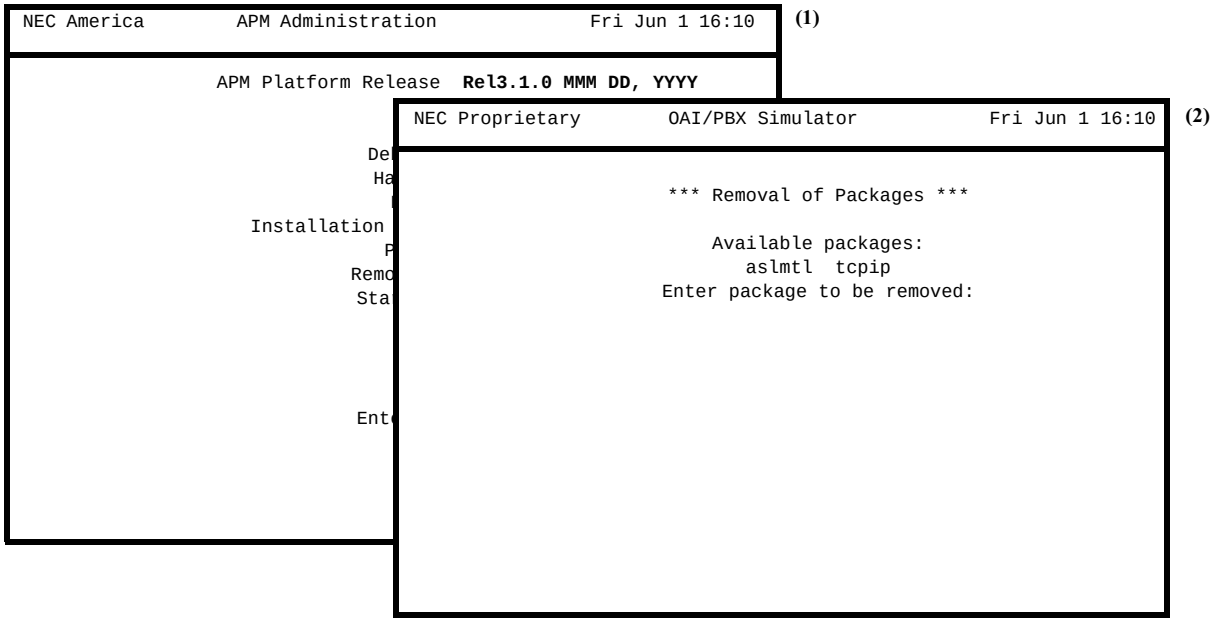


Figure 2-28 Removal of Packages

Notes

When one of the platform packages is installed through the APM Platform Administration menu, the APM makes the necessary entries to its files so that the software package will initialize when the OAI is initialized through the APM Operations menu. Thus, when a platform package is removed through this option, the APM removes entries from its files so that when the OAI is initialized through the APM Operations menu, this package will not initialize.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the Removal of Packages option and press RETURN. **(1)**	The Removal of Packages screen displays and contains a list of the packages that can be removed from service. **(2)**
At the prompt, enter the type of package to be removed from service and press RETURN.	The file entries are deleted from the files used by the package, making it inoperative, and the APM Platform Administration Main menu is redisplayed.

Startup APM System

The Startup APM System option on the APM Platform Administration Main menu is used to initialize the APM following system failure or in the event the system was not initialized during power-up procedures. (Please see Figure 2-29.)

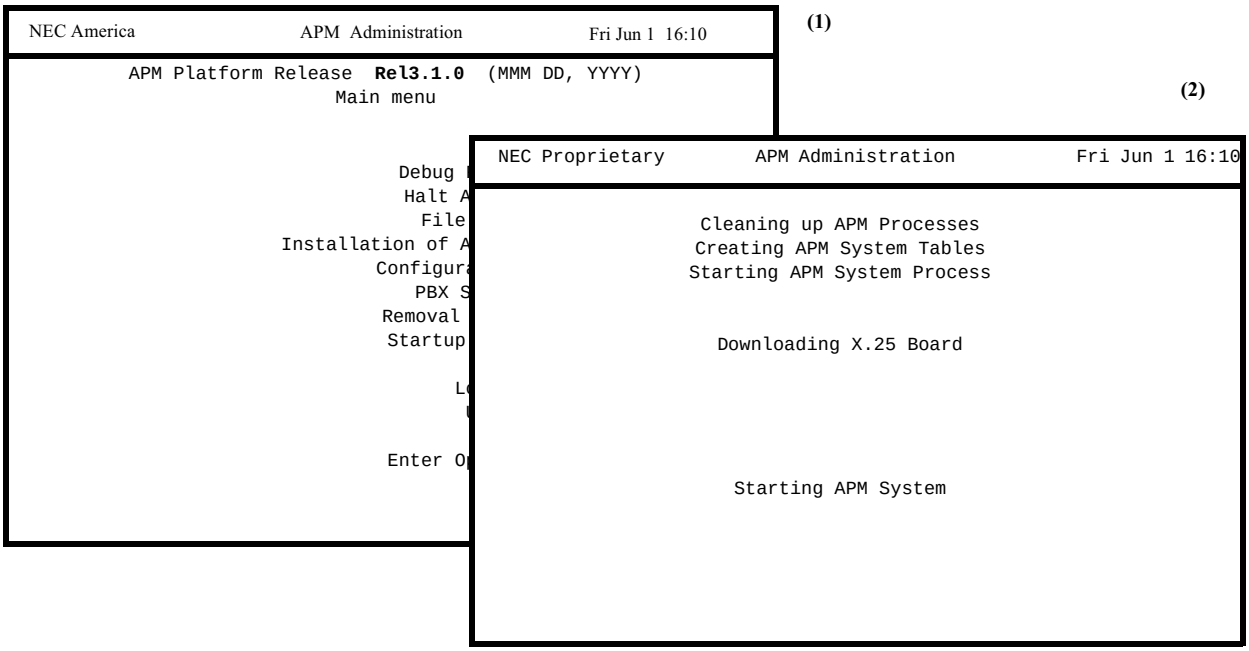


Figure 2-29 Startup APM System

Notes

In the re-initialization process, the APM library shared memory structures are regenerated, and the Monitor and Timer processes are started up.

If the OAI Initialization parameter in the **Control Options** menu is set to Y (Yes), the Monitor will automatically initialize OAI system processes and initialization batch applications at this time. Also, the setting of the APM flag, defined under the **System Configuration** option, may affect this function.

Procedure

Action	Result
On the APM Platform Administration Main menu, select the Startup APM System option and press RETURN. **(1)**	Messages indicate the steps being taken to start up the APM system, and, when the sequence is completed, the APM Platform Administration Main menu is redisplayed. The APM Status in the far bottom right-hand corner indicates that the APM is Active. **(2)** (Please see Figure 2-30, Figure 2-31, Figure 2-32, Figure 2-33, Figure 2-34, Figure 2-35.)

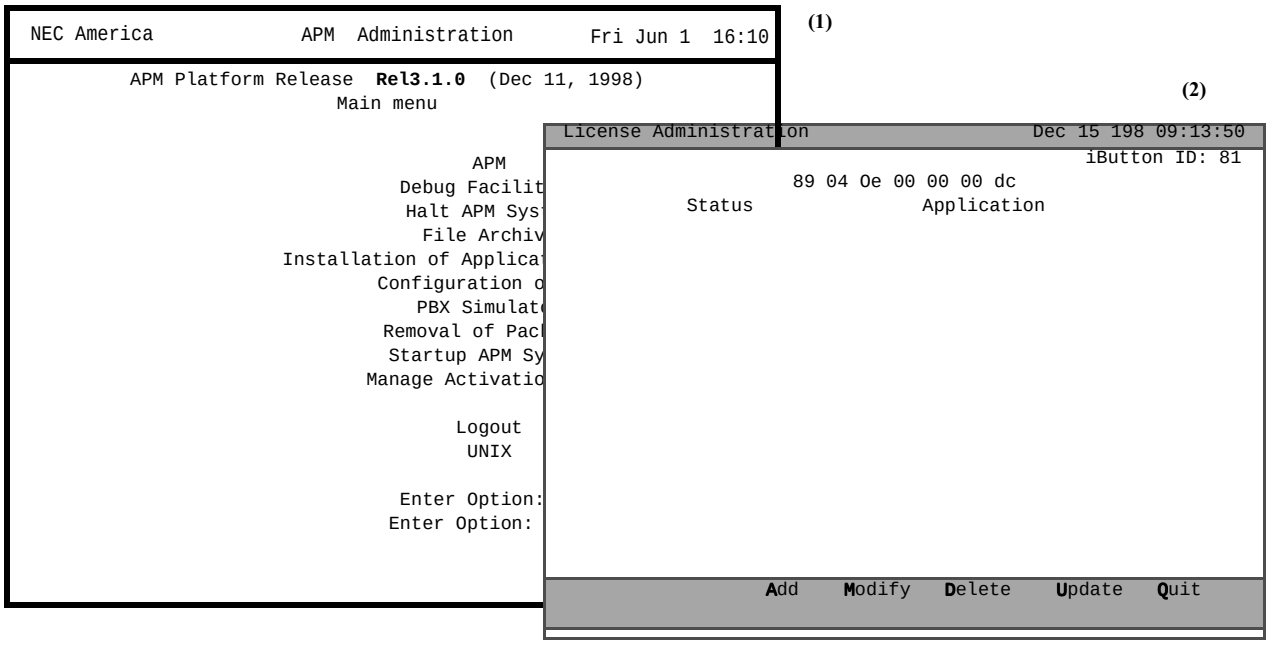


Figure 2-30 Startup APM System

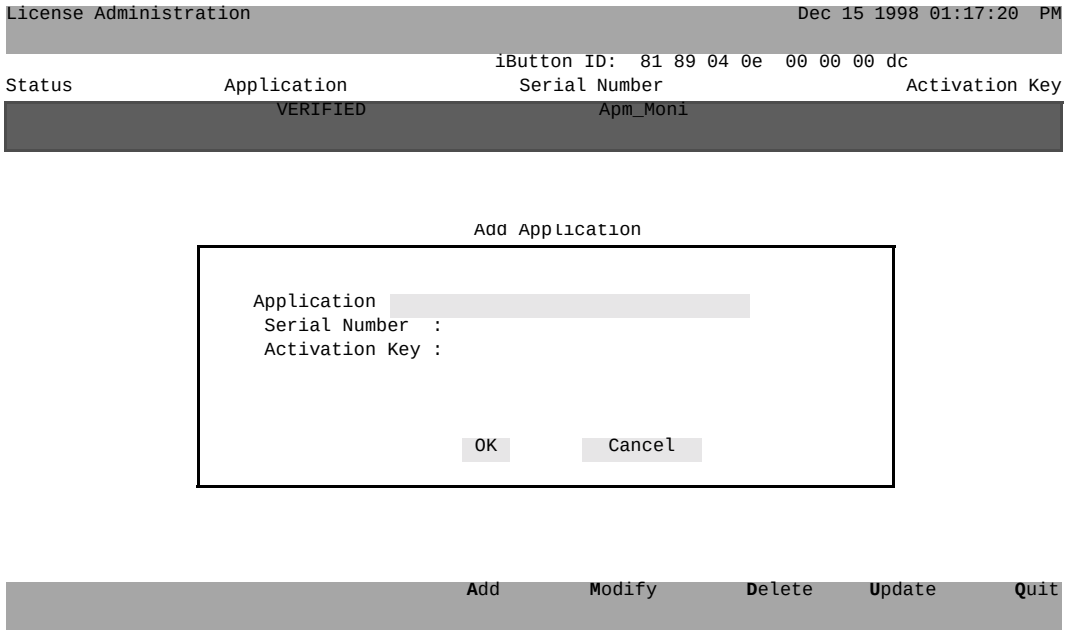


Figure 2-31 Add Application

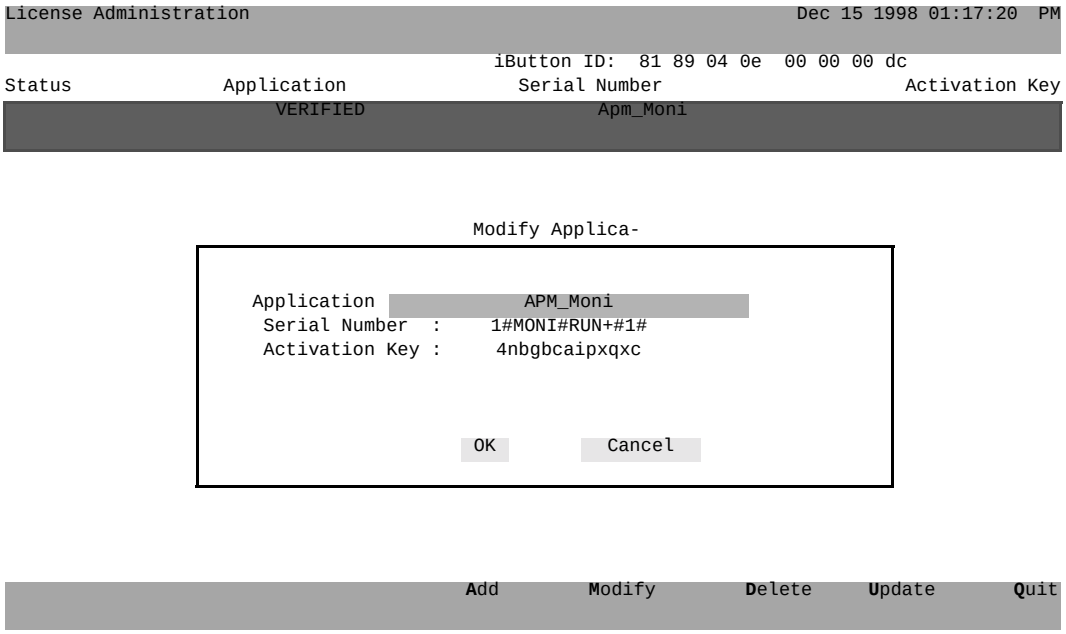


Figure 2-32 Modify Application

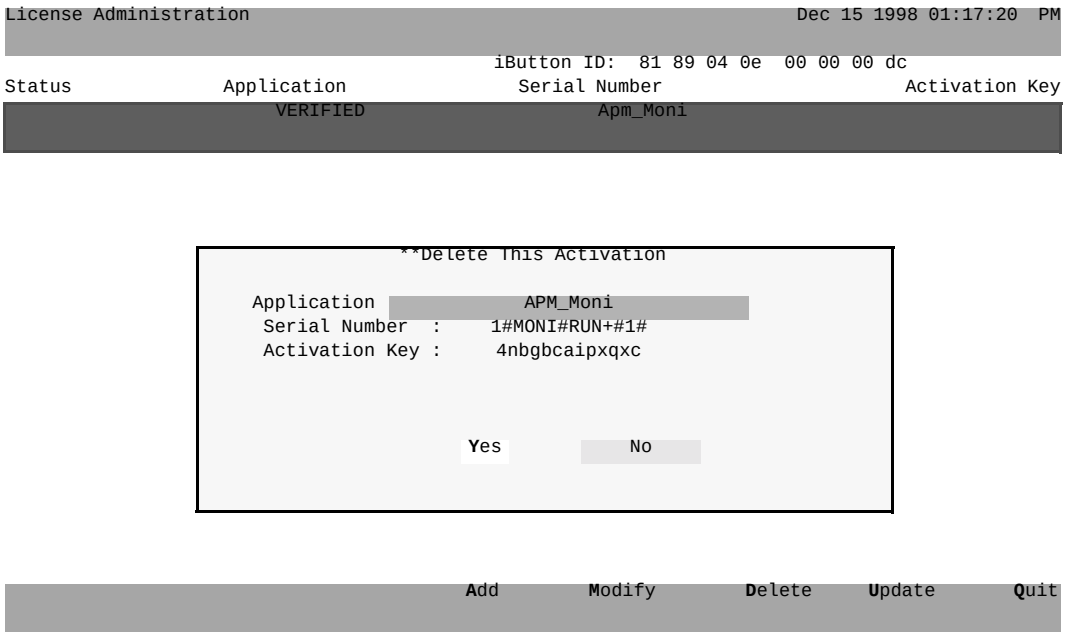


Figure 2-33 Delete Application

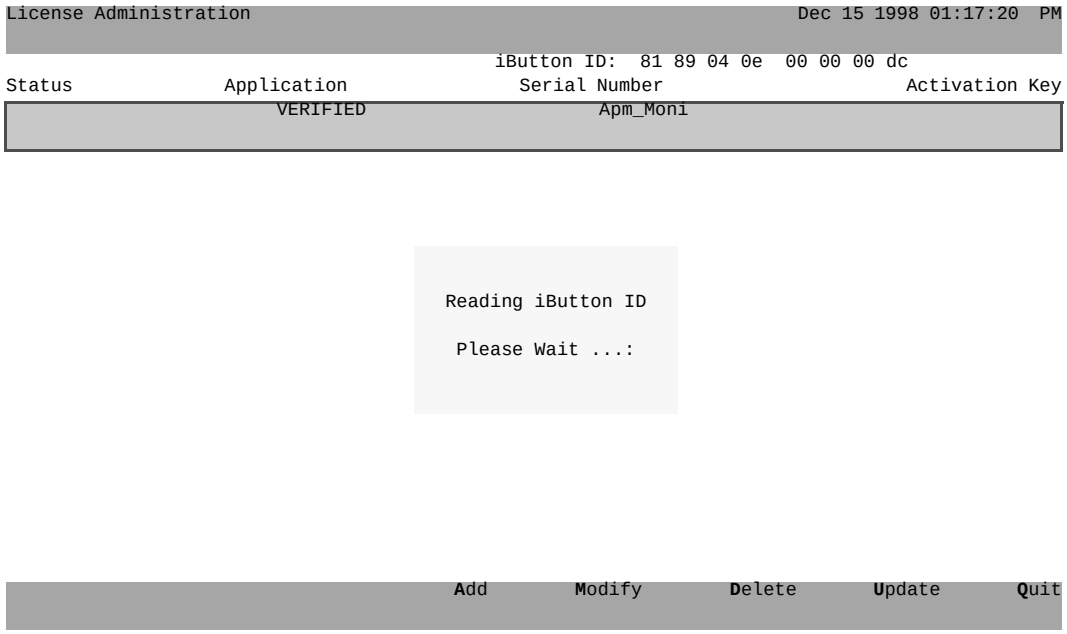


Figure 2-34 Reading Button

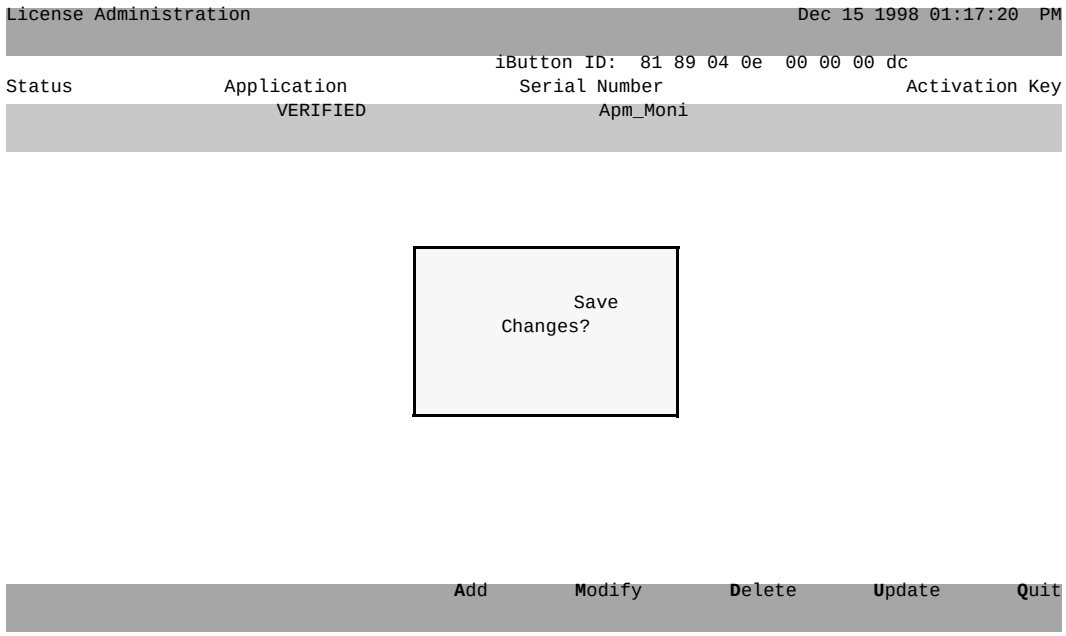


Figure 2-35 Save Changes

Chapter 3 System Administration

Overview

The System Administration menu is used to define, generate, and control the APM system, including access to it. (Please see Figure 3-1.)

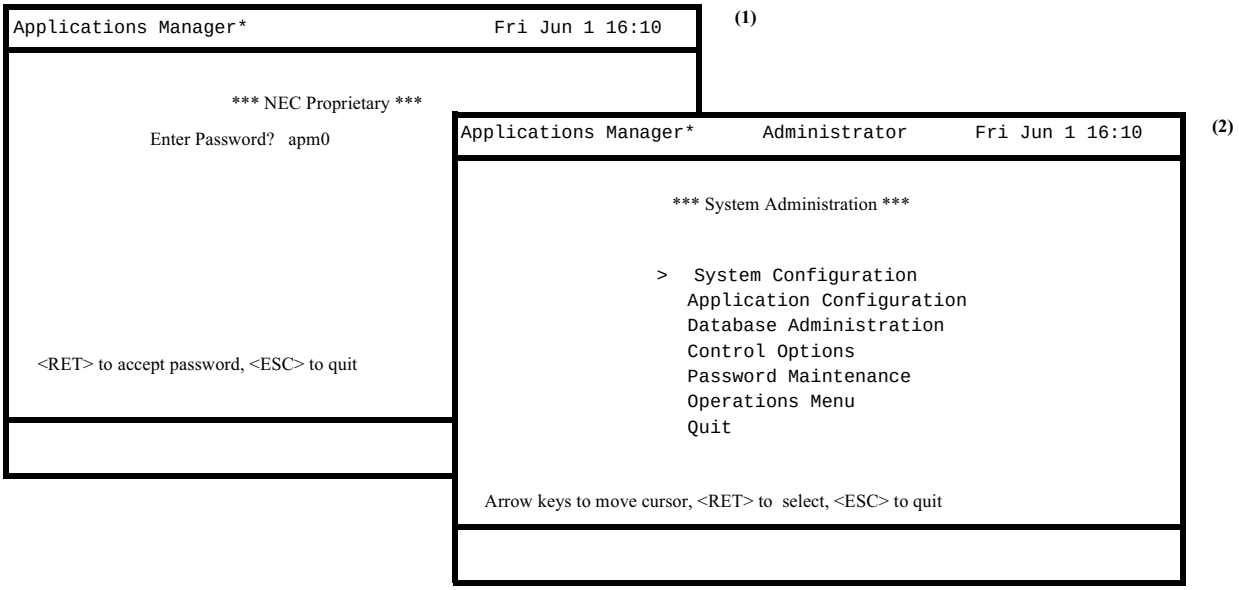


Figure 3-1 System Administration

This menu can be used only if the administrator password has been entered on the Password Entry screen. This menu provides the following options:

- **System Configuration** – Used to specify variables that define resource and task allocation during APM system generation.
- **Application Configuration** – Used to internally configure the applications in the APM system.
- **Database Administration** – Used to define and manage the master databases and the application databases generated from them.
- **Control Options** – Used to configure and manage the processes by which the APM system, its applications, and their databases can be controlled.
- **Password Maintenance** – Used to designate or change passwords for access to the APM system.
- **Operations Menu –** Used to move directly into the System Operations Menu without returning to the Password Entry screen.

Procedure

Action	Result
On the Password Entry screen, enter the System Administrator password **(1)**.	The System Administration menu displays, and the cursor is positioned on the first listed option **(2)**.
Use the arrow keys to position the cursor on the option desired or enter its first letter and press RETURN.	The desired option displays.
To exit the System Administration menu: Select the **Quit** option and press RETURN, or press ESC at any time.	The Password Entry screen displays.

System Configuration

Overview

The System Configuration option on the System Administration menu is used to specify variables which define resource allocation, communication structures, and network access points during APM system generation. Once these variables are configured, they should not need to be changed. Before making any changes to these variables, check with the system distributor. (Please see Figure 3-2.)

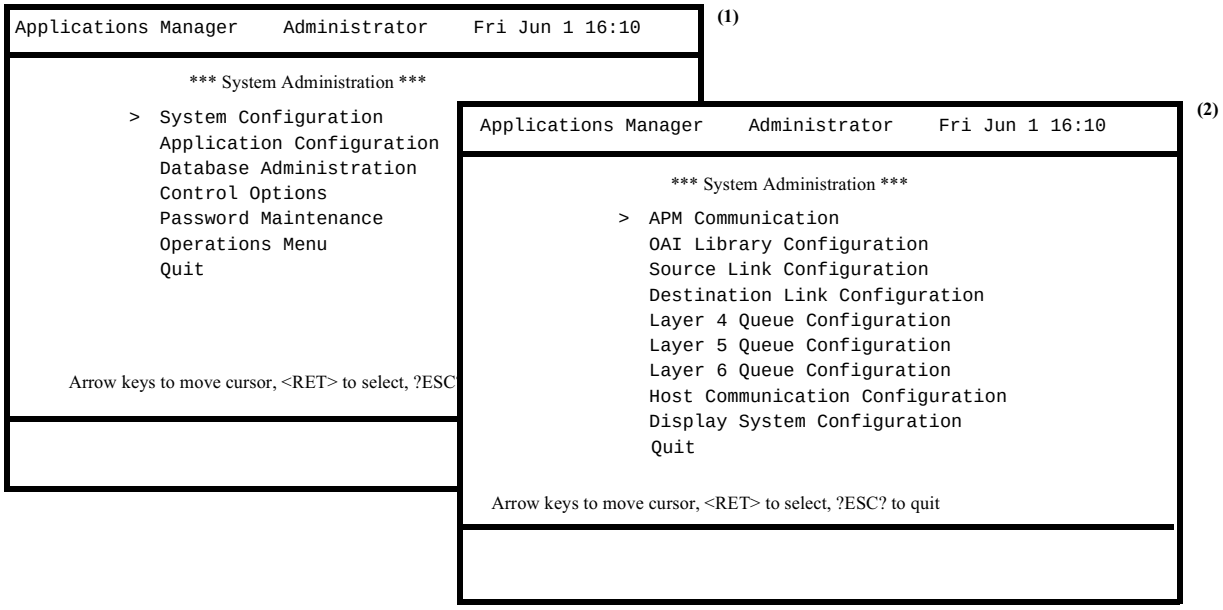


Figure 3-2 System Configuration

Notes

System Configuration menu options are defined as follows:

- **APM Communication –** Used only for development and/or installation purposes to configure the Inter-Process Communication (IPC) structures of the APM.
- **OAI Library Configuration –** Used to define characteristics of the OAI system.
- **Source Link Configuration –** Used to define the link characteristics on the source system.
- **Destination Link Configuration –** Used to define the link characteristics on the destination system.
- **Layer 4 Queue Configuration –** Used to assign communication queues to the Transport Layer of each designated link.
- **Layer 5 Queue Configuration –** Used to assign communication queues to the Session Layer service providers.

- **Layer 6 Queue Configuration –** Used to assign communication queues to the Presentation Layer service users.
- **Host Communication Configuration –** Used to define the master/slave relationships of all links configured to the Message Transfer Layer of the Host Communications Interface.
- **Display System Configuration –** Used to view or print APM system, link, and layer-dependent configuration data.

Procedure

Action	Result
On the System Administration menu, select the System Configuration option and press RETURN **(1)**.	The System Configuration menu displays, and the cursor is positioned on the first listed option **(2)**.
Use the arrow keys to position the cursor on the option desired and press RETURN.	The desired option displays. **Note:** *After the selection is made, there is a pause while the system reads in the file of the option selected.*
To exit the System Configuration menu: Select the **Quit** option and press RETURN, or press ESC at any time.	The System Administration menu displays.

APM Communication

The APM Communication option on the System Configuration menu is used to configure the IPC structures of the APM. (Please see Figure 3-3.)

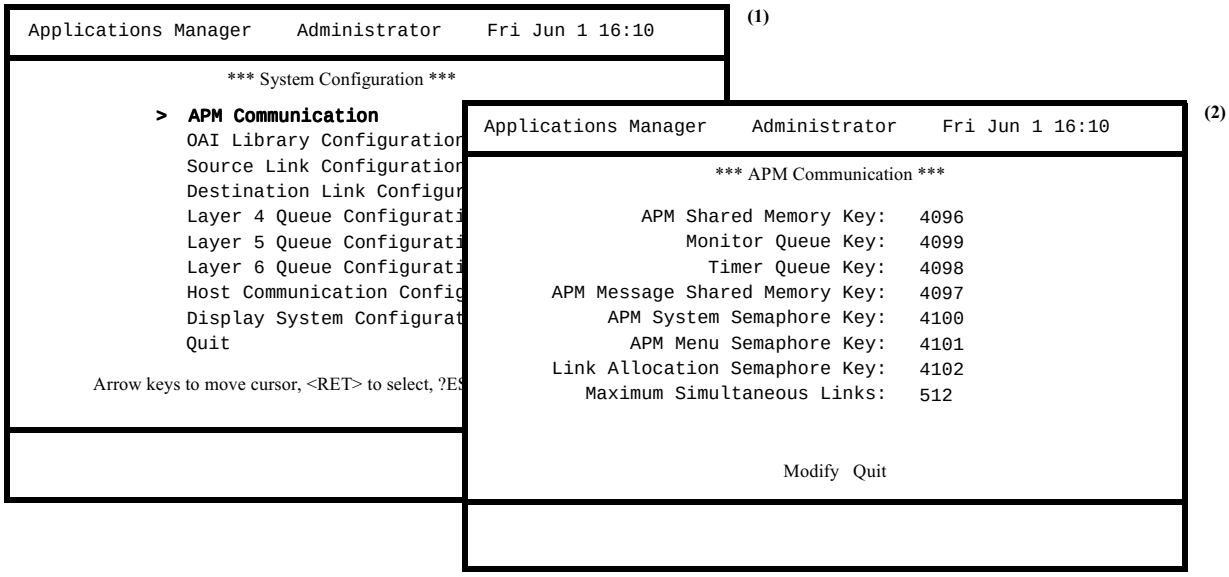


Figure 3-3 APM Communication

Notes

The APM Communication option is used only for installation and development purposes. The keys are used to create the APM Inter-Process Communication (IPC) structures defined in the UNIX environment and listed in the display. The values shown in the screen above are actual default values that are appropriate for most systems. If, however, the APM is being installed with another system that is to use the same operating system resources, the values in these fields must be unique for each system and might need to be changed. Also, if the APM is being used in a development environment, some of these values may need to be changed. *Otherwise, these values required no change. Before altering any of these field values, check with the system distributor.*

Procedure

Action	Result
On the System Configuration menu, select the APM Communication option **(1)**.	The APM Communication screen is displayed, and the cursor is positioned on the **Modify** command **(2)**.
If modifications must be made for installation or development purposes, use the arrow keys to move the cursor among the fields, enter new values over the old (range of entry for each field is 1-32767) according to the definitions below, and press RETURN to accept the entry.	
Field Name APM Shared Memory Key	Definition The key used to create the APM Shared Memory that is used to store the information defined as the System Configuration by the APM.
Monitor Queue Key	The queue read by the Monitor process in the APM environment.
Timer Queue Key	The queue read by the Timer process in the APM environment.
APM Message Shared Memory Key	The Shared Memory queue used by the APM to handle messages displayed in the status window on the APM interface.
APM System Semaphore Key	The key of the semaphore used by the APM to determine if the system is currently initialized.
APM Menu Semaphore Key	The key of the semaphore used by the APM to control access to the Administration and Operations menus.
Link Allocation Semaphore Key	The key of the semaphore used by the APM when allocating link identifiers.
Maximum Simultaneous Links	The maximum number of simultaneous link identifiers that can be handled by the APM at any given time.
To exit the APM Communication screen: Select the **Quit** option and press RETURN, or press ESC at any time.	The System Configuration menu displays.

OAI Library Configuration

The OAI Library Configuration option on the System Configuration menu is used to define the characteristics of the OAI system. These resource definitions are used when the OAI system is initialized to create enough shared memory, semaphores, and queues to process the maximum number of OAI applications at one time. (Please see Figure 3-4.)

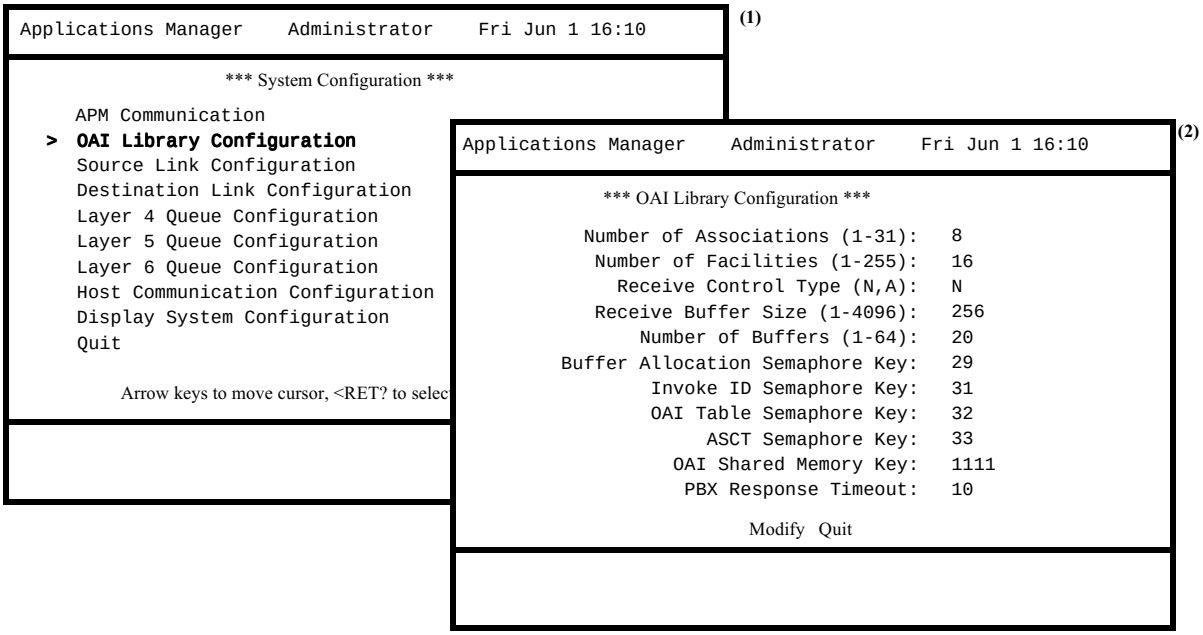


Figure 3-4 OAI Configuration

Notes

The parameters in the OAI Library Configuration are defined during installation with the default values shown. These values should meet most user needs and should require no change unless the demands on the system grow. These definitions cannot be changed while the system is initialized. Once changed, they do not go into effect until the system is reinitialized.

Procedure

Action	Result
On the System Configuration menu, select the OAI Library Configuration option **(1)**.	The OAI Library Configuration screen displays, and the cursor is positioned on the first field **(2)**.
Using the arrow keys to move the cursor among the fields, enter new data over the old according to the definitions on the next page and press RETURN to accept the entry.	
Field Number of Associations	Definition The number of associations that can be opened in the OAI system for this UAP at one time, ranging from 1-31. This value should be less than the value entered to the Number of Buffers field below.
Number of Facilities	The number of NEAX facilities that can be opened in the OAI system for this UAP at one time, ranging from 1-255.
Receive Control Type	The type of message control during runtime execution using **Normal (N)** which allows multiple applications to open associations (default) or **Asynchronous (A)** which allows only one application to open an association, and all messages pass through this association.
Receive buffer Size	The size of each receiving buffer created by the APM in the OAI Library Shared Memory to receive messages from the NEAX. (Default = 256 bytes)
Number of Buffers	The number of buffers created by the APM for the OAI Library to receive messages from the NEAX. (Default = 20) This value should be greater than the value entered to the Number of Associations and less than the number of messages that can go onto queues systemwide (a kernel tunable parameter –MSGTQL).
Buffer Allocation Semaphore Key	The key of the semaphore used to control allocation/de-allocation of the receiving buffers.(Default = 29)

Procedure (Cont)

Action	Result
Field Invoke ID Semaphore Key	Definition The key of the semaphore used to control assignment of Invoke IDs. (Default = 31)
OAI Table Semaphore Key	The key of the semaphore used to control access to the OAI Table. (Default = 32)
ASCT Semaphore Key	The key of the semaphore used to control access to the first association in the Association Control Table (ASCT). If the number of associations is greater than 1, the next 'n' keys will be assigned for the corresponding association, where n=number of associations. (Default = 33)
OAI Shared Memory Key	The shared memory queue assigned for the OAI Library. (Default = 1111)
PBX Response Timeout	The amount of time that a library call will wait for a response from the PBX before aborting the attempt with a Timeout error.
To exit the OAI Library Configuration screen: Select the **Quit** option and press RETURN, or press ESC at any time.	The System Configuration menu displays.

Source/ Destination Link Configuration

The Source and Destination Link Configuration options on the System Configuration menu are used to define communication links between the UAP and other remote machines using the definitions provided through the APM. The Source Link Configuration defines characteristics of the local machine. The Destination Link Configuration defines the characteristics of the remote machine. (Please see Figure 3-5.)

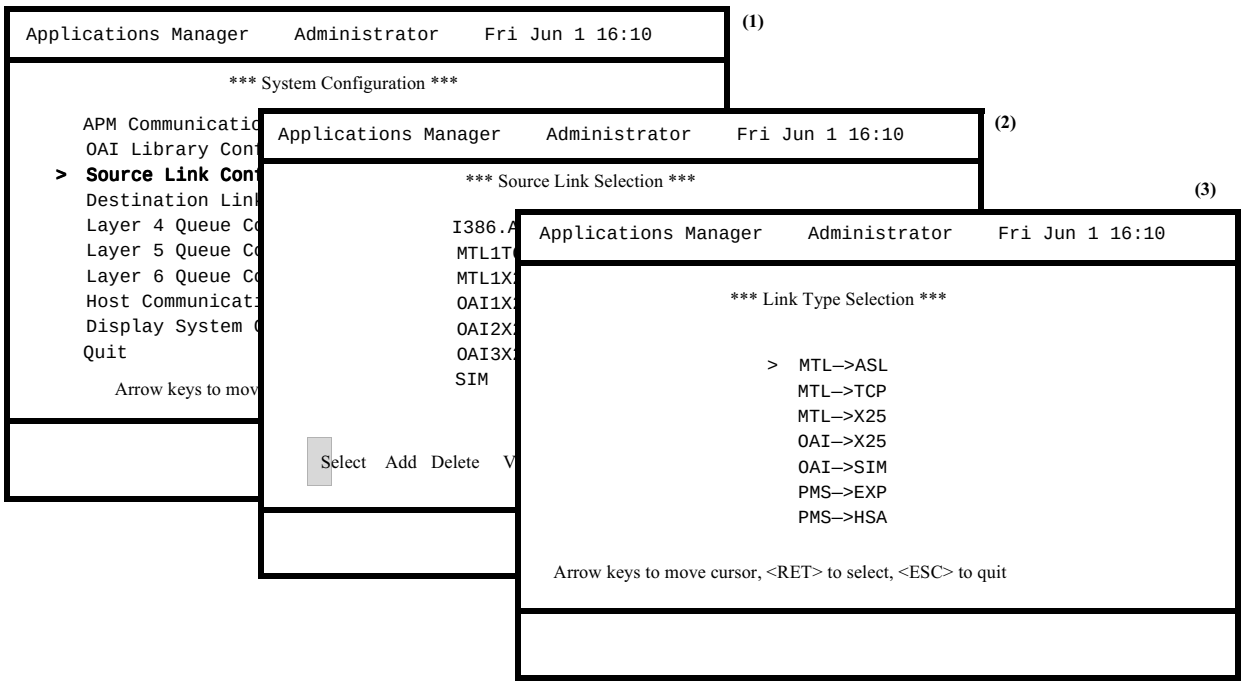


Figure 3-5 Source/Destination Link Configuration

Notes

The HCI enables an application on a remote system to communicate with the APM and/or any application in its environment. The remote machine may be a PBX, a system in an ethernet network, or a PC communicating through the Host Communications Interface (HCI). Before such a communication can take place, however, the link between the two communicating applications must be configured in the APM. Both a source and destination address must be given for each link. Source refers to the local system, and destination refers to the remote system.

In order for a particular link between two APM entities to be complete, the source entry for the link must be in the destination table on the destination machine while the destination entry for that same link must be in the source table on the destination machine. This cross-matches the link definitions between the two systems.

Source/ Destination Link Configuration (Cont)

There are currently five types of links available to HCI users. The list of these five types displays when the **Add** command is selected from either the Source Link or Destination Link Selection screens. When a type of link is selected, a list of link-specific parameters is then displayed for configuration. The types of links are described below, including the list of link-specific parameters corresponding to each. The parameters are defined within the Procedure section that follows.

- **MTL –>ASL –** This type of link is defined for use by the HCI over direct asynchronous connections or over dial-up lines. Selection of this choice displays the following parameters for data entry:
  Link Name
  Device Name
  Port
  Linemode
  Phone
- **MTL –>TCP –** This type of link provides connection via the HCI to a TCP/IP network. Selection of this choice displays the following parameters for data entry:
  Link Name
  Session Service Access Point
  Host Name
  Port
- **OAI->TCP** - This type of link is used by OAI for connection to the destination PBX via a TCP/IP network. Selection of either of these choices displays the following parameters for data entry:
  Link Name
  Session Service Access Point
  Host Name
  Port
  Heartbeat
- **PMS->EXP** - This type of link is used by applications that connect to Property Management Systems using the System Strategies Express 5250 Emulation Software. The physical media is typically Token Ring but can be anything that is supported by the System Strategies Express Emulation Software.
  Link Name
  Session ID
- **PMS->HSA** - This type of link is used by applications that connect to Property Management Systems using the Andrew Handshake Alliance 5250 Emulation Software. The physical media is a twinaxial cable that is connected to an IBM Host.

Source/ Destination Link Configuration (Cont)

- **MTL –>X25 and OAI –>X25 –** These two types of links are used by the HCI and the OAI for connection with a destination system via the X.25 link protocol. Selection of either of these choices displays the following parameters for data entry:
  - Link Name
  - Session Service Access Point
  - Transport Service Access Point
  - Network Service Access Point
  - Controller Line Port
  - Packet Size

  When configuring OAI/X25 link types, the PBX specifies how to calculate addresses according to the hardware and firmware installed on the switch. These calculations use the PBX number, Interface Processor (IP) number, and the Network Link Controller (NLC) Package number to determine the source and destination session service access point (ssap), transport service access point (tsap), and network service access point (nsap) values. All three of these numbers are dependent on the location of hardware ports and database information on the PBX MAT. This information should be entered via the MAT prior to configuring these addresses on the UAP. See the *OAI PBX Module Installation Guide* for more information on configuring these values for the PBX. X25 Address Calculation contains the method for computing network addresses to the PBX. Refer to that description prior to making related entries to the link configuration.

- **OAI –>SIM –** This type of link is a direct connection to the PBX Simulator. Selection of this choice displays the Link Name for data entry.

Procedure

Action	Result
On the System Configuration menu, select the desired Link Configuration option (Source or Destination) **(1)**.	The Link Selection menu displays, and the cursor is positioned on the **Select** command **(2)**.
To modify a source or destination link: On the Source Link Selection screen **(2)**, press RETURN to choose the **Select** command. Using the arrow keys, position the cursor on the desired Link Name and press RETURN. Using the arrow keys to move the cursor among the link-specific parameters, enter new data according to the definitions listed below and press RETURN to accept each entry.	 The Link Selection menu is still displayed, and the cursor is positioned on the first Link Name. The modification screen for the selected Link Name displays (not shown).
Field Name Controller Line Port Device Name Heartbeat	Definition The controller port number of the X.25 hardware, currently always set to 0. The device name of the link to be used by the ASL to communicate with the other machine, such as a */dev/tty* as defined by UNIX. Allows configuration of TCP/IP destination lines to request the heartbeat facility from the host. If this is enabled for a destination link, any applications that support the heartbeat facility and use this destination link will have the heartbeat facility enabled.

Procedure (Cont)

Action	Result
To modify a source or destination link: (Cont.) Field Host Name	Definition The name of the host machine used to interface across a TCP/IP network. This entry should match one of the entries made in the system-defined */etc/hosts* file which can be done through the Platform Management ->Installation of Applications/ Packages->tcpip menu. When configuring OAI/TCP link types, the IP address that corresponds to the Host Name entry must match the IP address that is specified in the PBX MAT AIPT command. On the UAP side, the IP address that corresponds to the Host Name is specified in the */etc/hosts* file.
Linemode	The line characteristics for the ASL communications protocol; possible entries include: 1: Raw Data, 9600 Baud, 8-N-1 2: Raw Data, 4800 Baud, 8-N-1 3: Raw Data, 2400 Baud, 8-N-1 4: Raw Data, 1200 Baud, 8-N-1 5: ASCII Data, 9600 Baud, 7-E-1 6: ASCII Data, 4800 Baud, 7-E-1 7: ASCII Data, 2400 Baud, 7-E-1 8: ASCII Data, 1200 Baud, 7-E-1
Link Name	A unique name that identifies this particular source or destination link and used in the corresponding application configuration entry.
Network Service Access Point	The logical address associated with the link entry used by the network layer (for X.25) to match end-to-end transmission points. When setting up this entry on two machines, the destination NSAP value on the local machine must be the same as the source NSAP on the remote machine. (See X25 Address Calculation.)

Procedure (Cont)

Action	Result
To modify a source or destination link: (Cont.) Field Packet Size	 Definition The size of OAI message packets sent across the X.25 link between the UAP and the PBX. This entry should not be changed.
Phone	The phone number used by the ASL for dial-up lines that can contain any characters recognizable by the modem being used. The source link phone number is used to dial into the local system. The destination link phone number is used to dial out to the remote system. An entry of 0 indicates that the link is not a modem connection.
Port Address	For MTL->TCP configurations, this port address is used to distinguish multiple connections over TCP/IP. This is somewhat different than the ASL Port Address in that only the Destination Port Address of the requesting UAP needs to match the Source Port Address of the remote UAP. The Source Port Address of the UAP that requests a MTL->TCP connection does not need to match the remote UAP's Destination Port Address and therefore should both be set to 0. For OAI->TCP configurations, the Destination Port Address is used to distinguish between multiple connections to the PBX. When communicating with the PBX, there can be up to 16 TCP/IP connections at one time to a PBX CC98 card. For external IP, each connection is distinguished by the port number which ranges from 1024 to 1039.

Procedure (Cont)

Action	Result
To modify a source or destination link: (Cont) Field Port Address (Cont)	Definition If 0 is specified in the Destination Port Address entry, the APM Platform will find an available port number between 1024 and 1039 to use when establishing a connection with the PBX. Typically, 0 is specified in the Destination Link Port Address entry unless otherwise specified by an application. (Refer to the installation procedure of the particular application being installed for more information.) **For internal IP, the Destination Port Address must be 60030.** The Port Address on the Source Link Nodes should be set to 0 at all times for OAI->TCP configurations. For MTL->ASL configurations, the Port Address is a Logical ID used to distinguish between multiple connections over the same tty device. This Logical ID is passed to the remote UAP during the initial startup of a connection so that the remote UAP ASL process knows the location to which it should send the messages. When configuring ASL connections, the Source Port Address of the local UAP should match the Destination Port Address configured on the remote UAP. Similarly, the Destination Port Address of the local UAP should match the Source Port Address configured on the remote UAP.
Session ID	An identifier used for the PMS->EXP and PMS->HSA link types to distinguish between the High Priority Links and the Low Priority Links as shown below: 0 - Low Priority Link 1 - High Priority Link

Procedure (Cont)

Action	Result
To modify a source or destination link: (Cont) Field Session Service Access Point	Definition The logical address associated with the link entry used by the session layer to match end-to-end transmission points. For MTL->X25, MTL->TCP, or OAI->X25 configurations the destination SSAP value on the local machine must be the same as the source SSAP on the remote machine. (See X25 Address Calculation for calculation when using configuring a OAI->X25 connection.) For OAI->TCP connections on the Source Link this should be set to 0x6500 and for the Destination Link this should be set to 0x6000.
Transport Service Access Point	When setting up this entry on two machines, the destination TSAP value on the local machine must be the same as the source TSAP on the remote machine. (See X25 Address Calculation.)
To exit the modification screen for the selected link type: Choose the **Quit** option and press RETURN, or press ESC at any time.	The message **Do you want to save the changes? (Y, N)** displays. Enter **Y** (Yes) to store the changes and restore the Link Selection screen. Enter **N** (No) to cancel changes and restore the Link Selection screen. **Note:** *If any field is left blank, the message **Illegal blank entry in configuration record** displays when you try to exit the screen. Press any key to return to the Link Selection menu.*

Procedure (Cont)

Action	Result
To add a source or destination link: On the Link Selection screen, select the **Add** command **(1)**.	The Link Type Selection menu displays, and the cursor is positioned on the first type of link **(3)**.
On the Link Type Selection menu **(3),** use the arrow keys to position the cursor on the desired Link Type and press RETURN.	The Link-specific list of parameters displays for data entry (not shown).
Using the arrow keys to move the cursor among the fields, enter new data and press RETURN to accept each entry.	
To exit the data entry screen for the selected option: Choose the **Quit** command and press RETURN.	The Link Selection menu displays. **Note:** *If any field is left blank, the message **Illegal blank entry in configuration record** displays when you try to exit the screen. Press any key to return to the Link Selection menu.*
To delete a source or destination link: On the Link Selection screen **(1)**, select the **Delete** command.	The Link Selection menu is still displayed, and the cursor is positioned on the first link name.
Using the arrow keys, position the cursor on the name of the link to be deleted and press RETURN.	The message **Do you want to delete <link name>? (Y, N)** displays. Enter **Y** (Yes) to remove the selected link name and restore the Link Selection screen. Enter **N** (No) to cancel the deletion and restore the Link Selection screen.

Procedure (Cont)

Action	Result
To view a source or destination link: On the Link Selection screen **(1)**, select the **View** command.	The Link Selection menu is still displayed, and the cursor is positioned on the first link name.
Using the arrow keys, position the cursor on the desired link name and press RETURN.	The configuration for the selected link name displays.
These are view-only displays. Press any key to exit a display.	The Link Selection screen displays.
To exit the Link Selection menu: Select the **Quit** option and press RETURN, or press ESC at any time.	The System Configuration menu displays.

Layer 4, 5, and 6 Queue Configuration

The Layer 4, 5 and 6 Queue Configuration options on the System Configuration menu are used to define the IPC queue structures that support the communication processes in each of the three layers. These layers corresponds to those in the OSI Basic Reference Model, including Layer 6 (Presentation), Layer 5 (Session), and Layer 4 (Transport). (Please see Figure 3-6.)

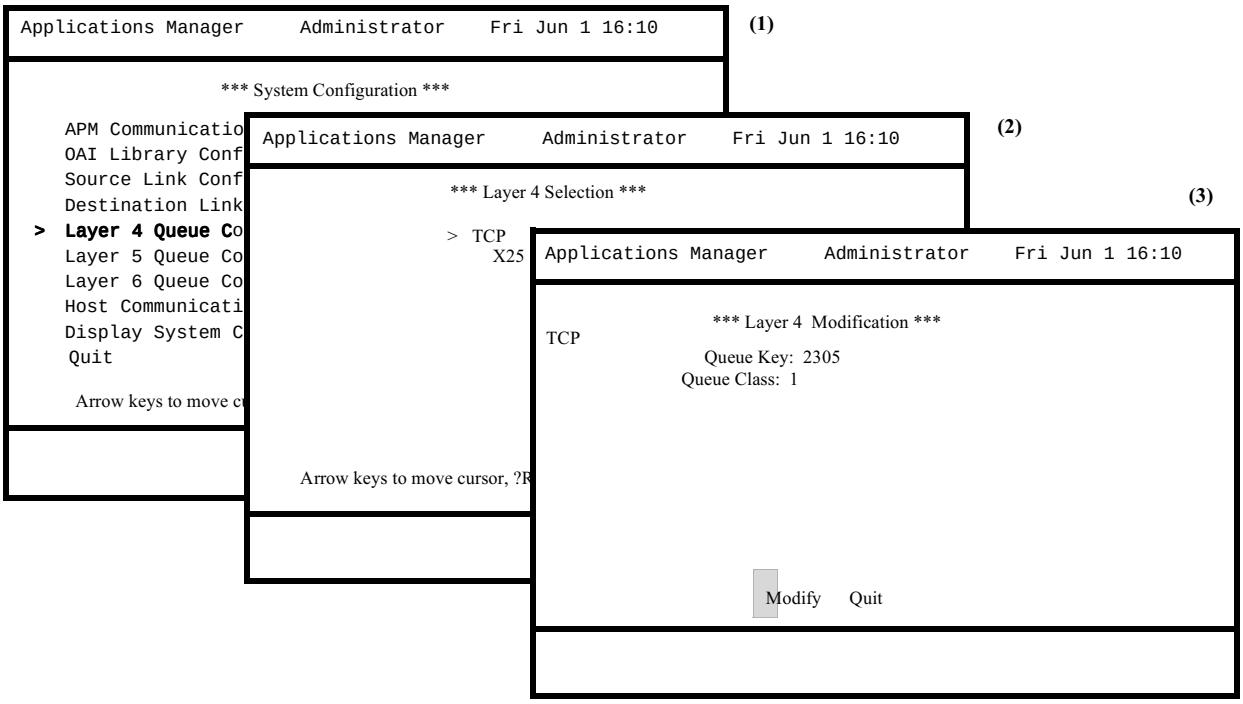


Figure 3-6 Layer Queue Configuration

Notes

The services provided at each layer use IPC queues for the transfer of data between layers. Each service must therefore be assigned a unique queue key that is assigned a class or priority by which messages are read or written from it. The classes are defined in the **UNIX Programmers Reference Manual**. The queue class for each entry in these menus is specific to the individual service they represent and should NEVER be changed.

The values in these menus for queue keys should NOT require change unless the APM is made to run on the same UAP as another system that uses IPC queues. In that case, each queue key must be unique and assigned to only one system. Any changes should ONLY be made by engineers making the updates to the system. If the queue keys must be changed, they may be changed to a key value not currently used by any other service and must lie within the range between 101 to 32767. OAI queues range from 1 to 100.

The following services require queues and queue class assignments. The service descriptions, listed alphabetically, include the layer(s) at which the services require a queue.

- **ASL – (**Asynchronous Session Layer) Serves the Host Communications Interface (HCI) over direct asynchronous connections or over dial-up lines. The ASL queue is configured only at Layer 5 (Session).
- **EXP –** Supports communication using the System Strategies 5250 Emulation Software. The EXP queue is configured only at Layer 5 (Session).
- **HSA –** Supports communication using the Andrew Handshake Alliance 5250 Emulation Software. The HSA queue is configured only at Layer 5 (Session)
- **MTL –** (Message Transfer Layer) Serves the Host Communications Interface (HCI) in the exchange of messages between local and remote systems via ASL, TCP, or X.25 links. The MTL queue is configured at Layer 6 (Presentation).
- **OAI –** Supports OAI software communications with the PBX via the X.25 link and with the Simulator via the direct session layer connection. The OAI queue is configured at Layer 6 (Presentation).
- **PMSI –** Supports a connection to a Low Priority Link of a Property Management System with either a TCP/IP network or 5250 using either the Andrew Handshake Alliance 5250 Emulation Software or System Strategies Express 5250 Emulation Software. The PMSI queue is only define at Layer 6 (Presentation).
- **PMSO –** Supports a connection to a High Priority Link of a Property Management System with either a TCP/IP network or Emulation Software or System Strategies Express 5250 Emulation Software. The PMSO queue is only defined at Layer 6 (Presentation).
- **SIM –** Connects a UAP directly to the PBX Simulator. The Simulator queue is configured only at Layer 5 (Session).
- **TCP –** Connects a UAP to a TCP/IP network that serves the Host Communications Interface (HCI), OAI, and Property Management Systems. The TCP service requires a configured queue at both Layer 4 (Transport) and Layer 5 (Session).
- **X25 –** Supports communication using the X.25 link protocol and may serve the HCI and/or the OAI. The X.25 service requires a configured queue at both Layer 4 (Transport) and Layer 5 (Session).

Procedure

Action	Result
On the System Configuration menu, select the desired Layer Queue Configuration (Layer 4, 5, or 6) option **(1)**.	The Layer Selection menu for the indicated layer displays, and the cursor is positioned on the first service **(2)**.
To modify a configuration: Using the arrow keys, position the cursor on the desired service and press RETURN.	The layer modification screen for the selected service displays, and the cursor in on the **Modify** command.
Press RETURN to select the **Modify** command.	The Queue Key field highlights.
Using the arrow keys to move the cursor between the fields, enter new data according to the definitions below and press RETURN to accept each entry.	
Field Name Queue Key	Definition The key used to create the queue. Assign a value not currently in use and within the range 101-32767 or 1-100 for OAI.
Queue Class	The read/write priority assigned to the queue. (Refer to **UNIX Programmers Reference Manual**.)
To exit the Layer Modification screen: Press ESC, select the **Quit** command and press RETURN.	The Layer Selection menu for the same layer displays.
To exit the Layer Selection menu: Press ESC.	The System Configuration menu displays.

Host Communication Configuration

The Host Communication Configuration option on the System Configuration menu is used to configure HCI links as either slave or master. This configuration is only concerned with MTL Link Names. (Please see Figure 3-7.)

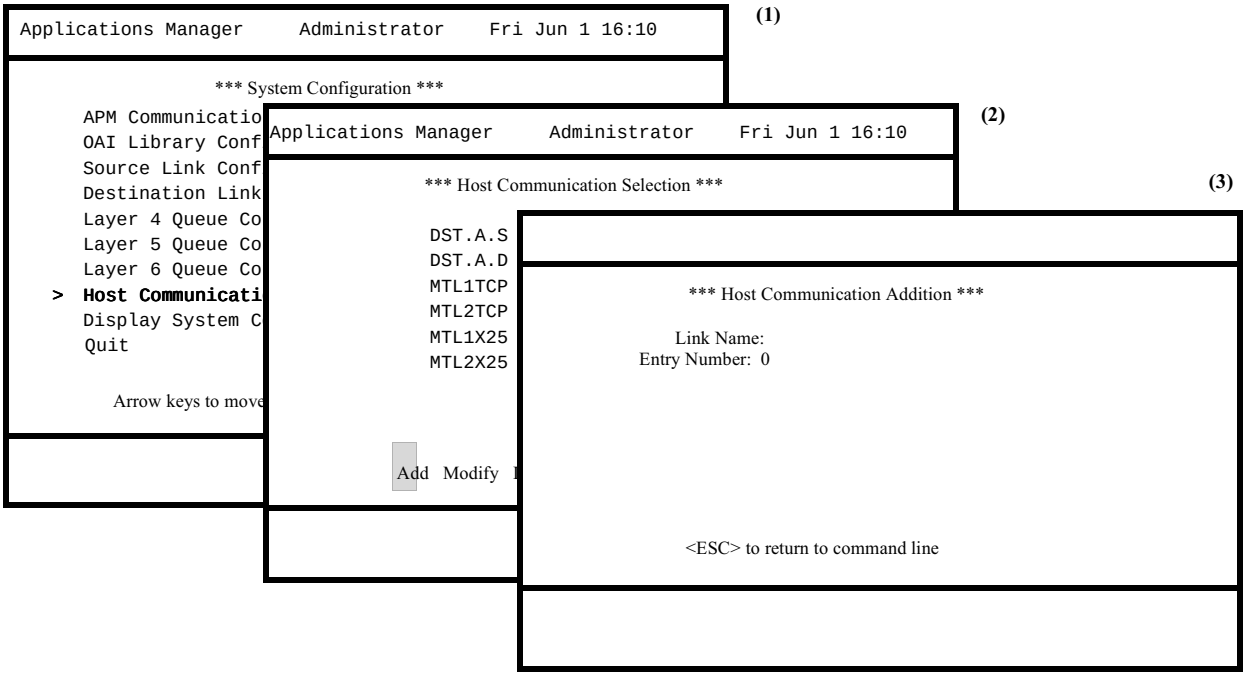


Figure 3-7 Host Communication

Notes

MTL links must be configured in a master/slave relationship through this option prior to their use. That is, a source link must be configured to be either a master or a slave in relation to its destination link. In one configured relationship, the higher Entry Number represents the master, and the lower Entry Number represents the slave. Therefore, one Link Name can be a master in one relationship and a slave in another at the same time.

Procedure

Action	Result
On the System Configuration menu, select the Host Communication Configuration option **(1)**.	The Host Communication Selection screen displays, and the cursor is positioned on the **Add** command **(2)**.
To configure a link name: Press RETURN to select the **Add** command. Using the arrow keys to move the cursor among the fields, enter new data according to the definitions below and press RETURN to accept each entry. Field Name Link Name Entry Number	The Host Communication Addition screen displays, and the cursor is positioned on the Link Name field **(3)**. Definition The unique name that identifies a particular source or destination link. An integer representing the Master/ Slave relationship between the currently selected MTL entity and those entities with which it may communicate.
To exit the Layer Addition screen: Press ESC and then RETURN.	The Host Communication Selection menu displays.
To modify a link name: On the Host Communication Selection menu, select the **Modify** command and press RETURN. Using the arrow keys, position the cursor on the desired link name and press RETURN. Using the arrow keys to move the cursor among the fields, enter new data over the old and press RETURN to accept each entry. **To exit the Modification screen:** Press ESC and then RETURN.	The Host Communication Selection screen is still displayed, and the cursor is positioned on the first link name. The modification screen for the selected link name displays. The Host Communication Selection menu displays.

Procedure (Cont)

Action	Result
To delete a link name: On the Host Communication Selection screen, select the **Delete** command.	The Host Communication Selection menu is still displayed, and the cursor is positioned on the first link name.
Using the arrow keys, position the cursor on the link name to be deleted and press RETURN.	The message **Do you want to delete <link name>? (Y, N)** displays. Enter **Y** (Yes) to remove the selected option and restore the Host Communication Selection menu. Enter **N** (No) to cancel the deletion and restores the Host Communication Selection menu.
To view a link name: On the Host Communication Selection menu, select the **View** command.	The Host Communication Selection menu is still displayed, and the cursor is positioned on the first link name.
Using the arrow keys, position the cursor on the desired link name and press RETURN.	The Configuration screen displays for the link name selected. The following notations, one of which is displayed beside every link name, show the relationship of that link name to the selected one: S – this link name is a slave to the one selected. M – this link name is a master to the one selected. * – this is the link name selected. (blank)– this link name has the same entry number as the link name selected, so it is neither a master nor a slave to it.
This is a view-only display. Press any key to exit a display.	The Host Communication Selection screen displays.
To exit the Host Communication Selection menu: Select the **Quit** command and press RETURN, or press ESC at any time.	The System Configuration menu displays.

Display System Configuration

The Display System Configuration option is used to view APM system, link, and layer configuration data. (Please see Figure 3-8.)

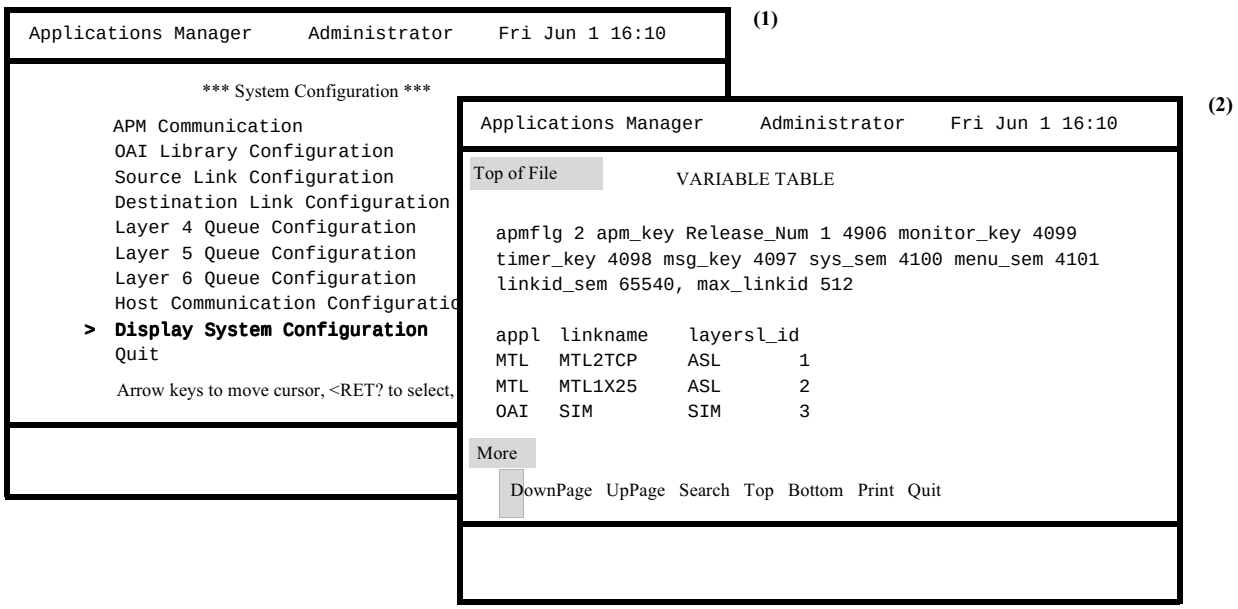


Figure 3-8 System Configuration Display

Notes

The display contains the following information:

- APM system configuration data.
- Source and Destination Tables with configured variables and layer-dependent data.
- Layer Queue Tables with queue and class assignments by layer.

This is a view only display. It provides a search capability that results in the highlighting of a specified pattern throughout the display. This display also provides a print capability that produces a hard copy of either the file or the screen.

Procedure

Action	Result
On the System Configuration menu, select the Display System Configuration option **(1)**.	Current configuration data displays **(2)**.
The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**).	
To search: Select the **Search** command, enter at the prompt the pattern to be sought, and press RETURN.	
To print: Select the **Print** command, indicate at the prompt whether to print the file or just the screen, and press RETURN.	
To exit the configuration display: Select the **Quit** option and press RETURN, or press ESC at any time.	The System Configuration menu displays.

Application Configuration

Overview

The Application Configuration option on the System Administration menu is used to introduce an application into the system and to modify, delete, and view the configuration of an existing application. (Please see Figure 3-9.)

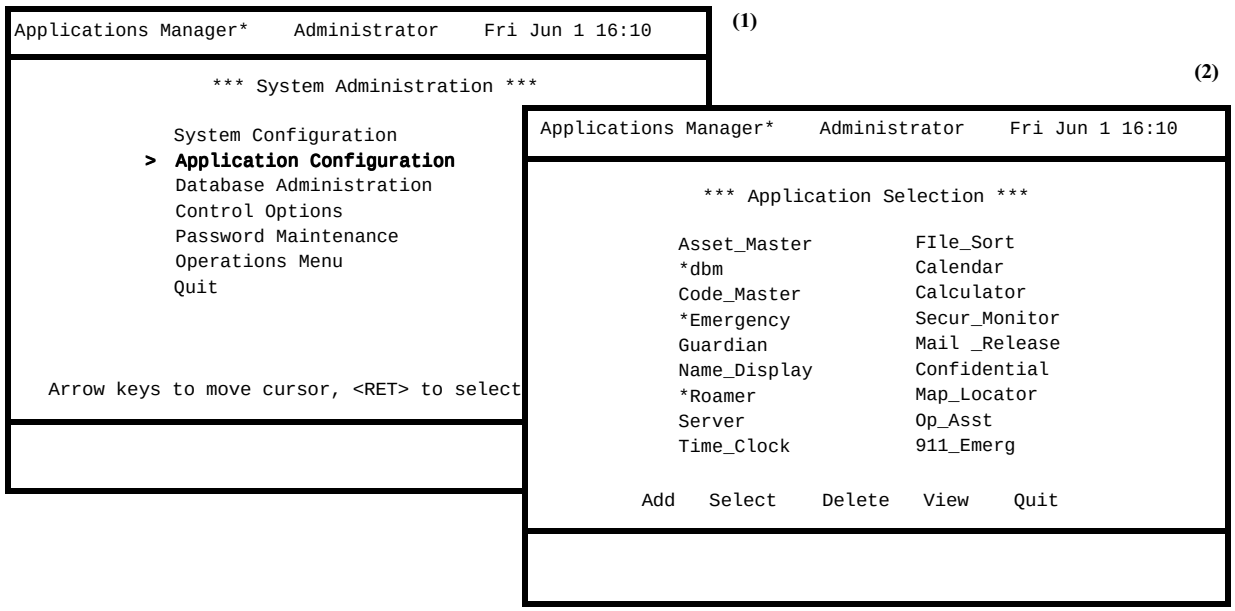


Figure 3-9 Application Configuration

Notes

Applications that are to be controlled and monitored by the APM must be configured through this option. The APM maintains a configuration file with information on up to 50 applications. The APM uses some of the information to control and monitor application activity and passes some information to the application during initialization.

An application is configured according to how it is characterized (whether or not it is an OAI application, whether or not it provides a user interface and requires a console, and whether or not it requires a message queue for information exchange). These characteristics are defined only when the application is initially added to the APM and the parameters that are associated with them are configured. Thereafter, configurations can be modified, but the characterization of an application remains unchanged until the application is deleted from the configuration file. This section first describes the process of adding a configuration to the APM (for OAI applications and for Non-OAI applications) and then addresses the processes of modifying, deleting, and viewing any configuration.

Overview (Cont)

A configuration may not be modified or deleted while the application is active or initialized, but it may be viewed at any time. An asterisk (*) immediately preceding the name of an application on the Application Selection screen (displayed when the Application Configuration option is selected) indicates that the application is active.

Note: *The "dbm" application is a component of the APM and must not be deleted or modified at any time.*

If the system contains more applications than a single Application Selection screen can display in two columns, and the screen scrolls to a second display page. Each page then contains the notation, "page_ of _". Use a **Shift D** to move to the second page from the first and a **Shift U** to move to the first page from the second. The arrow keys provide movement up and down the columns.

Procedure

Action	Result
On the System Administration menu, select the Application Configuration screen **(1)**.	The Application Selection screen displays, and the first command highlights **(2)**.
Select the desired command from the descriptions below, using the arrow keys or by entering its first letter, then press RETURN. • **Select –** used to change an existing application configuration. • **Add –** used to add a configuration to the system. • **Delete –** used to remove a configuration. • **View –** used to look at a configuration, regardless of whether the application is active or not. Use these commands as described in the following pages.	
To exit from the Application Selection screen: Press ESC at any time or select the **Quit** command and press RETURN.	The System Administration menu displays.

Add

The **Add** command on the Application Selection screen allows the user to add an application configuration to the APM system. Adding an application configuration to the system involves characterizing it as OAI or non-OAI, whether or not it uses a CRT, and whether or not it requires an IPC queue. (These characteristics are explained in detail in the following pages.) The combination of characteristics attributed to the application then determines the parameters that must be configured for it. That is, once the application is characterized, only the parameters that are required for that particular combination of characteristics must be configured.

The tables below list the parameters required for each possible combination of characteristics. (Please see Table 3-1, and Table 3-2.)

Table 3-1 Application Configuration Parameters (OAI)

OAI			
CRT		Non-CRT	
Non-Queue	Queue	Non-Queue	Queue
Primary Parameters	Primary Parameters	Primary Parameters	Primary Parameters
Application Name	Application Name	Application Name	Application Name
Executable Filename	Executable Filename	Executable Filename	Executable Filename
Group	Group	Group	Group
Response Mode	Response Mode	Response Mode	Response Mode
------	------	Initialization Batch	Initialization Batch
Termination Mode	Termination Mode	Termination Mode	Termination Mode
------	------	Standard Output	Standard Output
------	------	Number of Restarts	Number of Restarts
------	Queue Key	------	Queue Key
Facilities	Facilities	Facilities	
Secondary Parameters	Secondary Parameters		Secondary Parameters
Database Names	Database Names		Database Names
Timeout Values	Timeout Values		Timeout Values
Tenant Number	Tenant Number		Tenant Number
Link Names	Link Names		Link Names
Association Recovery	Association Recovery		Association Recovery
User-Defined Parameters	User-Defined Parameters		User-Defined Parameters

Add (Cont)

Table 3-2 Application Configuration Parameters (Non-OAI)

NON-OAI		
CRT	**Non-CRT**	
Non-Queue	**Queue**	**Non-Queue**
Primary Parameters	Primary Parameters	Primary Parameters
Application Name	Application Name	Application Name
Executable Filename	Executable Filename	Executable Filename
Group	Group	Group
Response Mode	Response Mode	Response Mode
------	Initialization Batch	Initialization Batch
Termination Mode	Termination Mode	Termination Mode
------	Standard Output	Standard Output
------	Number of Restarts	Number of Restarts
------	Queue Key	------
-----	-----	-----
- - - - -	- - - - -	- - - - -
- - - - -	- - - - -	- - - - -
- - - - -	- - - - -	- - - - -
- - - - -	- - - - -	- - - - -
- - - - -	- - - - -	- - - - -
User-Defined Parameters	User-Defined Parameters	User-Defined Parameters

Add (Cont)

The instructions in this section for adding a configuration to the APM are presented in the following steps that correspond to the parameters listed in Table 3-1 and Table 3-2.

- **Step 1:** Application's Characteristics – The parameters that must be configured depend upon how the application is characterized in this step. **(All applications**)
- **Step 2:** Primary Parameters – These parameters are used predominately by the APM to manage and support the application. **(All applications)**
- **Step 3:** NEAX Facilities – In this step, OAI applications designate the NEAX facilities they will need to communicate with the PBX. **(OAI applications only)**
- **Step 4:** Secondary Parameters – These are additional parameters needed by applications that are to function in the OAI environment. (**OAI applications only)**
- **Step 5:** User-defined Parameters – These parameters are specific to the application's needs and are passed to the application when it is initialized. **(All applications)**

Each step contains an illustration of the screen, any relevant information, and the actual procedure for completing that portion of the configuration. (Please see Figure 3-10.)

Step 1: Application Characteristics (All Applications)

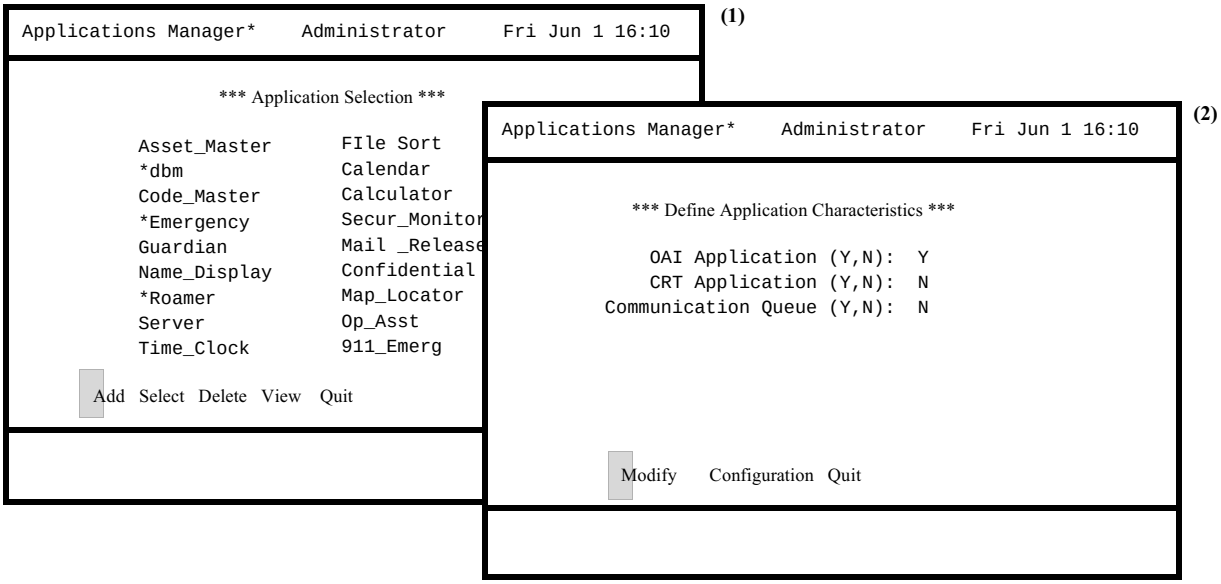


Figure 3-10 Add Step 1: Define Application Characteristics

Notes

New applications are defined by the following three characteristics:

- **OAI Application –** If the application will open an OAI association with the NEAX2400 using the *asreq()* OAI Library routine, it is considered an OAI application. Non-OAI applications do not communicate with the NEAX through an association.
- **CRT Application –** If the application requires a terminal screen for input/output processing, it is considered to be a CRT application. The CRT must have the same owner and be of the same terminal type as that on which the APM functions and on which the OAI system was initialized.
- **Communication Queue –** If the Non-OAI application is one that communicates with other processes, it requires an Inter-Process Communication (IPC) queue. OAI applications automatically get an Inter-Process Communication (IPC) queue when the association to the PBX is established. Therefore, OAI applications that require Inter-Process Communication can use the queue assigned to it when the association is established.

Procedure

Action	Result
On the Application Selection screen, select the **Add** command. **(1)**	The Define Application Characteristics screen displays. **(2)**
On the Define Application Characteristics screen, the **Select** command highlights. Press RETURN.	The first characteristic field highlights for data entry.
Using the arrow keys to move among fields and pressing RETURN after each input, characterize the new application as to whether it is an OAI (Y) or Non-OAI application (N), whether it requires a console interface (Y) or not (N), and whether it requires an IPC queue (Y) or not (N).	After each RETURN, the next field is highlights for entry.
Press ESC to return to the command line to continue the configuration.	

Step 2: Primary Parameters (All applications)

The parameters displayed by selecting the Configuration command differ according to the way in which the application has been characterized (see Step 1), but they all draw in part from the same list of primary parameters. (Please see Figure 3-11.)

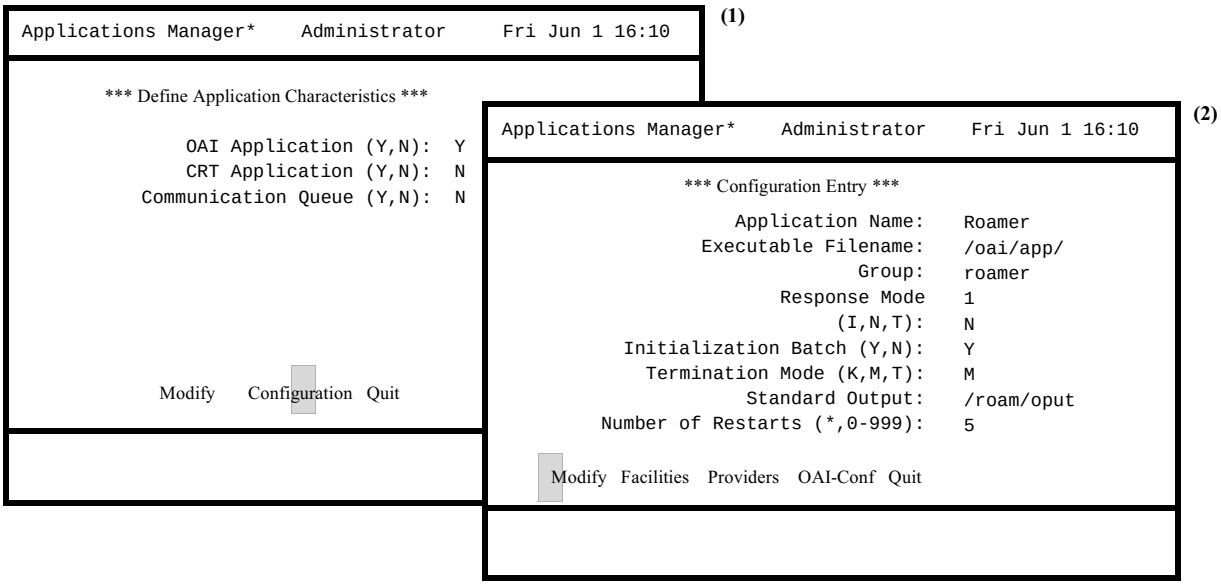


Figure 3-11 Add Step 2: Primary Parameters (Shown Here for an OAI Application)

Notes

Applications can be configured into groups. Each application in a group can define the action to be taken with it in the event that another member of the same group terminates either normally or abnormally. That is, the application can be notified of the termination, it can be terminated, or the other application's termination can be ignored. When an application is defined as a member of a group, the Response Mode parameter is used to specify the action desired by the application.

The Initialization Batch field corresponds to the OAI system initialization function under Control Options on the System Operations menu. If the OAI system is set to automatically initialize the applications (via Control Options), the APM will initialize those applications whose Initialization Batch is configured with an entry of Yes.

Procedure

Action	Result
After characterizing the application, select the Configuration command on the Define Application Characteristics screen and press RETURN **(1)**.	The Configuration Entry screen appropriate to the characterized application displays **(2)**.
Using the arrow keys to move among fields and pressing RETURN after each input, enter the data for each displayed parameter from the list of definitions below.	After each RETURN, the next field highlights for entry.
Field Name Application Name	Definition The display name used throughout the APM and is associated with a specific executable filename. It contains a maximum of 25 alphanumeric characters. The name may not contain blank spaces. This is a required entry and must be a unique name. A record without this entry is not saved.
Executable Filename	The full path name of the executable file to be used by the APM to initialize the application. It contains a maximum of 35 alphanumeric characters. This name is also required. If only the filename is entered, the default application directory (*/oai/app/*) is inserted.
Group	The name of the group in which this application is interdependent with other applications. It contains a maximum of 25 non-space characters.

Procedure (Cont)

Action	Result
Response Mode	The action that should be carried out for this application if another application in the same group terminates, either normally or abnormally, using the following options: • **I**(gnore) – No action is taken. (Default) • **N**(otify) – Notify this application by message. (This response is not available for Non-OAI applications without a queue.) • **T**(erminate) – Terminate this application according to its specified Termination Mode.
Initialization Batch	Specifies whether or not the application is to be initialized automatically when the OAI system is initialized. The default entry is **N** (no).
Termination Mode	The method by which the application is terminated when the APM receives a termination control request for this application, using the following options: • **K**(ill Signal) –The APM sends a signal that terminates the application immediately. (Default) • **M**(essage) –The APM sends a message to the application that has a queue, telling it to terminate itself. • **T**(ermination Signal) –The APM sends a Termination signal to the application that does not have a queue, allowing it to terminate itself.
Standard Output	Designates the file into which the application standard output is re-directed. If a file is not provided, the application standard output will be lost via the field default '/dev/null'. It contains a maximum of 35 alphanumeric characters. This parameter is not required for an OAI, Non-CRT application.

Procedure (Cont)

Action	Result
Number of Restarts	The number of times the APM will automatically restart the application after it has abnormally terminated (i.e., without prior acknowledgment to the APM). Entry to this field ranges from 0 to 999 or an asterisk (*) to indicate every time. (Default is 0, none.) This parameter is not required for an OAI, Non-CRT application.
Queue Key	The value of the IPC queue key used by the APM to communicate with the application. Entries to this field are 0 and 101-999. This parameter is necessary for Non-OAI applications that require a communication queue.

Step 3: NEAX Facilities (OAI Applications Only)

In this step, the NEAX facilities that the OAI application will use are specified. (Please see Figure 3-12.)

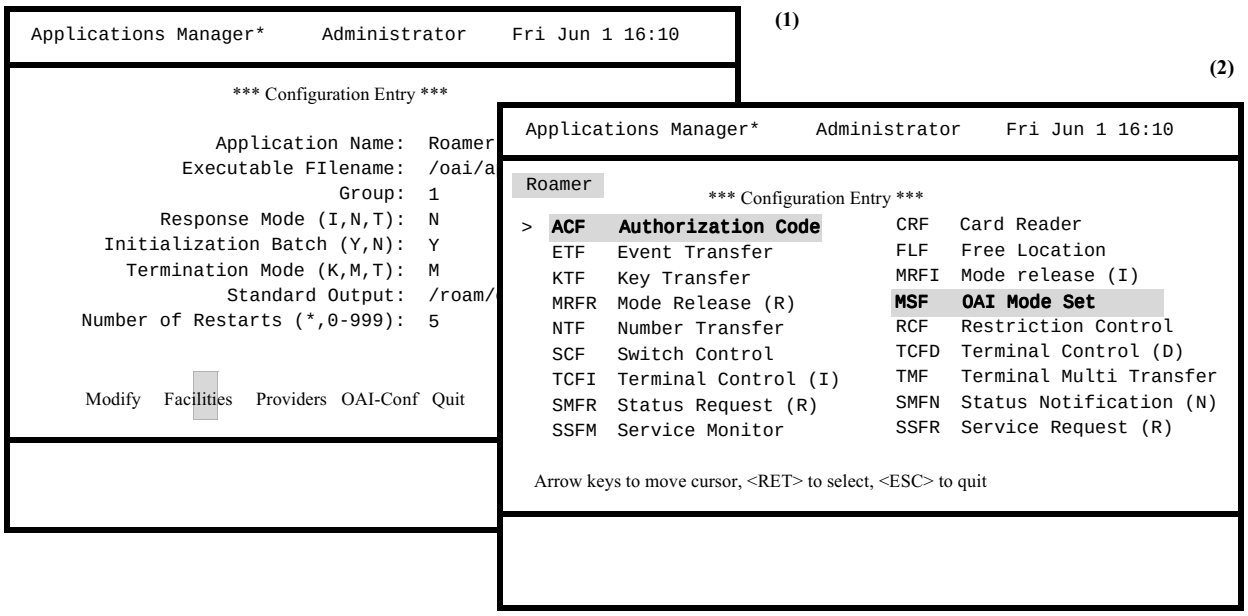


Figure 3-12 Add Step 3: OAI Facility Assignments

Notes

The Facilities command on the OAI Configuration Entry screen provides a display of the NEAX facilities (Figure 3-12). Each facility that the application needs to use must be selected.

The OAI Mode Set Facility (MSF) and the Terminal Multi-Transfer Facility (TMF) each have 64 identification numbers available for use. When either one of these facilities is selected, a window appears with a display of all 64 identification numbers for that facility. MSF identification numbers range from 128 to 191, and TMF numbers range from 192 to 255. Those numbers that are already being used by another application are underlined.

Once an MSF or a TMF identification number is selected, it must then be assigned to the same application at the NEAX Maintenance Administration Terminal (MAT). These two separate facility assignments must match.

Procedure

Action	Result
To specify the facilities to be used by the application, select the **Facilities** command on the Configuration Entry screen and press RETURN **(1)**.	The NEAX Facilities display with the cursor positioned on the first listed facility **(2)**.
Using the arrow keys, position the cursor on the desired facility and press RETURN to indicate selection. Continue until all necessary facilities are selected. **Note:** *A second depression of the RETURN on the same facility deselects that facility.*	Selections are highlighted.
When either an MSF or TMF is selected, a window displays all of the identification numbers for the MSF or TMF facility (Figure 3-13). Numbers being used by other applications are underlined. Use the arrow keys to position the cursor on an unused number and press RETURN.	The number(s) selected for the application highlights. **Note:** *To deselect a number, press RETURN a second time.*
To exit the Provider Facility window, press ESC at any time.	The OAI Configuration Entry screen redisplays, and control is on the command line. (Please see Figure 3-13.)

Procedure (Cont)

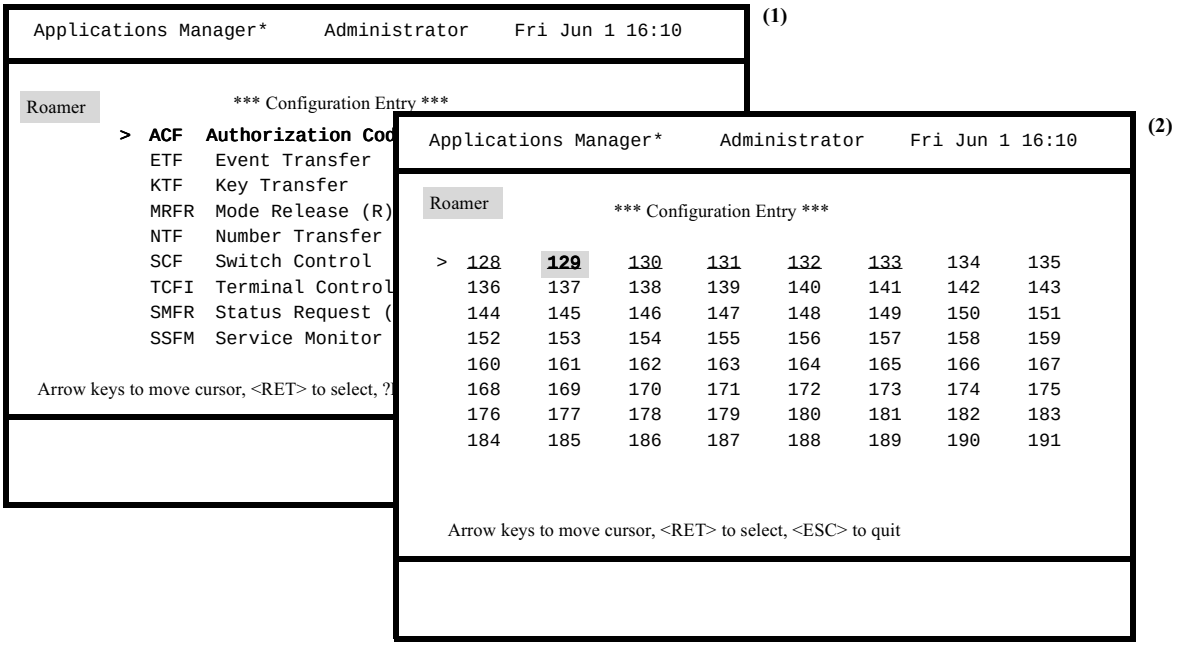


Figure 3-13 Provider Facility Selection (Shown Here for MSF)

The **Provider** command on the OAI Configuration Entry screen displays the Provider Facility Summary. (Please see Figure 3-14.)

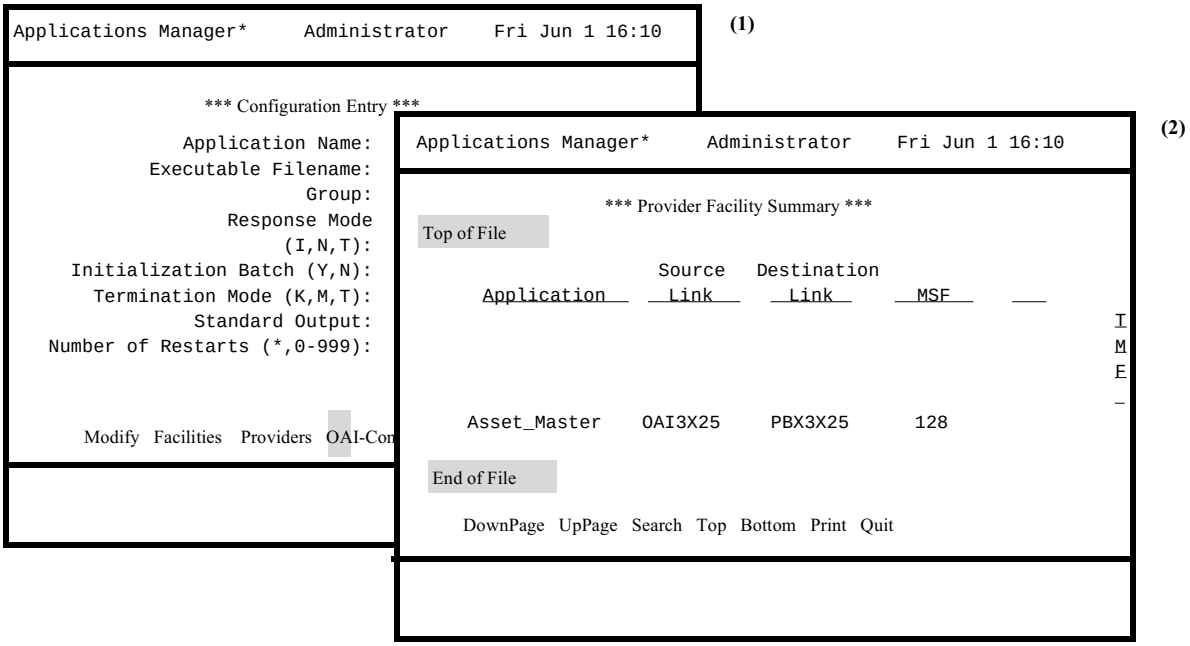


Figure 3-14 Provider Facility Summary

Procedure (Cont)

The Provider Facility Summary displays link addresses and provider facility assignments by configured application. The MSF and TMF identification numbers listed for the applications correspond to those that are underlined and highlighted on the Facility Configuration Entry Screen.

Action	Result
To exit the Provider Facility Summary: Select the Quit command and press RETURN, or press ESC at any time.	The OAI Configuration Entry screen redisplays, and control is on the command line.

Step 4: Secondary Parameters (OAI Applications Only)

The OAI secondary parameters are those that are required for OAI applications but whose values are defined according to the application needs. These parameters are passed to the application when it is initialized. (Please see Figure 3-15.)

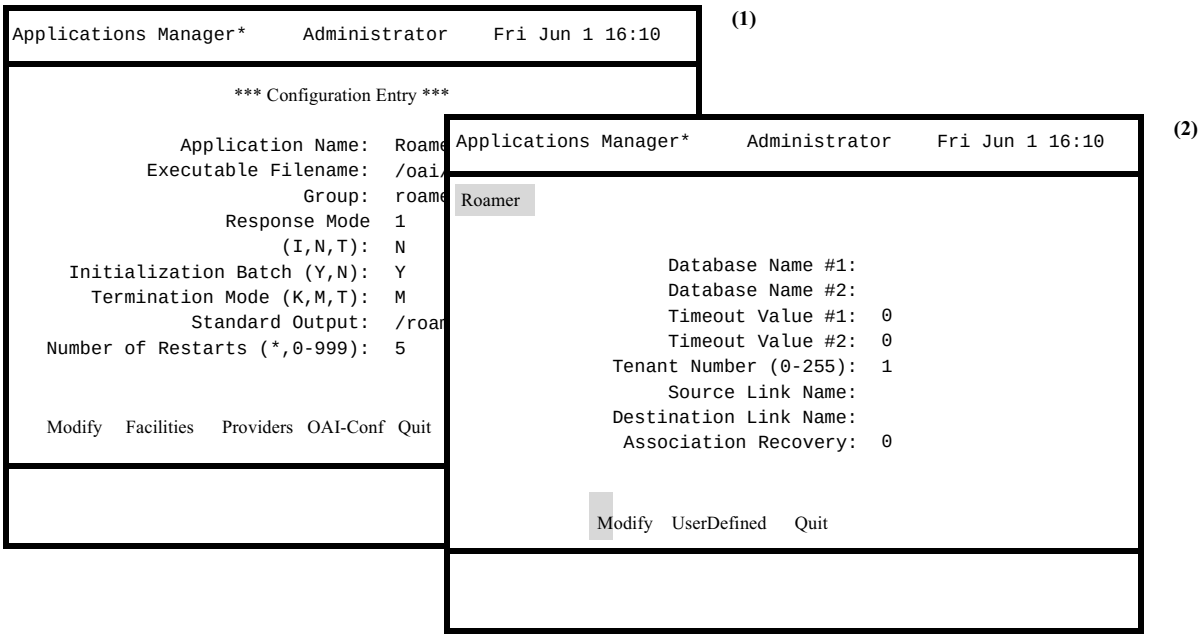


Figure 3-15 Add Step 4: OAI Configuration

Notes

A database name entered as a secondary parameter with its directory path must also be used as the name of the corresponding Application Definition File when the application's databases are created through the APM. For instance, if Database Name #1 is designated as */oai/db/cur/extnum*, the corresponding Application Definition File must be named *extnum*.

Procedure

Action	Result
Select the **OAI-Conf** command on the OAI Configuration Entry screen and press RETURN **(1)**.	A list of configuration parameters display **(2)**.
Select the **Modify** command and press RETURN.	The cursor is positioned on the first field for data entry.
Using the arrow keys to move among fields and pressing RETURN after each input, enter the data for each parameter as defined below.	
Field Name Database Names #1 and #2	Definition The full path names of any databases used by the application. A maximum of 2 names consist of up to 35 alphanumeric characters each. **Note 1:** *If only the filename is entered, the default directory path is automatically inserted.* **Note 2:** *The filename (without path) must be used as the name of the corresponding Application Definition File.*
Timeout Values #1 and #2	The number of seconds allowed for a user to respond to a prompt on the terminal before the application releases the terminal. A maximum of two timeout values consist of up to 5 numeric digits each.
Tenant Number	The identification number assigned to the tenant. Numbers range from 0 to 255.
Source Link Name	One of the Source Link Names designated in the system configuration (see System Configuration on page 55).
Destination Link Name	One of the Destination Link Names designated in the system configuration (see System Configuration on page 55).

Procedure (Cont)

Action	Result
Association Recovery	Specifies the amount of time in seconds that the application must wait after experiencing an association error before it may try to re-establish an association. It contains a maximum of 5 numeric digits.
Press ESC to return to the command line and continue the configuration.	

Step 5: User-Defined Parameters (All Applications)

Additional information required by applications are configured as user-defined parameters and are passed to the application when it is initialized. Up to 14 parameters are provided and may be used in any way necessary to the application, for instance, for additional databases, secondary applications, or the identification of internal processes. (Please see Figure 3-16.)

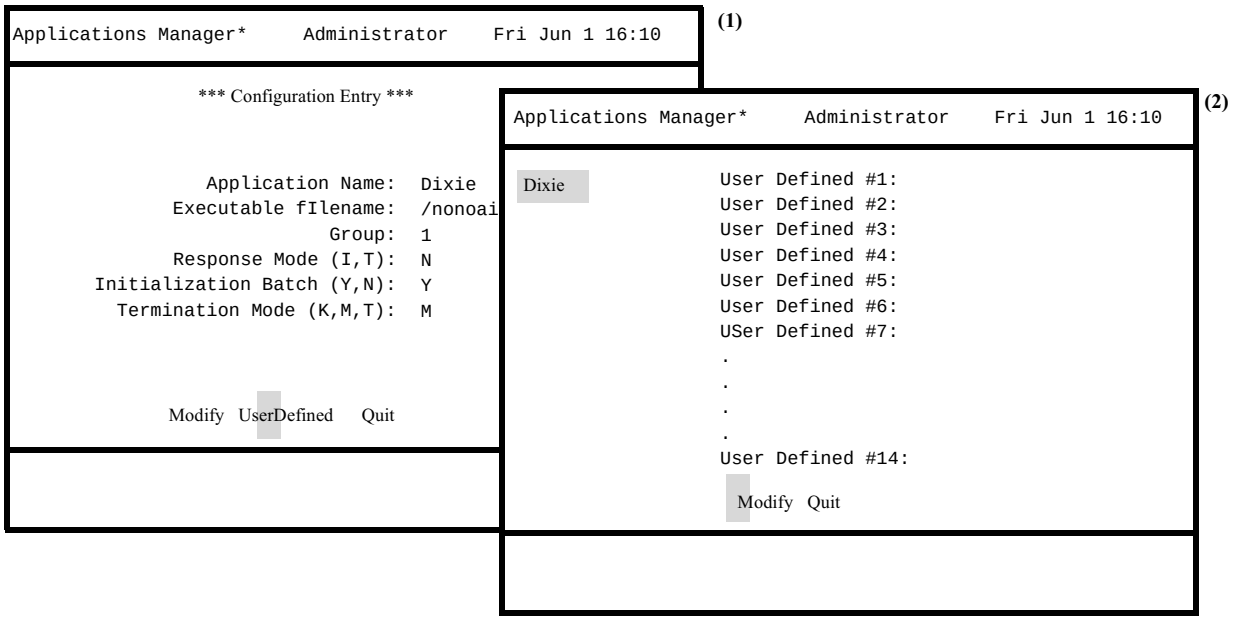


Figure 3-16 Add Step 5: User-Defined Parameters (Shown here for a Non-OAI Application)

Notes

User-defined parameters are passed to the application in the manner in which they are entered to this screen. That is, if values are entered to User Defined #1 and User Defined #3, three user-defined parameters will be passed to the application during initialization with User Defined #2 consisting of a null string.

Each entry to a user-defined parameter is left-justified. Therefore any entry that requires leading spaces must be enclosed in quotes which are then suppressed when the statement is passed. The quote (“) must be the first non-space character on the line, and the statement must end with a closing quote (”). If a quote is required within the statement, it should be entered as a backslash quote combination (\“).

Procedure

Action	Result
Non-OAI Applications: On the command line of the Configuration Entry screen, select the **UserDefined** command and press RETURN.	Fourteen (14) user-defined parameter fields display for input.
OAI Applications: On the command line of the secondary parameters screen (through **OAI-Conf**. command on Configuration Entry screen), select the **UserDefined** command and press RETURN.	Fourteen (14) user-defined parameter fields display for input.
Using the arrow keys to move among fields and pressing RETURN after each input, enter the data for the user-defined parameters as required by the application.	After each RETURN, the next user-defined field highlights for entry.
To exit the user-defined screen: Select the **Quit** command and press RETURN, or press ESC at any time.	The OAI-Conf screen displays.
To exit the user-defined screen: Select the **Quit** command and press RETURN, or press ESC at any time.	The OAI-Conf screen displays for OAI applications. Select the **Quit** command again and press RETURN, or press ESC to return to the Configuration Entry screen. The Configuration Entry screen displays for non-OAI applications.
To exit the Configuration Entry screen: Select the **Quit** command and press RETURN, or press ESC at any time.	The Application Selection screen displays.

Modify

The **Select** command on the Application Selection screen is used to display an existing application configuration so that changes can be made to it.

An application is characterized as OAI or non-OAI, whether or not it uses a CRT, and whether or not it requires an IPC queue. The combination of these characteristics attributed to the application determined the parameters that were configured for it when it was introduced to the APM. Therefore, the parameters displayed for an application reflect how it was characterized and do not necessarily include all the primary parameters. (refer to Table 3-1 and Table 3-2).

Modifying the parameters for existing applications involves any of the following steps, depending upon what parameter values must be altered:

- **Step 1: Primary Parameters (All applications) –** These parameters are generally retained by the APM to use in managing and supporting the application.
- **Step 2: NEAX Facilities (OAI applications only) –** In this step, the NEAX facilities used by the application are designated.
- **Step 3: Secondary Parameters (OAI applications only) –** These parameters are provided for applications that are to function within the OAI environment and are generally passed to the application when it is initialized.
- **Step 4: User-Defined Parameters (All applications) –** These parameters are defined according to the individual needs of each application.

These steps are presented sequentially on the following pages. When multiple application configurations are to be modified, the selection process must be repeated for each one.

A change in the Application Name results in the existing application configuration being renamed and thereafter sorted and listed in the file by the new name.

The modifications entered on the screen do not alter the configuration file until the new data has been saved. However, configurations can be modified only when the application is not running. When the application is again initialized, the new configuration applies. (Please see Figure 3-17.)

Step 1: Primary Parameters (All applications)

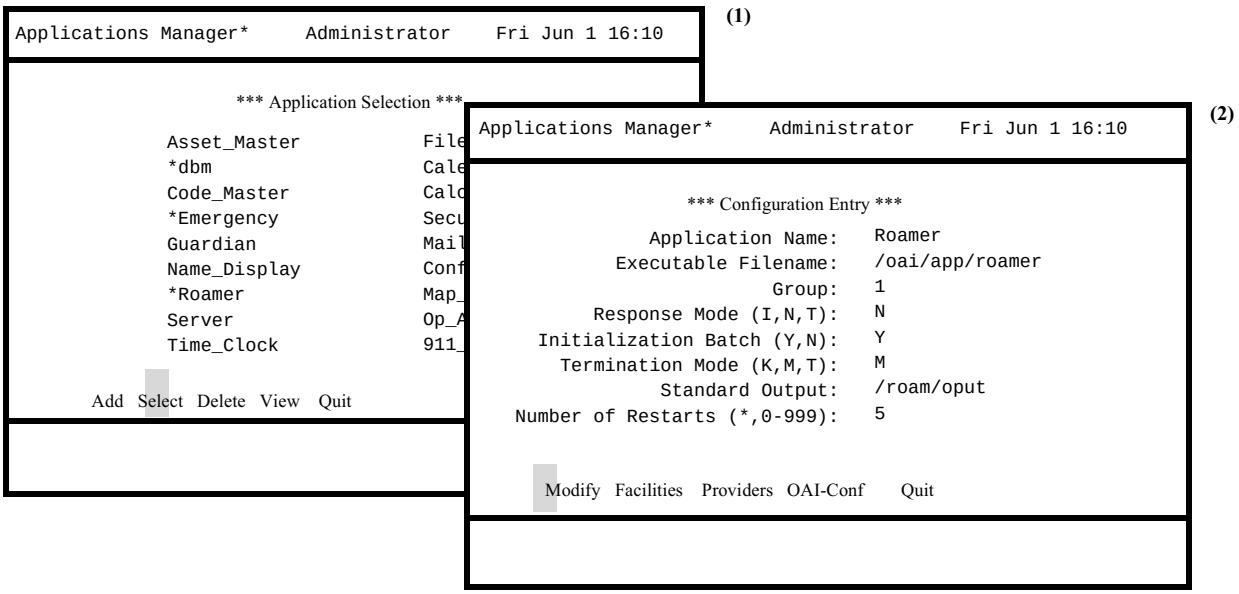


Figure 3-17 Modify Step 1: Primary Parameters (Shown Here For an OAI Application)

Note: *The "dbm" application is a component of the APM and must not be modified or deleted at any time.*

Procedure

Action	Result
On the Application Selection screen, choose the **Select** command **(1)**.	The cursor appears at the first application name **(2).** **Note:** *If the system is running, the message **Active application, cannot alter configuration** appears.*
Using the arrow keys, position the cursor on the application to be modified, or enter its first letter, and press RETURN.	The Configuration Entry screen displays with the parameters previously configured for the selected application displayed **(2)**.
Press RETURN to select the **Modify** command.	The first entry highlights.
Using the arrow keys to move among fields and pressing RETURN after each input, enter new data for each parameter as necessary using the following definitions:	After each RETURN, the next field highlights for entry.

Field Name	Definition
Application Name	The display name used throughout the APM and is associated with a specific executable filename. It contains a maximum of 25 alphanumeric characters. The name may not contain blank spaces. This is a required entry and must be a unique name. A record without this entry is not saved.
Executable Filename	The full path name of the executable file to be used by the APM to initialize the application. It contains a maximum of 35 alphanumeric characters. This name is also required. If only the filename is entered, the default application directory (*/oai/app/*) is inserted.
Group	The name of the group in which this application is interdependent with other applications. It contains a maximum of 25 non-space characters.

Procedure (Cont)

Action	Result
Response Mode	The action that should be carried out for this application if another application in the same group terminates, either normally or abnormally, using the following options: • **I**(gnore) – No action is taken. (Default) • **N**(otify) – Notify this application by message. (This response is not available for Non-OAI applications without a queue.) • **T**(erminate) – Terminate this application according to its specified Termination Mode.
Initialization Batch	Specifies whether or not the application is to be initialized automatically when the OAI system is initialized. The default entry is **N** (no).
Termination Mode	The method by which the application is terminated when the APM receives a termination control request for this application, using the following options: • **K**(ill Signal) –The APM sends a signal that terminates the application immediately. (Default) • **M**(essage) –The APM sends a message to the application that has a queue, telling it to terminate itself. • **T**(ermination Signal) – The APM sends a Termination signal to the application telling it to terminate itself.
Standard Output	Designates the file into which the application standard output is re-directed. If a file is not provided, the application standard output will be lost via the field default */dev/null*. It contains a maximum of 35 alphanumeric characters. This parameter is not required for an OAI, Non-CRT application.

Procedure (Cont)

Action	Result
Number of Restarts	The number of times the APM will automatically restart the application after it has abnormally terminated (i.e., without prior acknowledgment to the APM). Entry to this field ranges from 0 to 999 or an asterisk (*) to indicate every time. (Default is 0, none.) This parameter is not required for an OAI, Non-CRT application.
Queue Key	The value of the IPC queue key used by the APM to communicate with the application. Entries to this field are 0 and 101-999. This parameter is necessary only for Non-OAI applications that require a communication queue.
Press ESC to return to the command line to continue the application configuration or to select the **Quit** command.	(Please see Figure 3-18.)

Step 2: NEAX Facilities (OAI Applications Only)

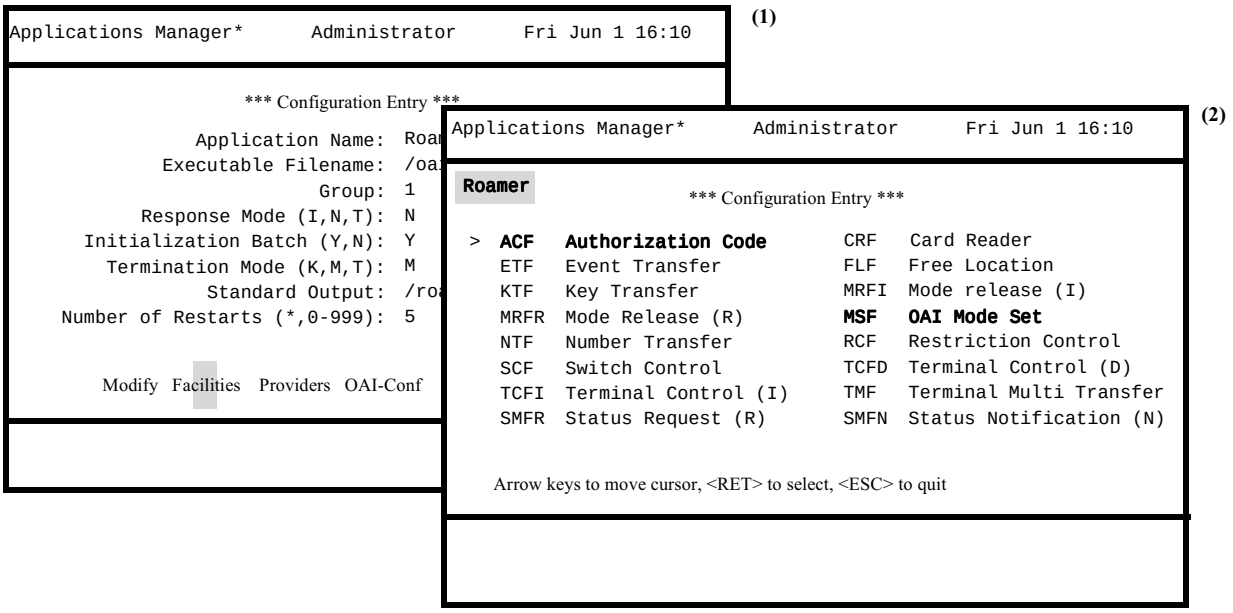


Figure 3-18 Modify Step 2: OAI Facility Assignments

Notes

The **Facilities** command on the OAI Configuration Entry screen provides a display of the NEAX facilities (Modify Step 1: Primary Parameters). Each facility that the application has previously selected highlights.

The OAI Mode Set Facility (MSF) and the Terminal Multi-Transfer Facility (TMF) each have 64 identification numbers available for use. When either one of these facilities is selected, a window appears with a display of all 64 identification numbers for that facility. MSF identification numbers range from 128 to 191, and TMF numbers range from 192 to 255. Those numbers that are already being used by another application are underlined, those being used by the selected application are highlighted.

Whenever an MSF or TMF identification number is changed for an application, it must then be changed for that application at the NEAX Maintenance Administration Terminal (MAT). These two separate facility assignments must match.

Procedure

Action	Result
To change the facilities used by the application, select the **Facilities** command on the Configuration Entry screen and press RETURN **(1)**.	The NEAX facilities display with those previously selected for this application highlighted. **(2)**
Using the arrow keys, position the cursor on any facility to be added or deleted and press RETURN. Continue until only desired facilities are highlighted. **Note:** *Press RETURN a second time on the same facility to deselect that facility.*	The selections highlight.
When either an MSF or TMF is selected, a window displays all of the identification numbers for the MSF or TMF facility (Figure 3-18). Numbers being used by other applications are underlined, and those previously selected for this application are highlighted. Use the arrow keys to position the cursor on the number and press RETURN to either select or deselect it.	The number(s) selected for the application highlight(s).
To exit the Facility window: Press ESC at any time.	The OAI Configuration Entry screen redisplays. (Please see Figure 3-19.)

Procedure (Cont)

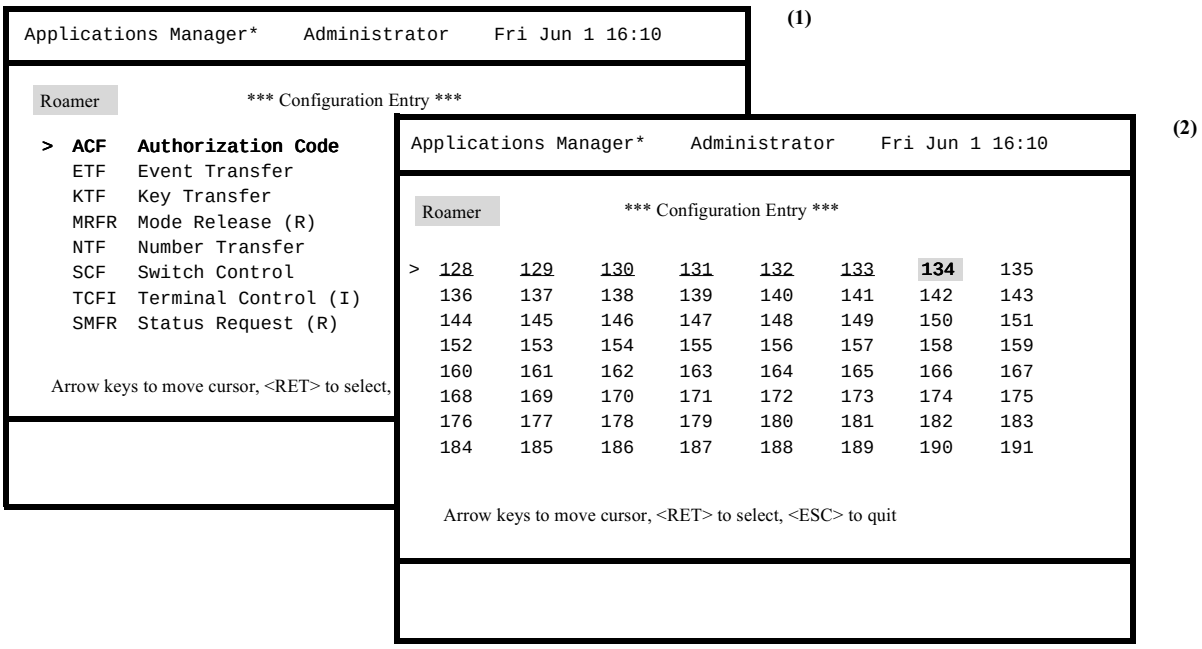


Figure 3-19 Provider Facility Selection (Shown here for MSF) (Shown Here For an OAI Application)

The **Provider** command on the OAI Configuration Entry screen displays the Provider Facility Summary (see Provider Facility Selection (Shown here for MSF)). (Also, please see Figure 3-20.)

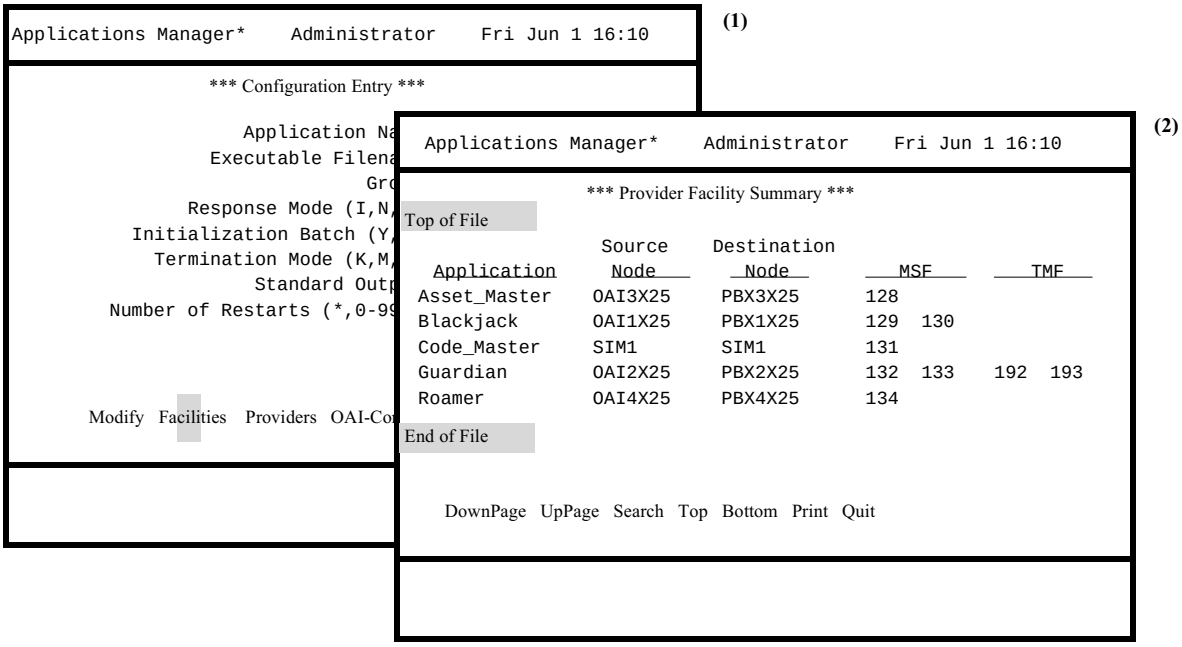


Figure 3-20 Provider Facility Summary

Procedure (Cont)

The Provider Facility Summary displays link addresses and provider facility assignments by configured application. The MSF and TMF identification numbers listed for the applications correspond to those that are underlined and highlighted on the Facility Configuration Entry Screen.

Action	Result
To exit the Provider Facility Summary: Select the **Quit** command and press RETURN, or press ESC at any time.	The OAI Configuration Entry screen redisplays, and control is on the command line. (Please see Figure 3-21.)

Step 3: Secondary Parameters (OAI Applications Only)

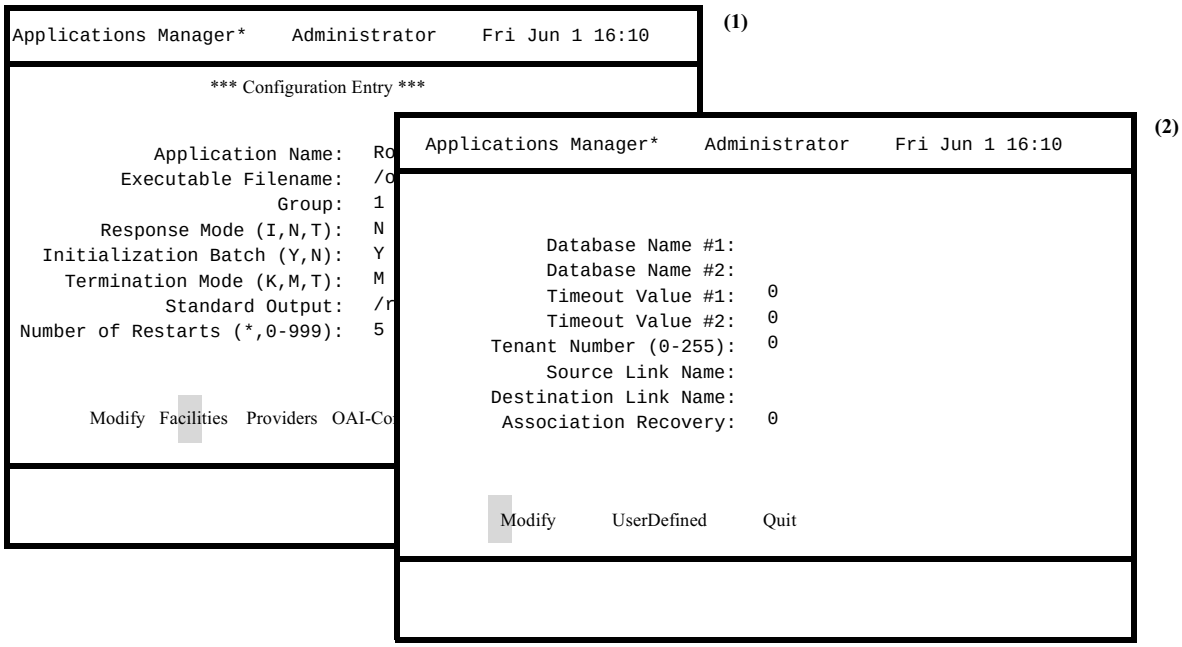


Figure 3-21 Modify Step 3: OAI Configuration

Notes

A database name entered as a secondary parameter with its directory path must also be used as the name of the corresponding Application Definition File when the application's databases are created through the APM. For instance, if Database Name #1 is designated as */oai/db/cur/extnum*, the corresponding Application Definition File must be named *extnum*.

Procedure

Action	Result
On the Configuration Entry screen, choose the **OAI-Conf** command **(1)**.	A list of additional parameters appears **(2)**.
Using the arrow keys to move among fields and pressing RETURN after each input, modify the entry for each parameter as necessary using the following definitions: Field Name Database Names #1 and #2	Definition The path names of any databases used by the application. There are a maximum of 2 names consisting of up to 35 alphanumeric characters each. **Note 1:** *If only the filename is entered, the default database directory is inserted automatically.* **Note 2:** *The filename (without path) must be used as the name of the corresponding Application Definition File.*
Timeout Values #1 and #2	The number of seconds allowed for a user to respond to a prompt on the terminal before the application releases the terminal. There are a maximum of two timeout values consisting of up to 5 numeric digits each.
Tenant Number	The identification number assigned to the tenant. Numbers range from 0 to 255.
Source Link Name	One of the Source Link Names designated in the system configuration (See “System Configuration” on page 55.)
Destination Link Name	One of the Destination Link Names designated in the system configuration (See “System Configuration” on page 55.)
Association Recovery	Specifies the amount of time in seconds that the application must wait after experiencing an association error before it may try to re- establish an association. It contains a maximum of 5 numeric digits.

Procedure (Cont)

Action	Result
Press ESC to return to the command line, to continue the application configuration, or to select the **Quit** command.	(Please see Figure 3-22.)

Step 4: User-Defined Parameters (All Applications)

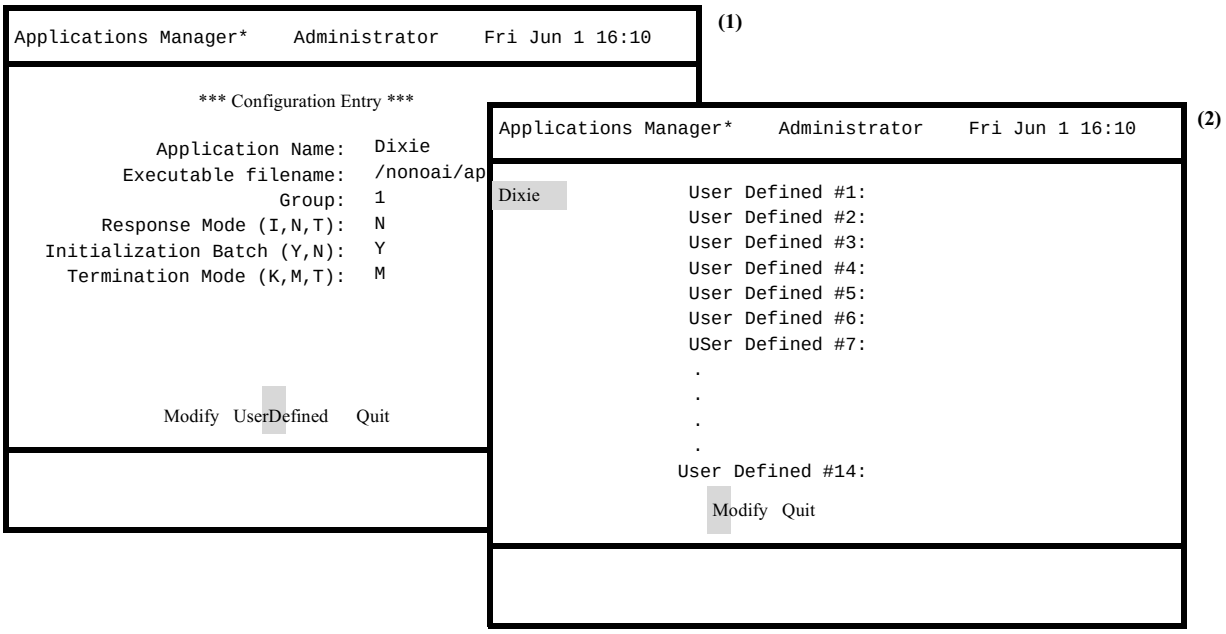


Figure 3-22 Modify Step 4: User-Define Parameters (Shown Here for a Non-OAI Application)

Notes

Each entry to a user-defined parameter is left-justified. Therefore any entry that requires leading spaces must be enclosed in quotes which are then suppressed when the statement is passed. The quote (“) must be the first non-space character on the line, and the statement must end with a closing quote (”). If a quote is required within the statement, it should be entered as a backslash quote combination (\“).

Procedure

Action	Result
Non-OAI Applications: On the command line of the Configuration Entry screen, select the **UserDefined** command and press RETURN. **OAI Applications:** On the command line of the secondary parameters screen (through **OAI-Conf** command on Configuration Entry screen), select the **UserDefined** command and press RETURN.	The user-defined parameters (up to 14) fields display for the application being modified.
Using the arrow keys to move among fields and pressing RETURN after each input, modify the data for the user-defined parameters as required by the application.	After each RETURN, the next user-defined field highlights for entry.
To exit the User-Defined screen: Select the **Quit** command and press RETURN, or press ESC at any time.	The OAI-Conf screen displays for OAI applications. Select the **Quit** command again and press RETURN, or press ESC to return to the Configuration Entry screen. The Configuration Entry screen displays for non-OAI applications.
To exit the Configuration Entry screen: Select the **Quit** command and press RETURN, or press ESC at any time.	The Application Selection screen displays.

Delete

The **Delete** command on the Application Selection screen allows the user to remove an application configuration from the system. (Please see Figure 3-23.)

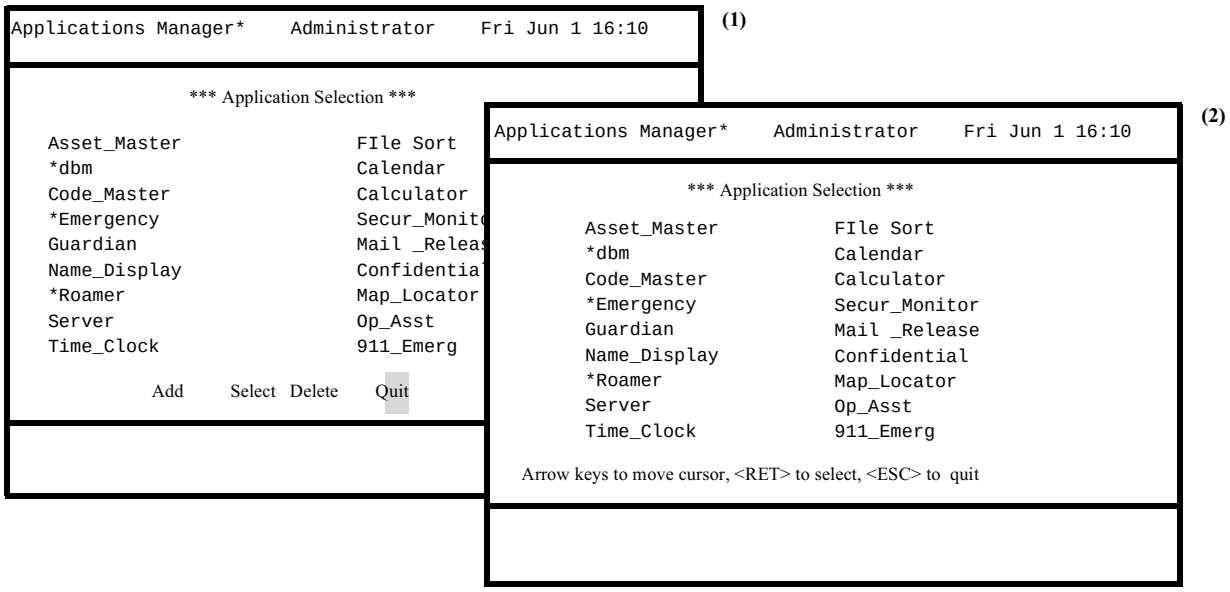


Figure 3-23 Delete Application Configuration

Notes

When this command is activated for a selected application, a confirmation of the command is requested before the command is executed. Deletion of an application configuration removes the application from the system and releases the provider facilities for use by other applications. Configurations cannot be deleted from the file if the application is active.

The “dbm” application is a component program of the APM and should not be modified or deleted at any time.

Procedure

Action	Result
On the Application Selection screen, select the **Delete** command and press RETURN **(1)**.	The cursor is positioned at the first application name **(2)**. **Note:** *If the system is running, the message **Active application, cannot alter configuration** appears.*
Use the arrow keys to position the cursor on the name of the application to be deleted, or enter its first letter, and press RETURN to make the selection.	The message **Do you want to delete <application name>? (Y, N)** appears. Enter **Y** to complete the deletion or **N** to cancel the deletion. The command line is restored.

View

The **View** command on the Application Selection screen is used to simply look at an application configuration. This command provides view-only displays. No changes may be made through this command. (Please see Figure 3-24.)

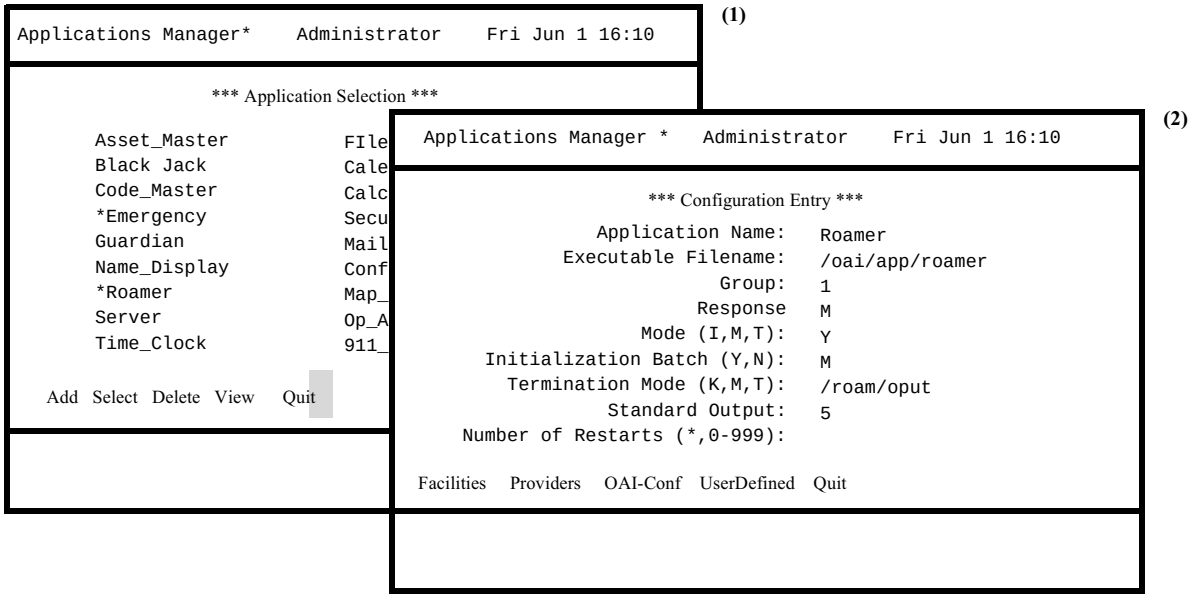


Figure 3-24 View Application Configuration (Shown for an OAI Application)

Procedure

Action	Result
Select the **View** command on the Application Selection screen and press RETURN **(1)**.	The cursor is positioned on the first application name.
Use the arrow keys to position the cursor on the desired application, or enter its first letter, and press RETURN.	The Configuration Entry screen is shown for the selected application **(2)** and displays the primary parameters configured for this application.
To continue viewing the configuration, select the command of choice, according to the following definitions, and press RETURN. • **Facilities –** to view those designated by the application. (OAI applications only.) • **Providers –** to view the provider facilities designated by the application. (OAI applications only.) • **OAI-Conf –** to view the secondary parameters configured for the application. (OAI applications only.) • **UserDefined –** to view the parameters configured solely for use by the application. (All applications.)	
To exit any of the displays listed above: Press ESC.	The Configuration Entry screen redisplays.
To exit the Configuration Entry screen: Select the **Quit** command and press RETURN, or press ESC.	The Application Selection screen redisplays.

Administration

Overview

The Database Administration option on the System Administration menu is used to create and support configurable databases within the system. (Please see Figure 3-25.)

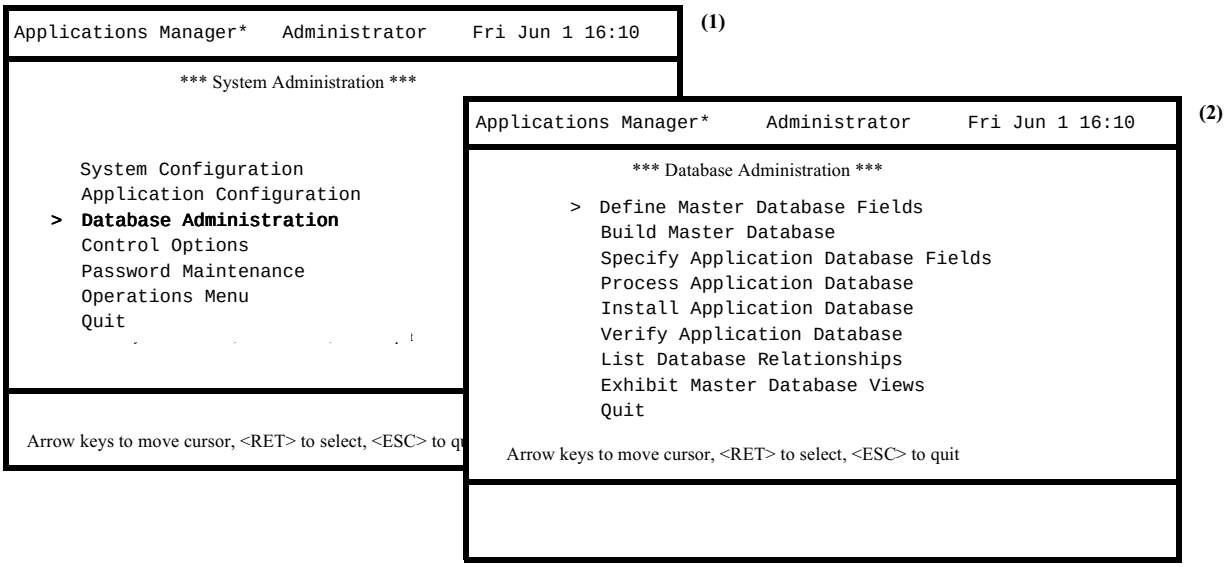


Figure 3-25 Database Administration

Notes

The APM database system is built upon master databases that can each support one or more application databases. When an application needs APM database support, a master database is created by first defining its fields and then entering all of the actual user data to those fields. The fields that are required by the application are then selected from this master database and, in turn, converted into specified field formats to meet the needs of the application. Thus, one master database can contain fields that support more than one application. This step-by-step process is illustrated below: (Please see Figure 3-26.)

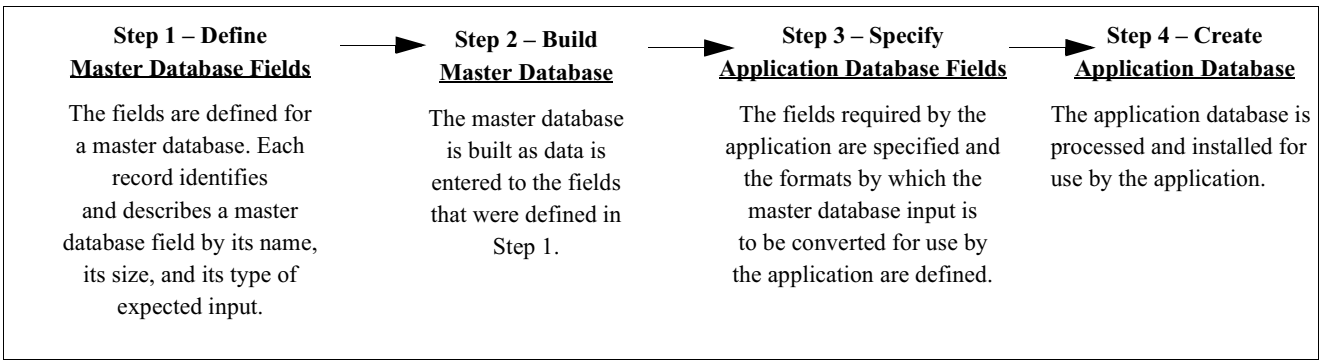


Figure 3-26 Database Creation

Notes (Cont)

The master filename, requested in Step 1, can be any name, but it must be unique. The application filename, requested in Step 3, must also be unique, and it must be the same name that is configured for the application database through the Application Configuration option on the APM System Administration menu. For instance, if an application requires a database of extension numbers and the name configured for the database in the application configuration is *extnum*, the master filename could be *extfile* (or anything other than *extnum*) but the application filename must be named *extnum*.

The Database Administration menu consists of these steps and also provides access to database information through the following options:

- **Define Master Database Fields (Step 1) –** Used to create, modify, or delete definitions of the fields in a master database.
- **Build Master Database (Step 2) –** Used to enter and/or alter data in the database fields that were defined in Step 1.
- **Specify Application Database Fields (Step 3) –** Used to specify field formats by which data selected from the master database is converted into the individualized database required by an application. In this way, one master database can feed more than one application database.
- **Process Application Database (Step 4) –** Used to generate the application database by pulling data from the master database and converting it according to the formats defined in Step 3.
- **Install Application Database (Step 4) –** Used to communicate with the application for its installation of the prepared database and to inform the APM Monitor about the database.
- **Verify Application Database –** Used to verify the accuracy of specific application database field definitions. This option is particularly helpful if an error is encountered while processing and installing multiple databases.
- **List Database Relationships –** Used to display as well as print a list of all applications that are configured in the APM with their master and application database filenames.
- **Exhibit Master Database Views –** Used to create, alter, delete, display, and/or print a selection of fields from any master database. This option makes it possible to define “views” of a particular database that can then be held in storage for subsequent display.

Procedure

Action	Result
On the System Administration menu, select the Database Administration option **(1)**.	The Database Administration screen displays with the cursor positioned on the first listed option **(2)**.
Using the arrow keys or by entering its first letter, select the desired menu option, then press RETURN.	
To exit the Database Administration menu: Select the Quit command and press RETURN or press ESC from the command line.	The System Administration menu displays.

Define Master Database Fields

The Define Master Database Fields option on the Database Administration menu is used to create the field definitions for a new master database, modify the field definitions of an existing master database, or delete the field definitions of a specific master database. (Please see Figure 3-27.)

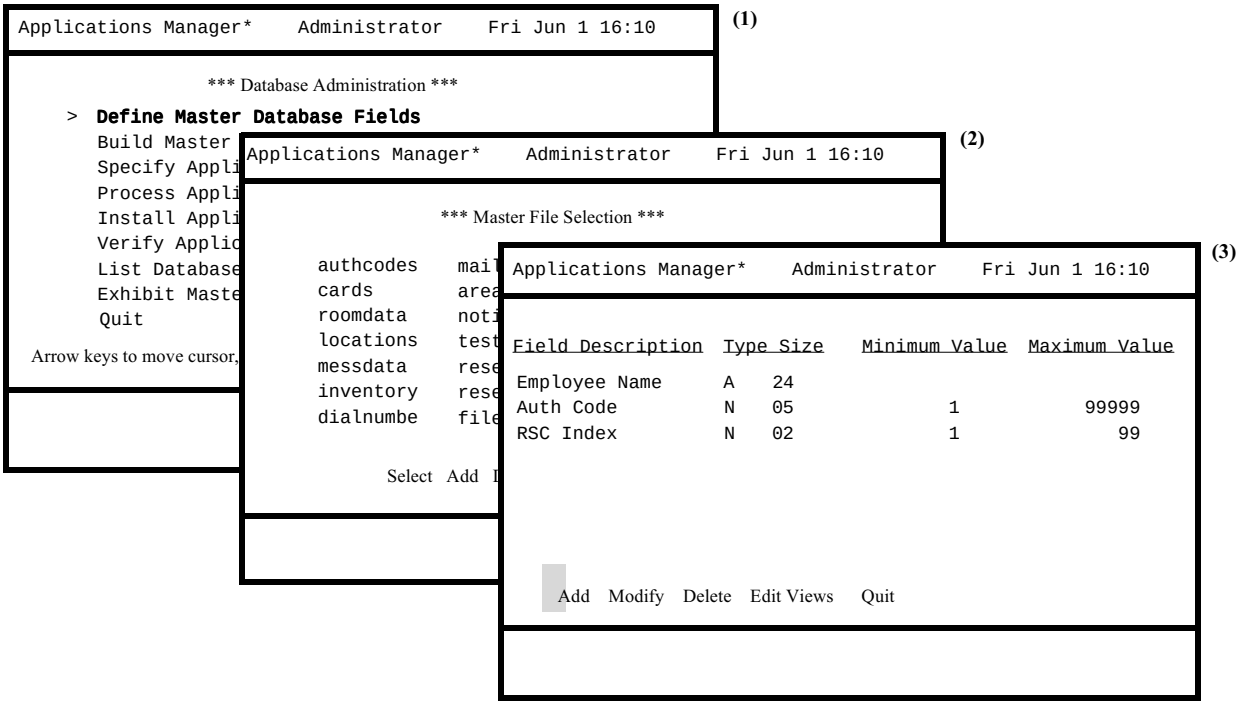


Figure 3-27 Master Database Field Definition

Notes

A master database can contain up to 14 fields that are defined and maintained through this option. Each definition contains a brief field description, the type of character the field accepts during data entry, the size of the field or how many characters/digits it accepts, and either a default entry or a range within which entries must lie. For instance, a Field Description entry might be Auth Code, its Type might be Numeric, and its Size might be 5. Then, during data entry to the master database governed by this definition, every entry to this field is an authorization code that consists of up to 5 numeric digits lying within the range between 1 and 99999.

Creation of New Master Database: A new master database is created through the **Add** command by assigning it a unique name, defining its fields, and then entering data to those fields through the Build Master Database option on the Database Administration menu. During the process of creating the field definitions through this option, it is possible to add fields, modify fields that have just been added, or delete fields that were entered in error.

Modification of Existing Master Database Field Definitions: When the field definitions of an existing master database are modified through the **Select** command on the Master File Selection screen, the APM reconstructs the database to synchronize it with the modifications. Modification of field definitions is restricted in the following ways:

- The master database is sorted and manipulated by the first field. If the type of this first field is ASCII, changes to the field definition are restricted to its Size. If the field type is either numeric or monetary, no changes can be made to the field definition.
- Changing the Field Description or Type in any field definition, other than the key field, has the same effect as removing the previous field from the master database and replacing it with the default value of the new field. A warning displays on the screen before this change is actually performed in the database.
- Except for the key field, any change in Type requires a corresponding re-entry to the Size definition, and any change in Size requires a corresponding redefinition of Minimum Value and Maximum Value.
- When Size is modified, ASCII fields in the database are adjusted on the right, numeric fields are adjusted on the left, and monetary field adjustments are made on the left side of the decimal. (For instance, the figure **123.79** in a 6-character monetary field modified to a 5-character field is adjusted to read **23.79**.) In a monetary field, there are always two digits to the right of the decimal.
- Changes made to Minimum Value and/or Maximum Value do not affect any actual values in those fields in the master database which may lie outside of the new range. Manipulation of any records in the database with values that lie outside of the new range elicits an error message and is not accepted.
- Deletion of a master database field definition results in the removal of that field from the master database but not from any related application database. When the application field data types for an application are displayed with a field that has been deleted from the master file, that field highlights and a prompt indicates that it has been deleted from the master and asks if it is to be deleted. Manipulation of an application database that contains a field that is not in the master file is prohibited until that field is either deleted from the application database or added to the corresponding master database.

Deletion of the File of Field Definitions for a Particular Master Database: The **Delete** command on the Master File Selection screen is used to remove all of the field definitions for a selected master database. If a master database exists for the selected file of field definitions, before the deletion is performed, a message indicates the existence of the database and requests permission to delete it as well. If permission to delete the corresponding database is not given, deletion of the field definitions is prohibited.

Edit Views of a Master Database: It is occasionally necessary to display or print the actual data in a master database. The **Edit Views** command on the Master File Selection screen makes it possible to not only view and print an entire database, it also makes it possible to build up to 10 partial 'views' of the database consisting of only specific fields and to store those 'views'. The 'views' can thereafter be displayed, printed, modified, or deleted. The **Edit Views** command can be accessed from the Master File Selection screen and while either adding or modifying a file of field definitions.

Once a master database is built and one or more application databases have been processed and installed from it, any change to a master field definition directly affects both the master database and any application database that it supports. If changes must be made to either the master file or the application file, make changes first to the application database field formats, then make the changes to the master file.

Procedure

Action	Result
Select the Define Master Database Fields option on the Database Administration menu and press RETURN **(1)**.	The Master File Selection screen displays **(2)**.
To select an existing master file: On the Master File Selection screen, choose the **Select** command and press RETURN **(1)**. Then position the cursor on the desired master filename, or enter its first letter, and press RETURN. **Note:** *If more master files exist than can be listed on a 1-page display, use the **ShiftD** combination to move down to the next page and the **ShiftU** combination to move up to the previous page.* (or) **To add a new master file:** On the Master File Selection screen, select the **Add** command and press RETURN **(1)**. Then enter the name of the new file at the prompt using up to 10 characters and press RETURN.	The screen displays the field definitions for the selected master database **(3)**. The fields of the definition and a command line are displayed **(3)**.

Procedure (Cont)

Action	Result
To modify or add a master file: • **To add a field definition:** Once the master filename is designated, enter the field definitions using the descriptions below, pressing RETURN after each entry. Use the backspace key to erase data entered in error	
Name Field Description	Definition The unique tag used to identify the field, consisting of a maximum of 25 ASCII characters. Field descriptions consisting of more than one word may be separated by spaces and/or a dot, comma, or dash. When referencing the field description, the number of spaces do not have to match. If a dot, comma, or dash is used, no space is required even though the field was initially defined with spaces. The first record is the key field by which the associated database is sorted and stored in ascending or alphabetic order.
Type	The kind of data that is to be entered to this field, indicated by one of the following letters: A: ASCII (ex. INV#1002-3). M: Monetary (digit characters and the '.', ex. 100.00). N: Numeric (digit characters, ex. 123958).
Size	The number of characters, by type, that are accepted in this field: A: 1 – 25 M: 4 – 16(Must have two digits to the right of the decimal; the decimal is a character.) N: 1 – 16

Procedure (Cont)

Action	Result
To modify or add a master file: (Cont) • **To add a field definition: (Cont)** Minimum Value	The minimum value depends upon the type indicated for the field, as follows: • Monetary and Numeric Fields: The minimum positive numeric value accepted and the initial default value that appears in this field during database modification. • ASCII Fields: The default value that appears in the field each time a new database record is entered.
Maximum Value	The maximum value depends upon the type indicated for the field, as follows: • Monetary and Numeric Fields only: The greatest positive numeric value accepted; must be equal to or greater than the minimum value. • ASCII Fields have no maximum value.
After all necessary additions are made, press ESC.	The cursor returns to the command line.
• **To modify a field definition:** Select the **Modify** command and press RETURN.	The first field definition highlights.
Use the arrow keys to select the field definition to be modified, then press RETURN.	The existing definition is erased for new data entry.
Enter the field definitions and press RETURN after each entry. The backspace key erases data entered in error. After all necessary modifications are made, press ESC.	The command line displays with the **Modify** command highlighted.

Procedure (Cont)

Action	Result
To modify or add a master file: (Cont) • **To delete a field definition:** Select the **Delete** command and press RETURN. Use the arrow keys to select the field definition that is to be deleted and press RETURN. After all necessary deletions are made, press ESC.	The first field definition highlights. The selected field definition is removed from the file and another one highlights. The command line displays with the **Delete** command highlighted.
• **To create or modify a database view:** On the screen, select the **Edit Views** command and press RETURN **(1)**. Using the arrow keys, position the cursor on the master filename for whom a view is to be accessed or created, or enter its first letter, and press RETURN.	The File Selection screen displays. The View Selection screen displays if one or more views have been created previously. Refer to the Exhibit Master Database Views on page 142 for instructions.
• **To exit the Field Definition screen:** Select the **Quit** command and press RETURN, or press ESC from the command line.	

Procedure (Cont)

Action	Result
• **To exit the Field Definition screen:** **To save modifications:** Enter **Y** and press RETURN. Enter **Y** to initiate the corresponding adjustments in the master database and to display the Master File Selection screen. Enter **N** to cancel the manipulations to the field definitions, leaving the master database unaffected, and to display the field description data entry screen.	The message **Do you want to save changes? (Y, N)** appears. If a field definition has been manipulated and a database exists, the message **Master database exists. Reconstruct for new master definition file? (Y, N)** appears:
To save a new master file: Enter **Y** and press RETURN.	Stores the new field definitions and displays the Master File Selection list with the new name added to it.
To cancel modifications or the new file: Enter **N** and press RETURN.	Modifications and new master field definitions are cancelled, and the Master File Selection screen displays.
To delete a master file of definitions: On the Master File Selection screen, select the **Delete** command and press RETURN **(1)**. Using the arrow keys, position the cursor on the master database whose field definitions are to be deleted, or enter its first letter, and press RETURN.	The cursor is positioned on the first master file name **(2)**. If a database does exist, the message **Master database exists. Do you want to delete it? (Y, N)** appears. Enter **Y** to delete the database. Enter **N** leaves the database intact and cancels deletion of its field definitions. If you entered **Y** and there is no corresponding master database, the message **Do you want to delete <master filename>? (Y, N)** appears. Enter **Y** to delete the field definitions, or enter **N** to leave them intact. The command line is then restored.

Build Master Database

The Database Entry option on the Database Administration menu is used to enter and/or alter actual data in the master database fields that were previously defined. (Please see Figure 3-28.)

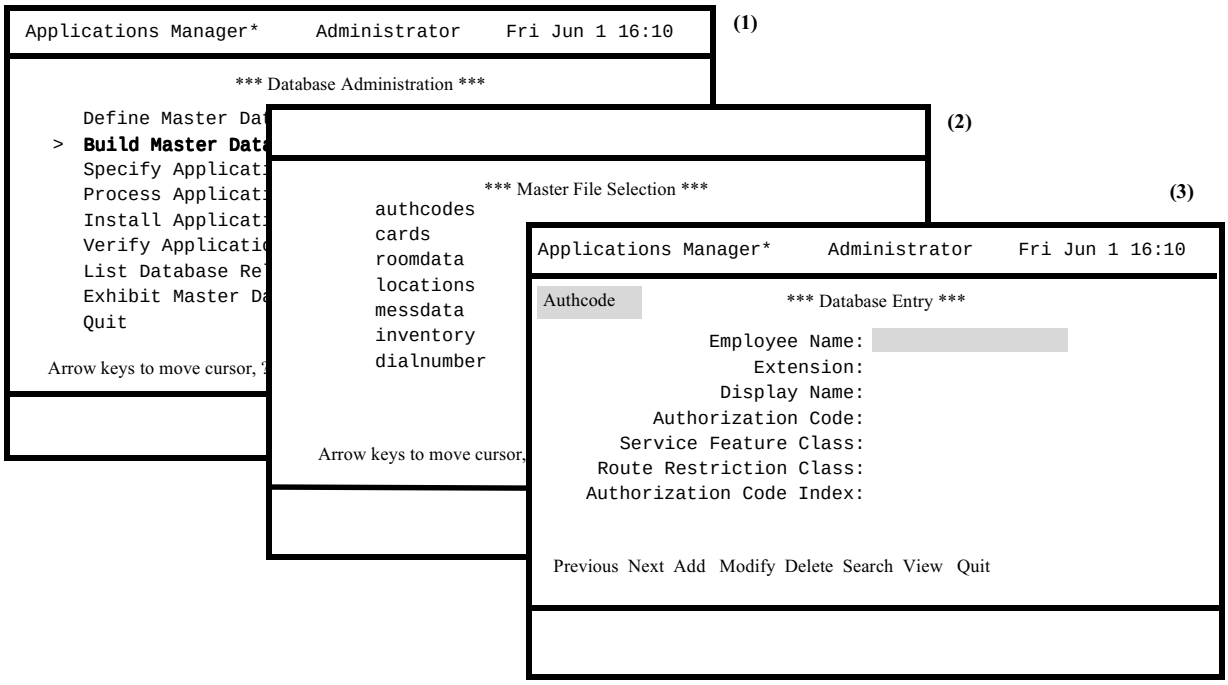


Figure 3-28 Build Master Database

Notes

The master database consists of records whose fields were previously defined (See Define Master Database Fields on page 120). The first field of the database record is the unique key field on which the ascending or alphabetic sorting order is based.

Note: *In an ASCII field, spaces around the comma, period, and dash are disregarded.*

After the master database file has been manipulated (i.e., data has been added, changed, or deleted), it is necessary to use the **Process Application Database** option on the Database Administration menu to make the corresponding changes to the related application databases.

Note: *If the symbol (_) is used as the first character of a data field, the record containing that field cannot be processed into the application database.*

Procedure

Action	Result
Select the **Build Master Database** option on the Database Administration menu and press RETURN **(1)**.	The Master File Selection screen displays **(2)**.
Using the arrow keys, select the desired master file, or enter its first letter, and press RETURN.	The Database Entry screen appears with the fields of the selected master file displayed **(3)**.
Select the **Previous** command and press RETURN to display the preceding record, the **Next** command to display the following record, or the **Search** command to display any record entered to the first field.	
To add a record: On the Database Entry screen, select the **Add** command and press RETURN**)**. Enter data to the fields, pressing RETURN after each entry. **Note:** *If the record already exists in the file, a beep is sounded, and the first field remains highlighted for another entry.*	The first field highlights for data entry. After RETURN is pressed on the last field, the first field highlights for entry of another record.
To modify a record: On the Database Entry screen, select the **Modify** command and press RETURN. Enter the first field of the record to be modified. **Note:** *This is the key field by which the record is identified within the database.* Using the arrow keys, move the cursor to the field to be modified and enter the new data, then press RETURN. Continue in this way until all modifications to the record are made.	The first field is highlighted for data entry. The rest of the record for that field displays. **Note:** *If no such record exists in the file, the following command appears: **<RET> to add, <ESC> to modify next record**.* At any time, press ESC to cancel the record and restore the command line.

Procedure (Cont)

Action	Result
To delete the displayed record: Use the **Previous**, **Next**, or **Search** commands to display the desired record, then select the **Delete** command and press RETURN **(3)**.	The displayed record is deleted, the next record displays, and the cursor is returned to the command line.
To view the current database contents: On the Database Entry screen, select the **View** command and press RETURN.	The View File Selection menu of views for this master database displays if one or more views have been created; otherwise, the database itself displays. Refer to Exhibit Master Database Views on page 142 for instructions.
To exit the Database Entry screen: Press ESC at any time or select the **Quit** command and press RETURN.	The Database Administration menu displays.

Specify Application Database Fields

The Specify Application Database Fields option on the Database Administration menu is used to designate the data type required by the application for each field that was defined in the corresponding master file. (Please see Figure 3-29.)

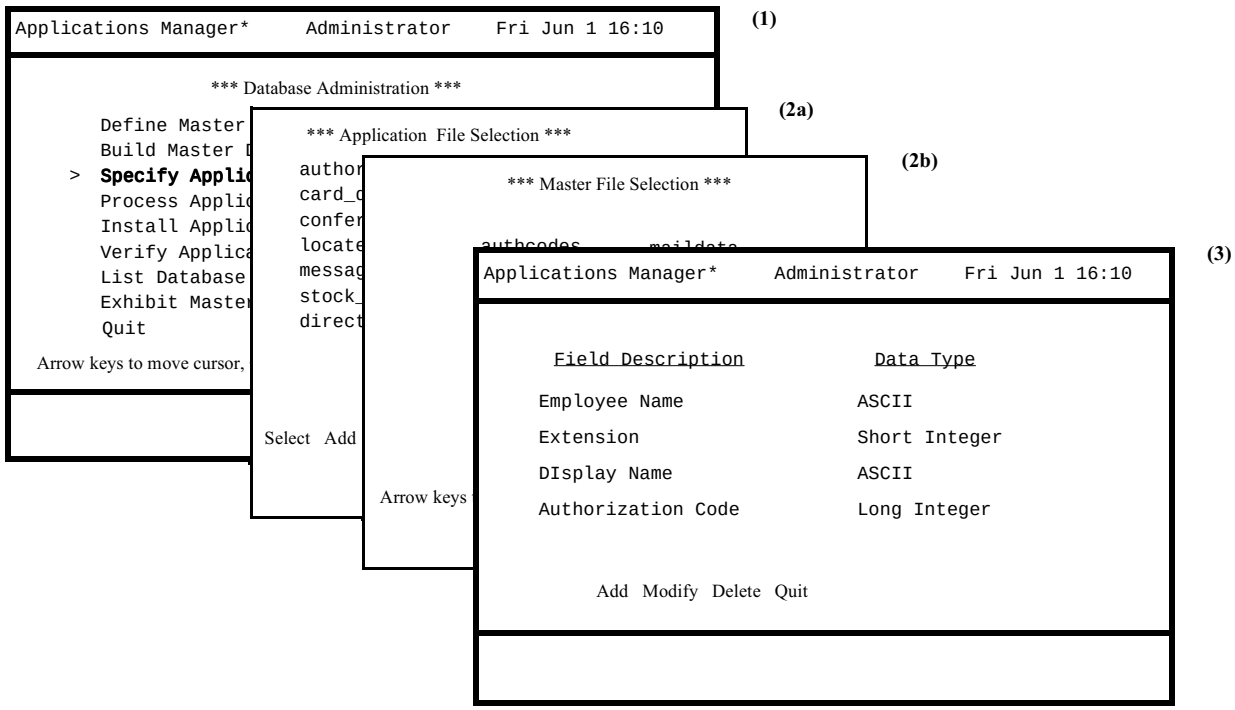


Figure 3-29 Specify Application Database Fields

Notes

The data types defined in this option govern how the corresponding master database fields are to be converted for use by the application. Through this option, the application database is given the name that was previously configured for the application and the master filename to which it corresponds. Then the fields in that master file are displayed in scroll format. The space bar is used to toggle among them, and the RETURN is used to accept a selection.

These data types are described below:

- ASCII – printable character storage equal to one byte each.
- CBCD – Character Binary Coded Decimal, equal to one byte each.
- NBCD – Nibble Binary Coded Decimal, equal to one-half byte or 4 bits.
- Integer – machine-dependent storage allocation, equal to 4 bytes on SCO.
- Long Integer – machine-dependent storage; equal to 4 bytes on SCO.
- Short Integer – machine-dependent storage; equal to 2 bytes on SCO.

The data type that can be selected depends upon the type designated in the master field definition. The data types which can be used for each field type are shown below:

Master Field Type	Application Data Type
ASCII	ASCII only
Monetary	ASCII or NBCD
Numeric	All Types

When it is necessary to delete fields from a set of database files, they should be deleted first from the application files and second, from the master files. If a field has been deleted from the master file but not from the application database, when the application database fields are displayed, the field deleted from the master highlights and a message prompts for its deletion. If the invalid field is not deleted, manipulation of data in the rest of the application file is prohibited.

If an application file does not have a related master file (for instance, an application file that was developed without use of the APM and downloaded), selection of the application file displays the Master File Selection screen so that an assignment can be made.

Creation of New Application Database: A new application database is created through the **Add** command by assigning it the unique name that was configured for it and selecting its field data types through this option. It is then processed and installed through other options on the Database Administration menu. While selecting the field data types through this option, it is possible to add fields from the related master database, modify the data types for fields that were previously selected, or delete fields that were selected in error.

Modification of Existing Application Field Data Types: The field data types of an existing application database can be modified through the **Select** command on the Application File Selection screen. This modification can include adding a field data type, deleting one, or changing an existing one. Manipulating the field data type does not automatically affect the corresponding field in the database. The Process Application Database option on the Database Administration menu is used for that purpose. Note also that when the field data types are being defined, no verification is performed to ensure that the specified format provides adequate storage for the Maximum Value that was designated in the related Master File. However, during the processing of an application database, an error will occur if data integrity cannot be preserved.

Deletion of the File of Field Data Types: The **Delete** command on the Application File Selection screen is used to remove all of the field data types for a selected application database. If an application database exists for the selected file of field data types, before the deletion is performed, a message indicates the existence of the database and requests permission to delete it as well. If permission to delete the corresponding database is not given, deletion of the field data types is prohibited.

Procedure

Action	Result
Select the Specify Application Database Fields option on the Database Administration menu and press RETURN **(1)**.	The Application File Selection screen displays **(2a)**.
To select an existing Application file: On the Application File Selection screen, choose the **Select** command and press RETURN **(2a)**. Then position the cursor on the desired application filename, or enter its first letter, and press RETURN. **Note:** *If more application files exist than can be listed on a 1-page display, use the **ShiftD** combination to move down to the next page and the **ShiftU** combination to move up to the previous page.* (or) **To add a new Application file:** On the Application File Selection screen, select the **Add** command and press RETURN **(2a)**. Then enter the name of the new file at the prompt using up to 10 characters and press RETURN.	The screen displays the field descriptions and data types for the selected database **(3)**. The Master File Selection screen displays **(2b)**.
Using the arrow keys, position the cursor on the desired master filename, or enter its first letter, and press RETURN.	The fields and a command line are displayed **(3)**.

Procedure (Cont)

Action	Result
To modify or add an Application file: **To add a field description/data type within the file:** Select the **Add** command under the Field Description display and press RETURN.	The first field description from the master file displays.
Use the Space Bar to toggle through the scroll to display the desired field description and press RETURN to select it. Then, in the same way, toggle among the data types to display the desired one and press RETURN to select it.	After each RETURN, the next field is highlighted.
After all additions are made, press ESC.	The cursor is positioned on the command line.
To modify a field description/data type within the file: Select the Modify command under the Field Description display and press RETURN.	The first field description highlights.
To modify or add an Application file: **To modify a field description/data type within the file (Cont.):** Use the Arrow Keys to highlight the Field Description that is to be changed and press RETURN. Then use the Space Bar to toggle through the scroll on that field to display the desired description and press RETURN to select it. Then, in the same way, toggle among the data types to display the desired one and press RETURN to select it.	After each RETURN, the next field highlights.
After all additions are made, press ESC.	The cursor is positioned on the command line.

Procedure (Cont)

Action	Result
To delete a field description/data type within the file: Select the **Delete** command under the Field Description display and press RETURN.	The first field description highlights.
Use the Arrow Keys to highlight the Field Description that is to be deleted and press RETURN.	The field and its data type is deleted from the display.
Repeat the process until all deletions are made, then press ESC.	The cursor is positioned on the command line.
To exit the Field Description/Data Type screen: Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save changes? (Y, N)** appears.
To save changes: Enter **Y** and press RETURN.	Stores the new field data types and displays the Application File Selection list with the new name added to it.
To cancel changes: Enter N and press RETURN.	Modifications and new application field data types are cancelled, and the Application File Selection screen displays.

Procedure (Cont)

Action	Result
To delete an Application file: On the Application File Selection screen, select the **Delete** command and press RETURN **(1)**. Using the arrow keys, position the cursor on the application filename that is to be deleted, or enter its first letter, and press RETURN.	The cursor is positioned on the first application filename **(2)**. If a database does exist, the message **Application database exists. Do you want to delete it? (Y,N)** appears. Enter **Y** to delete the database. Enter **N** to leave the database intact and cancel deletion of its field data types. If you entered **Y** and there is no corresponding application database, the message **Do you want to delete <application filename>? (Y,N)** appears. Enter **Y** to delete the field data types, or enter **N** to leave them intact. The command line is then restored.

Process Application Database

The Process Application Database option on the Database Administration menu is used to create the application database from the master file according to defined field conversion data types. (Please see Figure 3-30.)

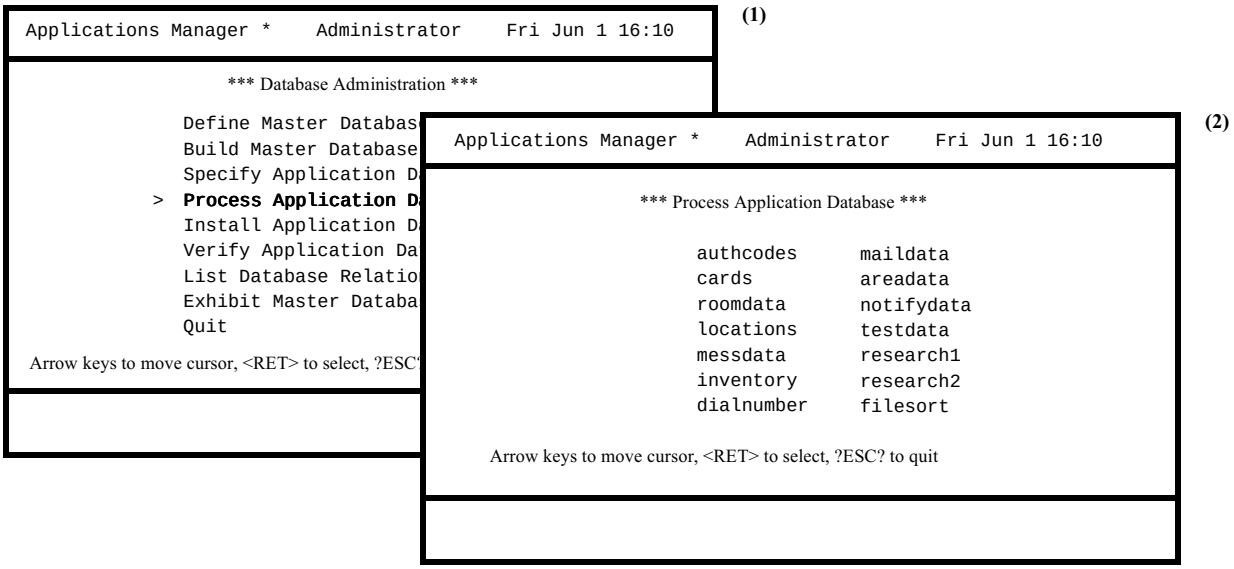


Figure 3-30 Process Application Database

Notes

Now that the master database is defined and built and the application field data types have been selected, the application database can be created or processed. When this option is selected and the master database is identified, the fields in that master database that have been designated for application use are converted according to the field data types and placed into the application database.

All application databases that are related to the selected master database are processed when this option is implemented. If processing fails with one application database, none of the other databases generated from the same master file will be processed. (Processing might fail, for instance, when there is a defunct field definition in the file or when there is an overflow of a field.) (Refer to Verify Application Database on page 139.)

Also, if the symbol (~) is used as the first character in a master database field, the record containing that field will not process into the application database.

Procedure

Action	Result
On the Database Administration menu **(1)**, select the Process Application Database option**.**	The Process Application Database screen displays, and the cursor is positioned on the first master database name **(2)**.
Use the arrow keys to move the cursor to the desired file, or enter its first letter, and press RETURN.	A series of messages indicates the status of the processing, including when it is completed.
To exit the screen: Press ESC from the command line.	The Database Administration menu displays.

Install Application Database

The Install Application Database option on the Database Administration menu is used to move the processed database into an accessible temporary file and then to notify the application that the database is ready. (Please see Figure 3-31.)

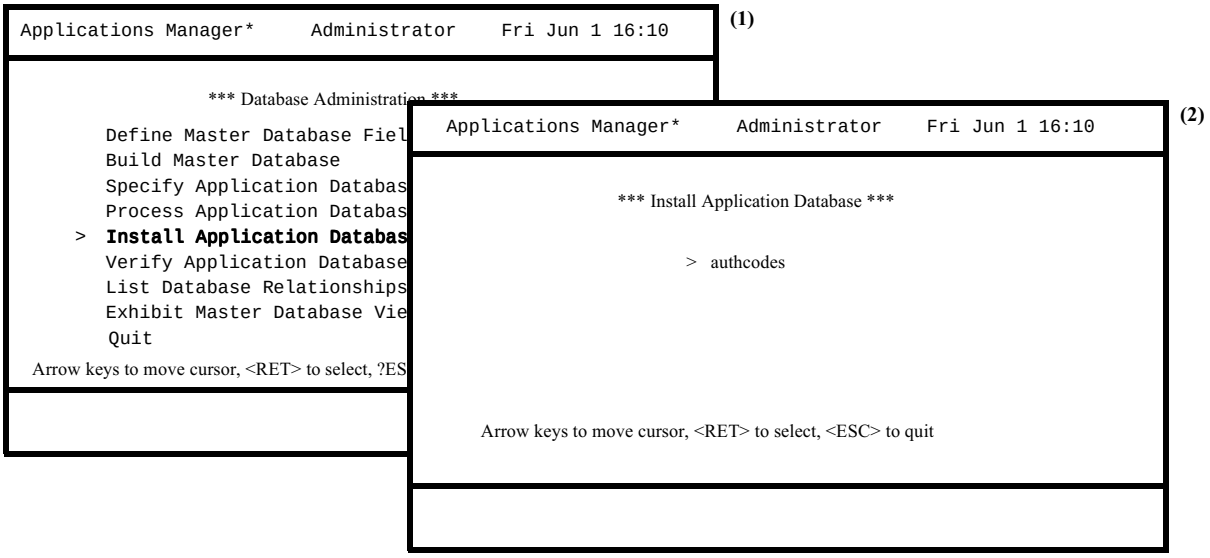


Figure 3-31 Install Application Database

Notes

Before an application database can be installed, it must have been successfully processed using the **Process Application Database** option. Selection of this option displays a list of application databases that have been processed but not yet installed.

Procedure

Action	Result
On the Database Administration menu, select the Install Application Database option **(1)**.	If there is at least one application database that has been processed but not installed, the Install Application Database screen displays **(2)**.
Use the arrow keys to move the cursor to the desired file, or enter its first letter, and press RETURN.	A series of messages indicate the status of the installation.
To exit the screen: Press ESC from the command line.	The Database Administration menu displays.

Verify Application Database

The Verify Application Database option on the Database Administration menu is used to verify the accuracy of an application database for processing. (Please see Figure 3-32.)

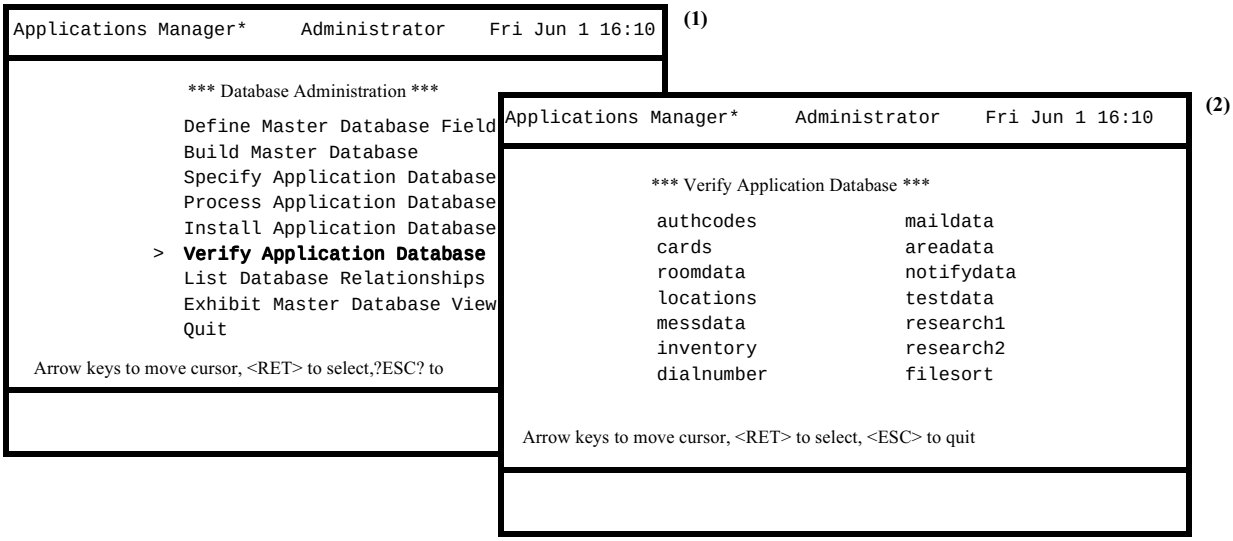


Figure 3-32 Verify Application Database

Notes

When a master file is being processed into more than one application database, the processing is continuous until all of the databases for that master file are processed. If an error condition occurs during the processing of any one of the application databases, processing of all the databases for that master file is interrupted. The Verify Application Database option can be used to separate the application file in which the error occurred in order to verify the accuracy of the rest of the file.

For instance, while master definition file A is being processed into application databases #1, #2, and #3, an error is detected in file #3 and corrected. The Verify Application Database option is used to verify the accuracy of the rest of file #3 before re-engaging the Process option. By using the Verify option, file #3 can be isolated, its accuracy verified, and any other errors in the file found and corrected, before reprocessing all of the databases.

Procedure

Action	Result
Select the Verify Application Database option on the Database Administration menu and press RETURN **(1)**.	The Verify Application Database screen displays with the first master database name highlighted **(2)**.
Use the arrow keys to position the cursor on the desired master filename, or enter its first letter, and press RETURN.	The screen remains the same and a message appears indicating that the verification process is complete. If an error exists in the application file, an message identifies the problem.

List Database Relationships

The List Database Relationships option on the Database Administration menu is used to display the application database and master database names for every application that is configured in the APM. (Please see Figure 3-33.)

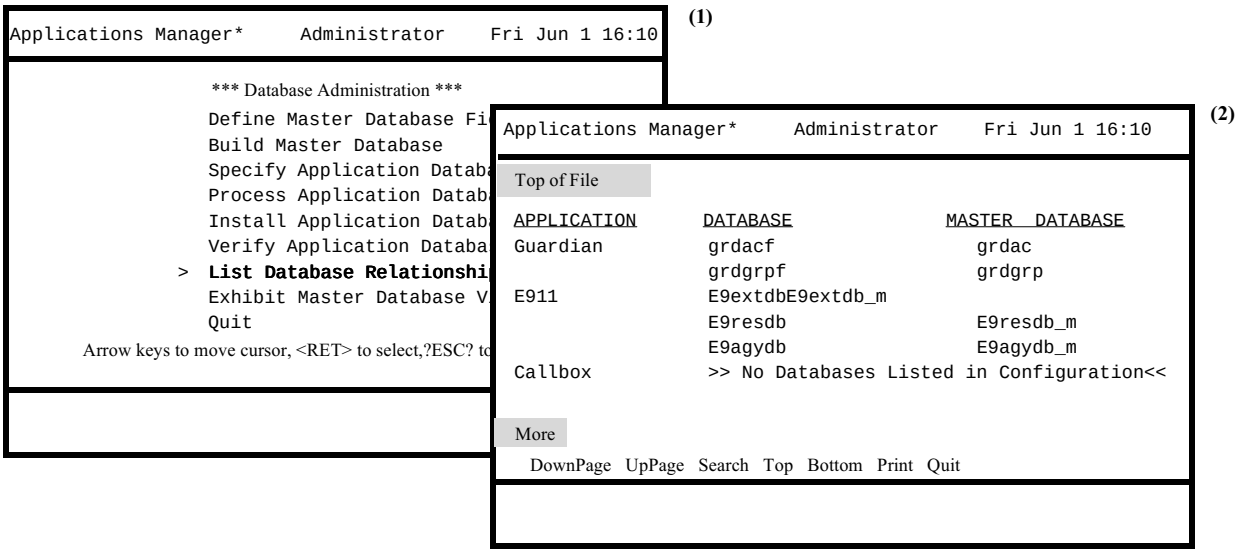


Figure 3-33 List Database Relationships

Notes

This display is merely a summary of the database information that is created and maintained in through the application configuration option and the Database Administration menu.

Procedure

Action	Result
Select the List Database Relationships option on the Database Administration menu and press RETURN **(1)**.	All applications that are configured in the APM are listed with the names of their databases and the master databases from which they are generated **(2)**.
To move through the list: Use the **DownPage** and **UpPage** commands to move line-by-line through the list or use the **Top** and **Bottom** commands to move directly to the beginning or end of the list.	
To search for a record: Select the **Search** command. At the prompt, indicate the pattern to be sought, and press RETURN. When the display is returned to the screen, the designated pattern highlights wherever it appears.	
To print the list: Select the **Print** command. At the prompt, indicate whether to print the screen or the entire list, and press RETURN.	
To exit the database relationship display option: Select the **Quit** command and press RETURN.	The Database Administration menu displays.

Exhibit Master Database Views

The Exhibit Master Database Views option on the Database Administration menu is used to display an entire master database on the screen or to build 'views' that consist of only specified fields from the master database. (Please see Figure 3-34.)

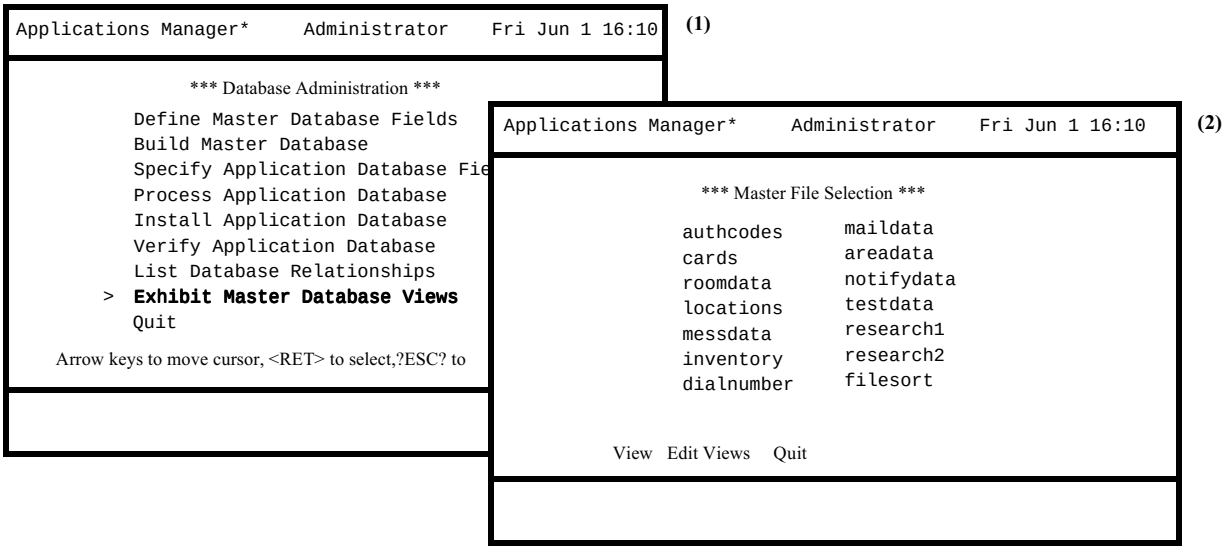


Figure 3-34 Exhibit Master Database Views

Notes

The Exhibit Master Database Views provides the following two command activities:

- **View** –To display the contents of a database via a 'view' of a selected master database on multiple screen pages; includes the ability to print either the file or just the current screen display.
- **Edit Views** –To create and manage 'views' consisting of specified fields of a selected master database.

Procedure

Action	Result
Select the Exhibit Master Database Views option on the Database Administration menu and press RETURN **(1)**.	The Master File Selection menu of databases displays **(2)**.
On the Master File Selection screen, select the desired command and press RETURN.	Refer to the following pages for descriptions of the command activities.
To exit the Master File Selection screen: Select the **Quit** command and press RETURN, or press ESC.	The Database Administration menu displays.

View a Master Database

Under the Exhibit Master Database Views option on the Database Administration, the View command is used to display the contents of a master database via a 'view' on the screen. (Please see Figure 3-35.)

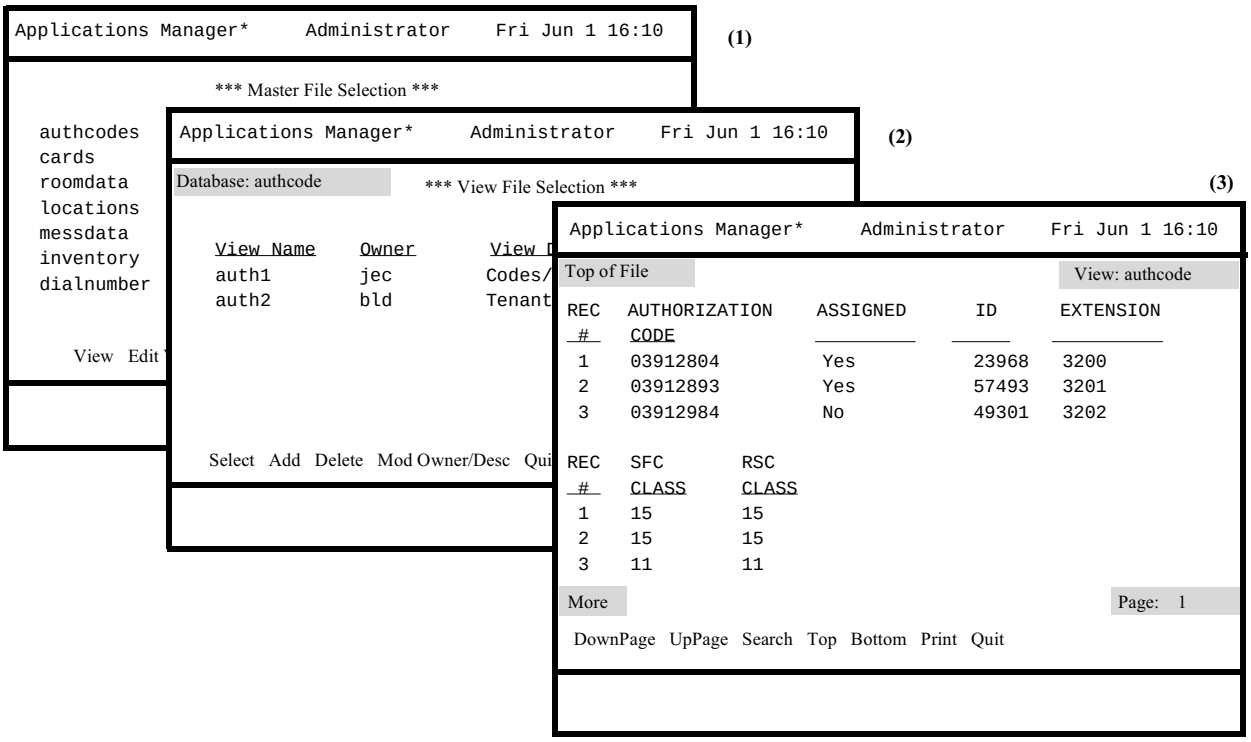


Figure 3-35 View Master Database

Notes

A one-page display can contain the selected database fields in a double-tiered arrangement (see figure above). If the number of fields in the view exceed what can be contained in a one-page, double-tiered display, additional pages are used as needed. In the bottom right-hand corner of the display is a page numbering notation. This notation normally indicates simple incremental numbering (e.g., Page 1, Page 2, etc.). However, when all of the fields being viewed cannot fit on one display page and must be distributed across more than one page, the notation indicates partial paging (e.g., Page 1 of 3, Page 2 of 3, etc.). Also, whenever a database view requires a double-tiered display, the records are numbered in the first column on the left (i.e., REC #).

Regardless of the fact that the APM sorts a database by its key field, a 'View' is sorted on the first named field either alphabetically or numerically in ascending order.

The master database field definitions are placed in a view file which is always automatically listed for the indicated database under the View command. This makes it possible to review the field definitions before defining partial views of the database.

Procedure

Action	Result
On the Master File Selection screen, select the **View** command and press RETURN. Then, using the arrow keys, position the cursor on the desired master filename, or enter its first letter, and press RETURN.	The View File Selection menu of views displays for the selected master database. **Note:** *If there are no defined views for the selected master database, the View File Selection menu is by-passed, and the database itself immediately displays.*
On the View File Selection screen, use the arrow keys to position the cursor on the desired view, or enter its first letter, and press RETURN.	The selected view displays on the screen **(3)**.
To move through the Database Display: Use the **DownPage** and **UpPage** commands to move line-by-line through the list or use the **Top** and **Bottom** commands to move directly to the beginning or end of the list.	
To search for a database record: Select the **Search** command and press RETURN. At the prompt indicate the pattern to be sought, and press RETURN.	A prompt requests the pattern to be sought. When the display is returned to the screen, every line that contains the designated pattern highlights wherever it appears.
To print the view or screen: Select the **Print** command and press RETURN. Respond to the prompt with an **F** to indicate the database view file, **S** to indicate just the screen or **ESC** to cancel the request, and press RETURN.	A prompt asks whether to print the database view file or just the screen, or to return the cursor to the command line. Any requested printing is performed and the command line is restored.
To exit the display: Select the **Quit** command and press RETURN.	The View File Selection menu displays.

Edit Database Views

Under the Exhibit Master Database Views option on the Database Administration menu, the Edit Views command is used to create and manage views of the master databases. (Please see Figure 3-36.)

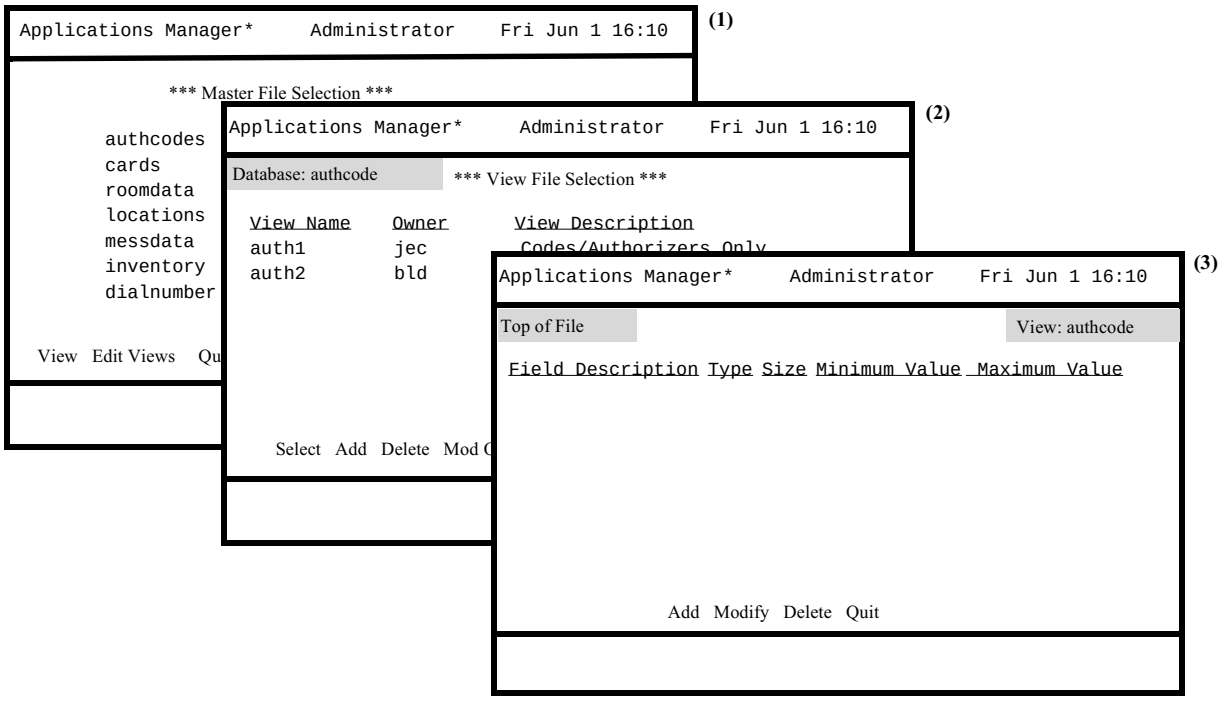


Figure 3-36 Edit Master Database View

Notes

The Edit Views command makes it possible to create a new view of a database, change the fields of an existing view, change the way in which a view is identified on the View File Selection screen, or remove a view from those available for a master database.

Up to 10 views can be defined for a master database and each can contain anywhere from a single field to all of the fields in the database, in any order. Reordering of the fields causes a resorting of the database records based on the selected first field of the view definition.

Procedure

Action	Result
On the Master File Selection screen, select the **Edit Views** option and press RETURN **(1)**.	The View File Selection screen lists any existing views already defined for the selected master database **(2)**.
To select an existing view: On the View File Selection screen, choose the **Select** command and press RETURN. Then position the cursor on the desired view, or enter its first letter, and press RETURN. (or) **To add a new view:** On the View File Selection screen, select the **Add** command and press RETURN **(1)**.	The field definitions for the selected view display. A blank view definition screen displays.
To add or modify a view: The following procedures are the same for both adding a view or Modifying an existing view:	
To add a field to the view: On the field definition screen, select the **Add** command and press RETURN.	The first available field description in the master database displays in highlight. Fields may not be selected twice.
Use the space bar to toggle among available fields in the highlighted area and press RETURN to select the desired field.	The rest of the definition displays for the selected field, and the next field description highlights.
Continue in the same manner until all desired fields for this view are selected and displayed. Then press ESC.	A prompt displays below for entry of the view owner, an ID consisting of up to 3 characters.
Enter the owner ID and press RETURN.	Another prompt requests a description of the view that consists of up to 55 characters.
Enter a description of the view and press RETURN.	The command line displays.

Procedure (Cont)

Action	Result
To add or modify a view (Cont.): **To change a field:** On the field definition screen, select the **Modify** command and press RETURN.	The first field description in the selected view displays in highlight.
Press RETURN again, then use the space bar to toggle among available fields in the highlighted area and press RETURN to select the desired field.	The rest of the definition displays for the selected field, and the cursor returns to the command line.
To delete a field: On the field definition screen, select the **Delete** command and press RETURN.	The first field description in the selected view displays in highlight.
Use the arrow keys to highlight the field to be deleted from the view and press RETURN.	A prompt requests confirmation of the deletion.
At the prompt, enter **Y** and press RETURN to make the deletion. Enter **N** and press RETURN to cancel the deletion.	After the deletion is either confirmed or cancelled, the first field highlights for another deletion.
Press ESC to exit the deletion mode.	The field definition screen command line displays.
To exit the field definition screen: Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save changes? (Y, N)** displays.
Enter Y and press RETURN to store the new or modified view. Enter N and press RETURN to cancel all additions or changes to the view.	The View File Selection menu of views displays for the selected master database.

Procedure (Cont)

Action	Result
To delete a view: On the View File Selection screen, select the **Delete** command and press RETURN.	The cursor is positioned on the first listed view.
Use the arrow keys to move the cursor to the view to be deleted, or enter its first letter, and press RETURN.	The message **Do you want to delete the View <name>? (Y, N)** appears.
Enter **Y** and press RETURN to delete the view. Enter **N** and press RETURN to cancel the deletion.	Control returns to the command line on the View File Selection screen.
To change an owner ID or a view description: On the View File Selection screen, select the **Mod Owner/Desc** command and press RETURN.	The cursor is positioned on the first listed view.
Use the arrow keys to move the cursor to the desired view, or enter its first letter, and press RETURN.	The Owner entry for the selected file highlights.
Enter a new Owner ID and press RETURN. (or) Press RETURN to move from the Owner field to the View Description field, enter the new description, and press RETURN to accept it.	The new entry displays in the field and control is returned to the command line on the View File Selection screen.
To exit the View File Selection screen: Select the **Quit** command and press RETURN, or press ESC from the command line.	The Master File Selection menu displays.

Control Options

Overview

The Control Options selection on the System Administration menu is used to specify the information that controls the APM runtime execution and monitoring activities. Using this option, the System Administrator can define day-to-day functions and error recovery procedures that will be performed automatically once the APM is initialized. (Please see Figure 3-37.)

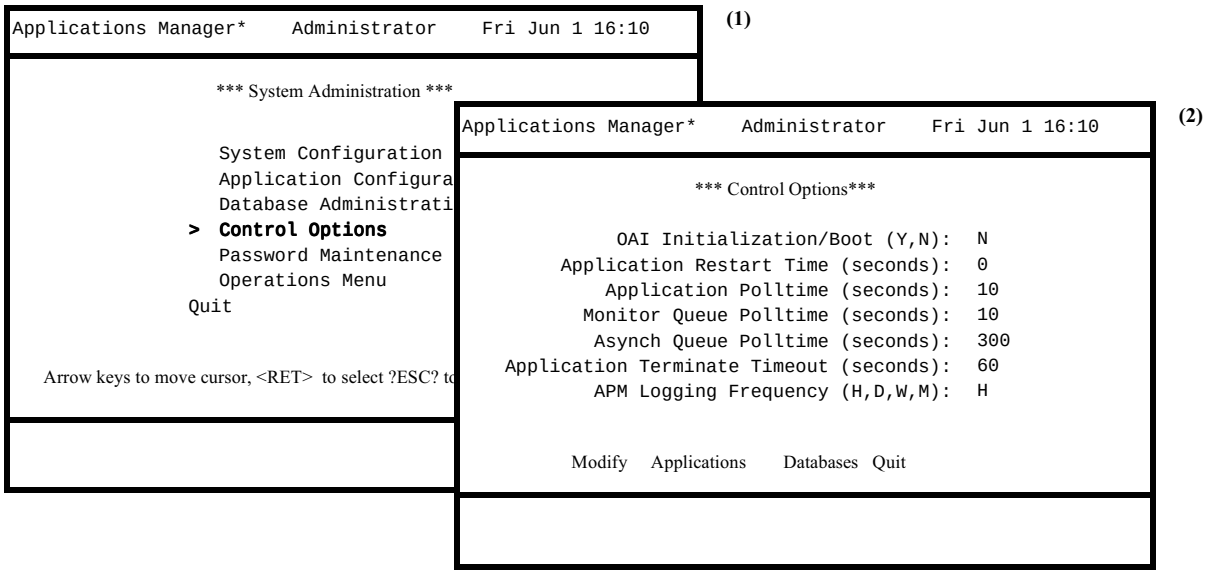


Figure 3-37 Control Options

Notes

The Control Options selection is used to schedule the following functions:

- Application initialization and termination.
- APM monitoring activities.
- APM log file backups.
- Database installations and update messages.

If the OAI Initialization/Boot parameter is set to **Y** (Yes), the OAI system will be reinitialized automatically up to 5 times when it terminates abnormally. The sixth time, the OAI system can only be reinitialized manually after which the count of automatic reinitializations begins again at 0.

Control data can only be manipulated when the system is not initialized. Any attempt to alter data while the system is initialized is prohibited.

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Procedure

Action	Result
Select Control Options on the System Administration menu **(1)**.	The Control Options screen displays **(2)**.
Using the arrow keys or by entering its first letter, select the desired command from the descriptions on the next page, then press RETURN. • **Modify –** used to modify control data. • **Applications –** used to specify the automatic start and stop times for application control. • **Databases –** used to specifiy times at which application databases are automatically installed. Use each of these commands as described in the following pages.	
To exit from the Control Options screen: Press ESC at any time to return to the command line, then select **Quit** and press RETURN.	The System Administration menu displays.

Modify

The **Modify** command on the Control Options screen is used to make changes in the process control data. (Please see Figure 3-38.)

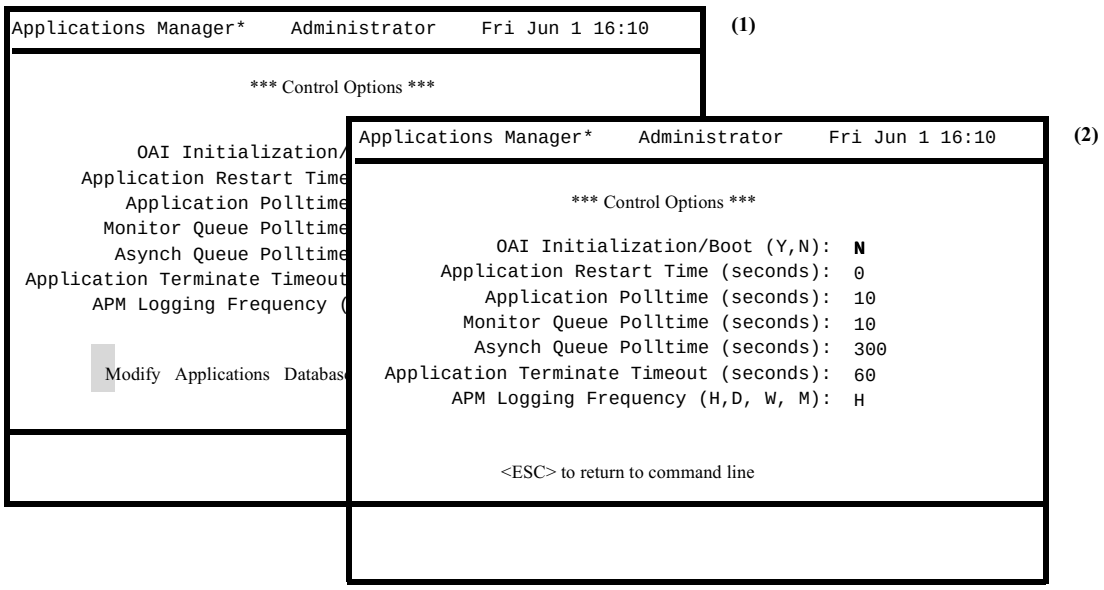

Figure 3-38 Modify Control Option

Notes

Any attempt to modify control options while the APM is initialized causes the message **Unable to modify while system is initialized** to display. The system must be stopped in order to modify the data on the Control Options screen. Any changes made to the data will apply once the system is reinitialized.

The polltimes in this option represent intervals in which the APM suspends execution to perform the polling task. Therefore, these values should be either zero (0) or some number that is greater than 10. Otherwise, the APM will spend too much of its time polling rather than monitoring system activity.

Procedure

Action	Result
When the Control Options screen is displayed, the **Modify** command is highlighted. Press RETURN **(1)**.	The first field highlights for data revision **(2)**. **Note:** *If the system is running, the message **Unable to modify while system is initialized** appears.*
Use the arrow keys to move among fields and press RETURN to make the selection. When all responses are selected, press ESC. Field Name OAI Initialization/Boot	Definition Indicates whether or not the system is to be initialized when the computer is booted up and uses the following values: **Y** (Yes): Initialize the entire system as configured initially. **N** (No): Start only the APM and its timer mechanism.
Application Restart Time	Indicates the number of seconds the APM will wait before restarting an application that terminated. (A termination is considered abnormal if the APM does not know about it until after it occurs.) If the application is configured for APM restart after abnormal termination, the APM will wait the specified number of seconds. If the application restart time is zero, the APM disables all application restarts. In this case, no applications are restarted.

Procedure (Cont)

Action	Result
Application Polltime	Indicates how often the APM will view the processing queue of each active application. If a queue is found to be stagnate, it will be marked. If, on the next scheduled viewing, there is still no indication of processing during the period since the mark was left, the APM will kill the application. This is a data entry field with a maximum of 9 numeric digits. An entry of 0 indicates that no polling will be done.
Field Name Monitor Queue Polltime	Definition Indicates how often the APM will monitor its own queues to make sure that it is not stagnate. If the APM queues are stagnate, the APM will take measures to clear its own queues each time it polls.
Asynch Queue Polltime	Indicates how often the APM polls the OAI asynchronous queue. This queue is defined and used by OAI Library routines for storing corrupted messages received from the NEAX. When polling this queue, the APM reads all messages from the queue, timestamps them, and logs them into a log file.
Application Terminate Timeout	Indicates how long an application is given to terminate after it has been instructed to do so by the APM. If the application is still activated after this time period, the APM will send it a SIGTERM signal to terminate. Thereafter, every time this same time period is reached, the APM will send the application a SIGKILL signal. If this timeout value is set to 0, APM will not check to see if the application terminates.
APM Logging Frequency	Indicates how frequently the log file is duplicated into a backup file. Responses include monthly, weekly, daily, and hourly. Make selections by entering the first letter or the space bar and press RETURN.

Procedure (Cont)

Action	Result
To exit Modify mode: Press ESC.	**Note:** *The backup process occurs only when the system is running. If the system is down during the designated back-up time, the current log contents will be included in the next completed back-up.*
Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save the changes? (Y, N)** appears. Enter **Y** to store the changes, and enter **N** to cancel them. The System Administration menu displays.

Applications

The **Applications** command on the Control Options screen is used to schedule the automatic initialization and termination of all Non-CRT applications in the system. (Please see Figure 3-39.)

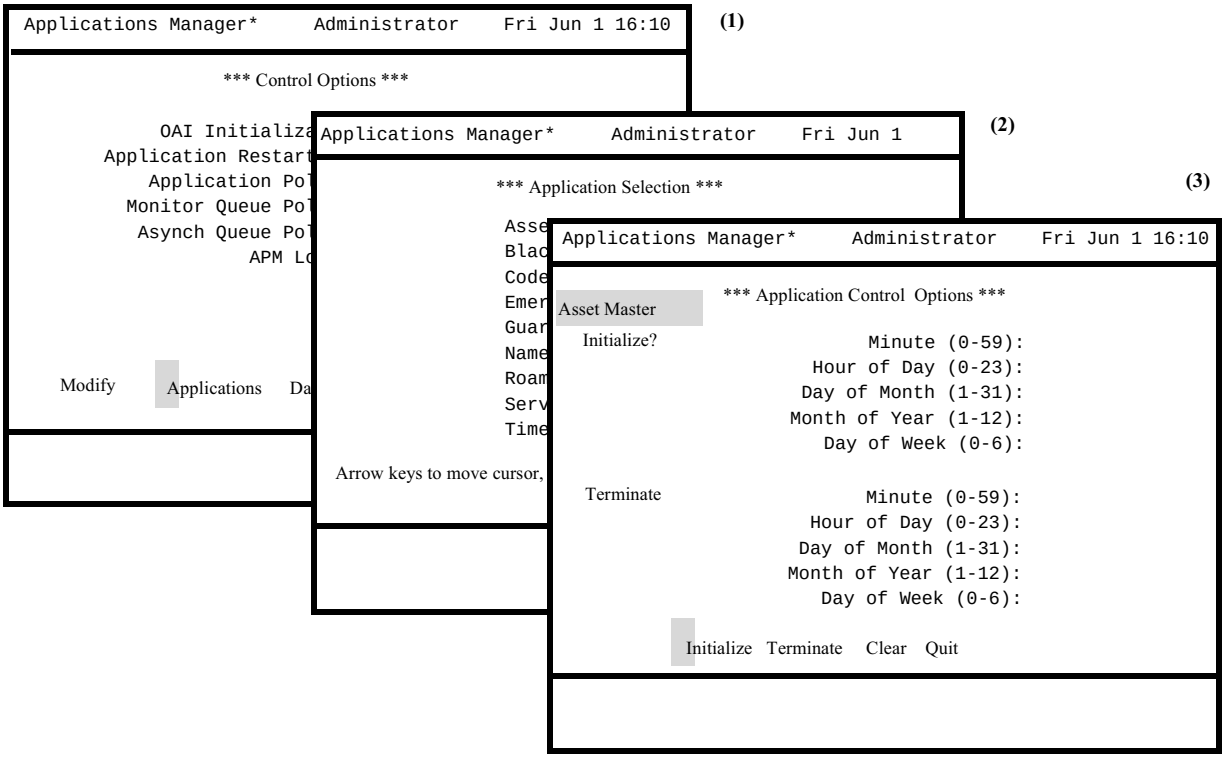

Figure 3-39 Application Control

Notes

When the computer is booted up and the OAI system is initialized, the APM uses the data provided in this option to initialize each application. The **Initialize** command is used to specify the time(s) at which the indicated application is to be initialized. The **Terminate** command is used to specify the time(s) at which the indicated application is to be terminated. The designated time for either initialization or termination is specified using five fields (minute, hour, day of month, month, day of week). These five fields combine to form a time pattern that is then interpreted by the system. (The format of the data entries follows the syntax rules specified by the UNIX Cron time entries. Refer to a UNIX reference manual for more information about this syntax.) If any field is left blank, the entire record is rejected.

If the OAI system is running at the time the initialization and/or termination data is specified or modified, the new data will take effect immediately upon use of the **Quit** command. If the OAI system is not running at the time, the new data will take effect when the system is reinitialized.

Procedure

Action	Result
On the Control Options screen, select the **Applications** command and press RETURN **(1)**.	The Application Selection screen displays **(2).**
Use the arrow keys to position the cursor on the desired application and press RETURN.	The Application Control Options screen displays the initialization and termination fields for the selected application **(3)**.
On the Application Control Options screen for the selected application, select the **Initialize** or **Terminate** command, press RETURN, and enter data in the fields according to the description below. Press RETURN after each entry to save the entry. Field Description Each field represents a time interval with a range in which valid responses must lie: Minute (0-59), Hour of Day (0-23) (Midnight = 0), Day of Month (1-31), Month of Year (1-12), Day of Week (0-6) (0 = Sunday). When all five fields are completed, they are read together in one pattern. Use the following responses to construct the pattern among the fields: • a single integer within the given range. • an asterisk (*) to indicate all values within the given range. • hyphen to indicate a range (1-3). • comma-separated list of integers and ranges (4,6,8 or 4-10,12-15,18,23). The examples provided on the right illustrate how these five fields are then read in a pattern. **Note:** *When both the day of the month and the day of the week are given, they are interpreted separately.*	**Examples** 0 0 * * * = Every day at midnight 0 1 * * 1 = Every Monday at 1:00 am 0 1 1 * * = The first of every month at 1:00 am 15,30,45 6-18 * * * = Every 15 minutes from 6:00 am to 6:45 pm every day. 0 1 2 * 2 = The second day of each month and each Tuesday at 1:00 am 0 12 28 * * = Noon of the 28th day of every month

Procedure (Cont)

Action	Result
To exit the Initialize or Terminate mode: Press ESC.	The command line is restored.
Use the **Clear** command to erase all data in the fields if necessary.	
To exit the Application Control Options screen: Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save the changes? (Y, N)** appears. If there is no syntax error in the data, enter **Y** to store the changes, or enter **N** to cancel them. The command line displays.

Databases

The **Databases** command on the Control Options menu is used to both process and install or just install an application database. (Please see Figure 3-40.)

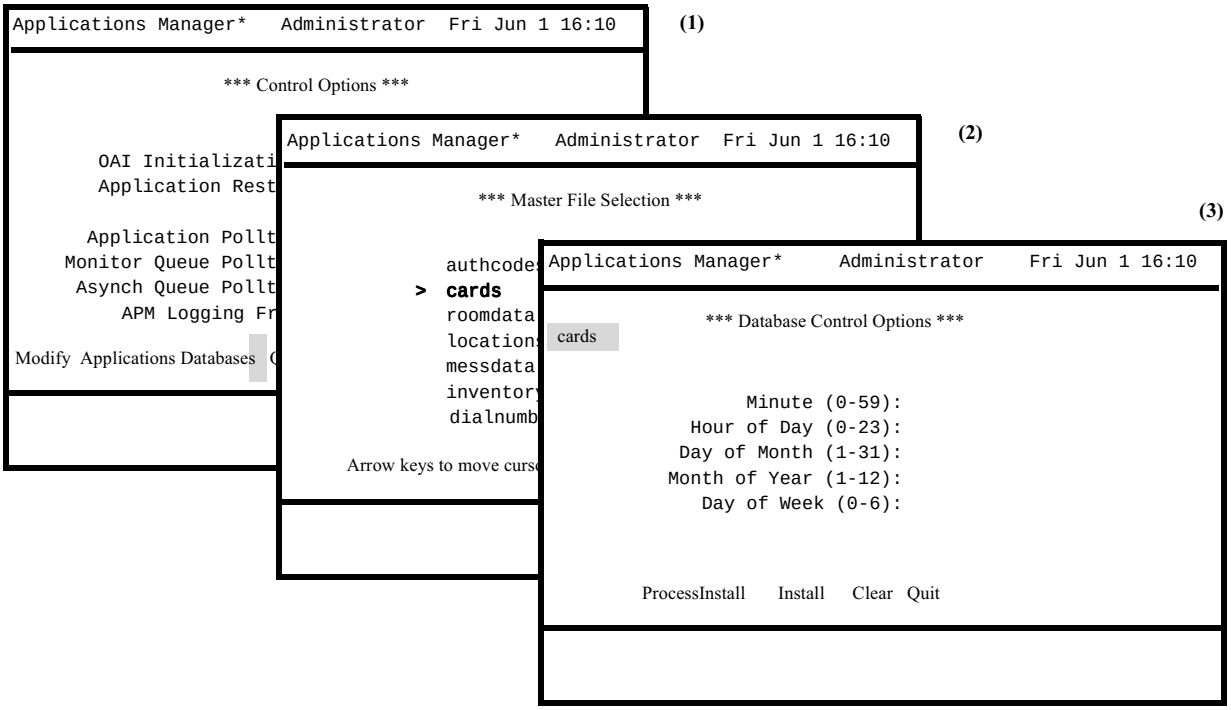

Figure 3-40 Database Control

Notes

The designated time for installing or updating the revised master database is specified using five fields (minute, hour, day of month, month, day of week). These five fields combine to form a pattern that is then interpreted by the system. If any field is left blank, the entire record is rejected.

Procedure

Action	Result
On the Control Options screen **(1)**, select the **Databases** command and press RETURN.	The Master File Selection screen displays **(2)**.
Using the arrow keys, position the cursor on the desired master file and press RETURN.	The Database Control Options screen displays for the selected database **(3)**.
Select either the **Process Install** or the **Install** command and press RETURN.	The first field highlights for data entry.
Specify the time pattern using the field description below. Use the arrow keys to restore the previous value to a field and the Space Bar to erase a field entry. Press RETURN after each entry. Field Description Each field represents a time interval with a range in which valid responses must lie: Minute (0-59), Hour of Day (0-23) (Midnight = 0), Day of Month (1-31), Month of Year (1-12), Day of Week (0-6) (0 = Sunday). When all five fields are completed, they are read together in one pattern. Use the following responses to construct the pattern among the fields: • a single integer within the given range. • an asterisk (*) to indicate all values within the given range. • hyphen to indicate a range (1-3). • comma-separated list of integers and ranges (4,6,8 or 4-10,12-15,18,23). **Note:** *When both the day of the month and the day of the week are given, they are interpreted separately.* The examples provided on the right illustrate how these five fields are then read in a pattern.	Examples 0 0 * * * = Every day at midnight 0 1 * * 1 = Every Monday at 1:00 am 0 1 1 * * = The first of every month at 1:00 am 15,30,45 6-18 * * * = Every 15 minutes from 6:00 am to 6:45 pm every day. 0 1 2 * 2 = The second day of each month and each Tuesday at 1:00 am 0 12 28 * * = Noon of the 28th day of every month

Procedure (Cont)

Action	Result
To exit the Process Install or Install mode: Press ESC.	The command line is restored.
Use the **Clear** command to erase all data in the fields if necessary.	
To exit the Master Database Install screen: Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save the changes? (Y, N)** appears.

Password Maintenance

The Password Maintenance option on the System Administration menu is used by the system administrator to change access level passwords used within the Applications Manager. (Please see Figure 3-41.)

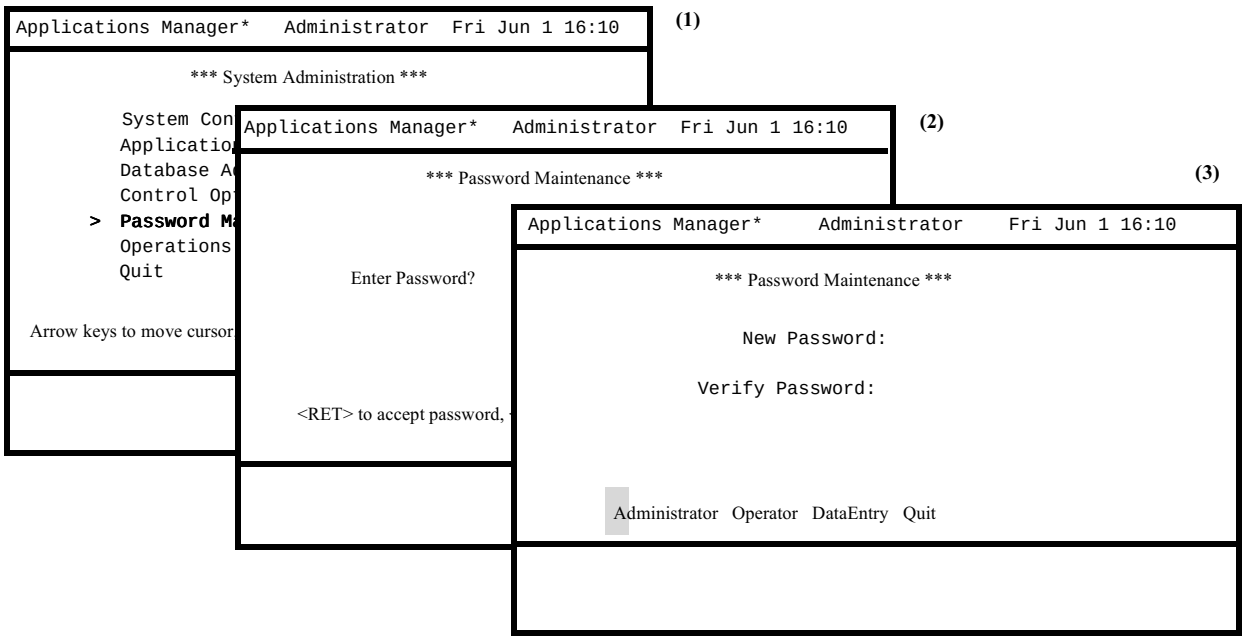

Figure 3-41 Password Maintenance

Notes

The following default passwords are provided for each security level:

apm0: Administrator
apm1: Operator
apm2: Data entry

Only the System Administrator is authorized to alter the security passwords. The Administrator password must be entered before any other password may be changed. If you enter anything other than the Administrator password, an **Invalid password** message displays.

A password that already exists in the system cannot be added as a new password. If you attempt to enter an existing password, a message stating that it is already in the password file displays. Any new password entered into the system becomes effective immediately.

Procedure

Action	Result
Selection of the Password Maintenance option on the System Administration menu **(1)** displays the **Password Maintenance** screen **(2)**. Press RETURN and enter the password.	If the entered password is valid, the Password Maintenance screen displays and contains a command line displaying the levels of password entry. **(3)**.
Select the level of password to be changed (Administrator, Operator, or Data Entry) and press RETURN.	The cursor is positioned on the New Password field for data entry.
Enter the new password.	The cursor is immediately positioned on the Verify Password field for data entry.
Re-enter the same new password in the Verify Password field.	If the two entered passwords match, the message Processing **password entry** appears. Then control is returned to the command line. If the two entered passwords do not match, the message **Passwords do not match, try again** appears, and the cursor is positioned on the new password field for data entry.
To exit the Password Maintenance screen: Select the **Quit** command and press RETURN.	The System Administration menu displays.

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Chapter 4 System Operations

Overview

The Operations Menu is used to maintain, monitor, and control the normal operations of the system on a daily basis. (Please see Figure 4-1.)

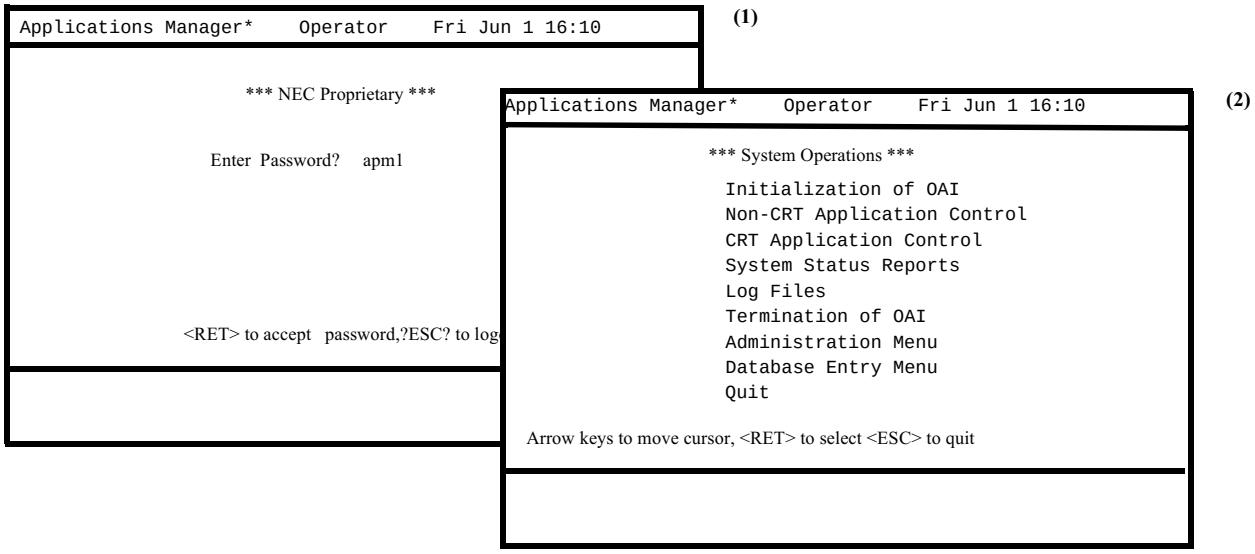

Figure 4-1 System Operations

System Administration Menu

The Administrator and the Operator are both authorized to enter this menu. Only the Administrator may move to the System Administration menu through the Administration Menu option on the System Operations Menu. The Database Entry option on the System Operations menu provides both the System Administrator and the Operator direct entrance to that menu without having to return to the password entry screen.

The System Operations selection enables the user to both initiate control functions from the menu and monitor APM systemwide activity from the display of system messages in the status window. The control functions, selected from the System Operations menu, initiate processes within the system and are internally queued for processing in the order activated. These functions include the following:

- **Initialization of OAI** – Used to initialize the system and generate system processes.
- **Non-CRT Application Control –** Used to manually initialize and terminate Non-CRT applications.
- **CRT Application Control –** Used to manually initialize and terminate CRT applications
- **System Status Reports –** Used to view the current status of applications.
- **Log Files –** Used to review the log of system messages.

- **Termination of OAI –** Used to terminate all OAI processes.
- **Administration Menu –** Used to re-enter the System Administration Menu directly.
- **Database Entry Menu –** Used to enter the Database Entry Menu directly.

At the same time that functions are activated from the menu, messages incoming from the system are displayed in the status window and entered chronologically in a log file. The messages serve to keep the System Operator informed and are generated by the APM Monitor or by applications and internal processes. They provide error and processing information or indication of general system status changes. The messages are also entered into a log file in the order of their receipt. The System Operator can view the message file by selecting the **Log Files** option on the menu.

Procedure

Action	Result
On the Password Entry screen, enter the System Operator password **(1)**. or Select the System Operations option on the System Administration menu.	The System Operations menu is displayed, and the cursor is positioned on the first listed option **(2) .**
Using the arrow keys, position the cursor on the option desired or enter its first letter and press RETURN.	The desired option is displayed
To exit the System Operations menu: Position the cursor on the **Quit** option and press RETURN, or press ESC from the command line.	The Password Entry screen is displayed.

Initialization of OAI

The Initialization of OAI option on the System Operations menu is used to generate the OAI system control structures and initialize the system and application processes. (Please see Figure 4-2.)

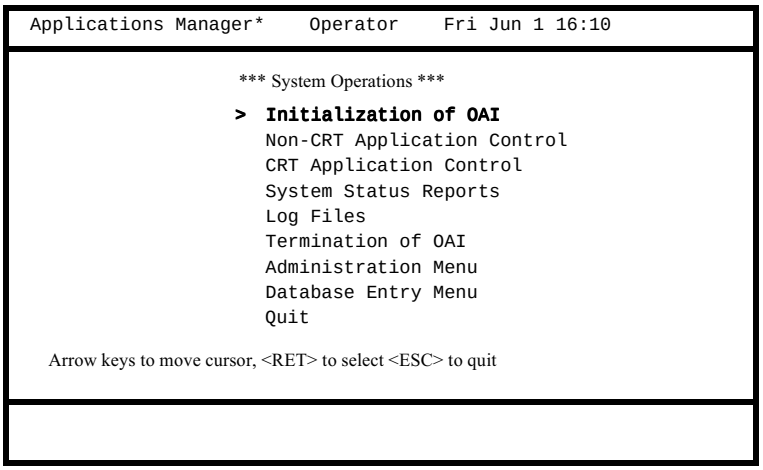

Figure 4-2 Initialization of OAI

Notes

The asterisk immediately following the Applications Manager notation in the header indicates that the OAI system is initialized. **This option is ineffective if the system is already initialized**.

Initialization of the OAI system involves the following functions:

- Rereading and resetting system and application information.
- Initializing all resident OAI system processes.
- Activating any control option information previously stored.
- Initializing any applications configured in the Initialization Batch (see Application Configuration on page 80).
- Beginning application polling procedures.
- Beginning APM logging procedures.

When the process is complete, a message indicating successful initialization is recorded in the Log File and displayed in the status window on the screen. Messages concerning any errors which occur during initialization are also indicated in the Log File and displayed in the status window.

Procedure

Action	Result
When the System Operations menu is displayed, the cursor is positioned on the Initialization of OAI option. Press RETURN.	The message **Initializing OAI system** appears in the status window, followed by the message **OAI system initialized**. The screen remains the same for selection of another option or ESC to the Password Entry screen.

Non-CRT Application Control

The Non-CRT Application Control option on the System Operations menu is used to initialize, terminate, or kill individual non-CRT applications while the system is running. (Please see Figure 4-3.)

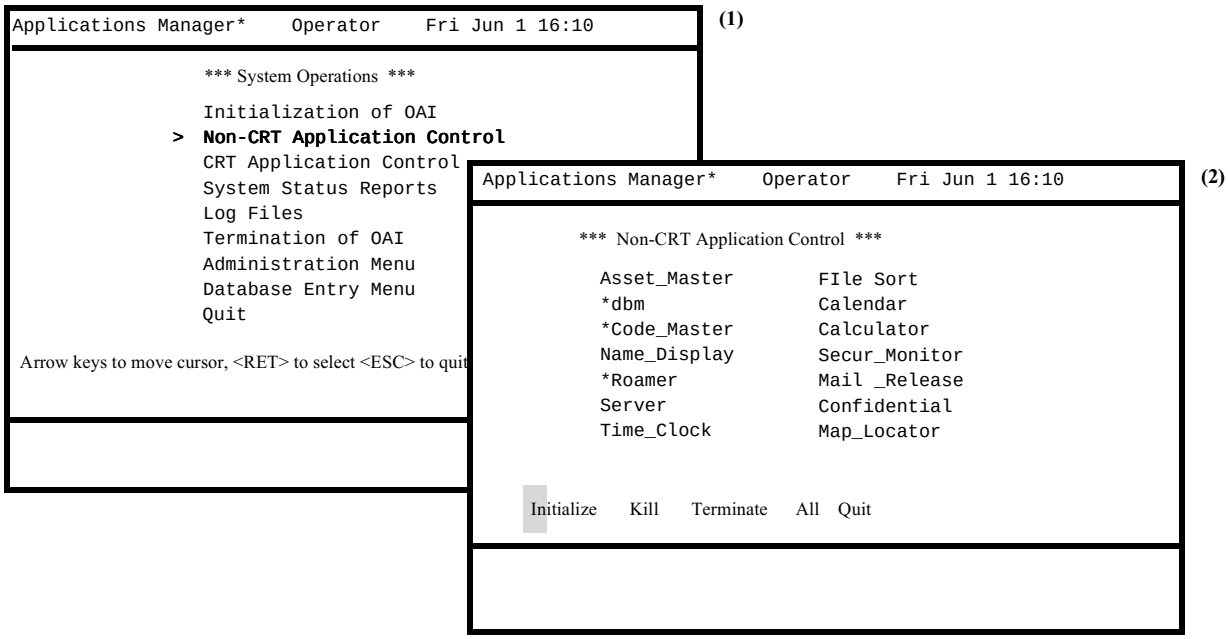

Figure 4-3 Non-CRT Application Control

Notes

The “dbm” application listed in Screen (2) is an APM component program and should not be modified or deleted. (Refer to Introduction for more information.)

The asterisks beside the application names in the screen above indicate that those applications are currently initialized. The asterisked applications can only be terminated or killed, and those applications without the asterisks can only be initialized. An initialized application selected for initialization or an inactive application selected for termination or kill are considered invalid selections.

The Non-CRT Application Control screen allows the activation of the following functions:

- **Initialize an application –** The **Initialize** command is used to start individual applications while the OAI system is running. When the **Initialize** command is activated, the indicated application is sent its configuration data and initialized. This data is configured, stored, and accessed using the Application Configuration option on the System Administration menu.
- **Kill an application –** The **Kill** command is used to stop or terminate an individual application that does not respond to a **Terminate** command. The **Kill** command is an imposed, immediate termination from the APM.

- **Terminate an application –** The **Terminate** command is used to stop or terminate individual applications while the OAI system is running. In response to the **Terminate** command, the APM terminates the application in the manner configured for it. After receiving notice to terminate, the application should perform any cleanup activities, such as downloading a database, terminating any generated processes, or releasing its association and then terminate as requested.
- **All –** The **All** command is used to select all of the listed applications without having to enter into a selection mode with one of the other commands.

Procedure

Action	Result
Select the Non-CRT Application Control option on the System Operations menu **(1)**.	The Non-CRT Application Control screen displays a list of applications and a command line **(2)**.
Select the desired command (**Initialize**, **Kill**, or **Terminate**) and press RETURN. **Note:** *If all the applications listed are to be affected, select the **All** command and press RETURN. Then, select the desired function command.*	The cursor is positioned on the first application name**.**
Use the arrow keys to position the cursor on the desired application(s) and press RETURN after each. **Note:** *To deselect an application, press RETURN a second time on the same application name.*	Each selection is highlighted.
Press ESC after all desired applications are selected.	Valid selections remain highlighted and one of the following messages displays, depending upon which command was initially selected: If the command selected was **Initialize**, the message **Initialize Selected Applications? (Y,N)** appears. Enter **Y** to complete the initialization, or enter **N** to cancel the transaction. If the command selected was **Kill**, the message **Kill Selected Applications? (Y,N)** appears. Enter **Y** to complete the termination, or enter **N** to cancel the transaction.

Procedure (Cont)

Action	Result
	If the command selected was **Terminate**, the message **Terminate Selected Applications? (Y, N)** appears. Enter **Y** to complete the termination, or enter **N** to cancel the transaction. **Note:** *If the OAI system is not initialized when **Y** is entered, the system window will display a message to that effect, and the function will not be performed.*
To exit the screen: Select the **Quit** command and press RETURN.	The Systems Operations menu displays.

CRT Application Control

The CRT Application Control option on the System Operations menu is used to initialize an application that requires immediate use of the console. (Please see Figure 4-4.)

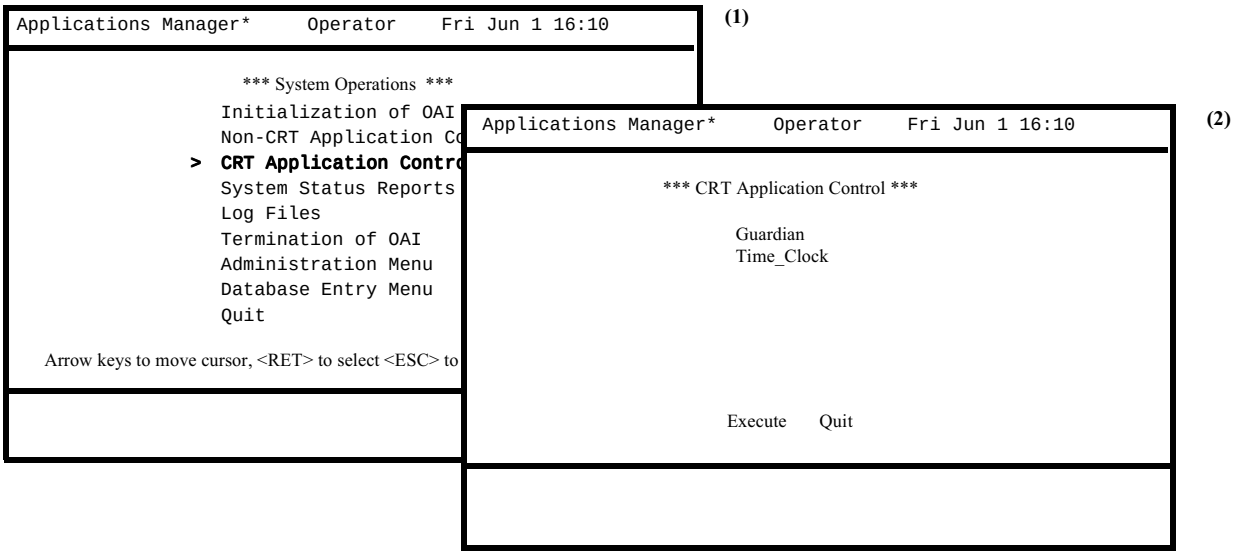

Figure 4-4 CRT Application Control

Notes

When the desired application is selected, the current screen display is saved, the application is initialized, and the screen displays the application interface. No status messages will be displayed by the APM when the application is running. The CRT Application Control screen of the APM interface is restored when the application terminates.

When a CRT application finishes executing, there is a slight delay of approximately 5 seconds before the APM reclaims the screen. This delay allows time for the reading of messages displayed by the CRT application when terminating and allows the APM time to reset the video attributes of the terminal.

Procedure

Action	Result
Select the CRT Application Control option on the System Operations menu **(1)**.	The CRT Application Control screen displays a list of applications and a command line **(2)**.
Select the **Execute** command and press RETURN.	The cursor is positioned on the first listed option.
Use the arrow keys to position the cursor on the desired application, or enter its first letter, and press RETURN.	The application interface displays. When the application interface is exited, the CRT Application Control screen redisplays.
To exit the CRT Application Control screen: Select the **Quit** command and press RETURN.	The Systems Operations menu displays.

System Status Reports

Overview

The System Status Reports option on the System Operations menu is used to check the current status of all applications in the system. (Please see Figure 4-5.)

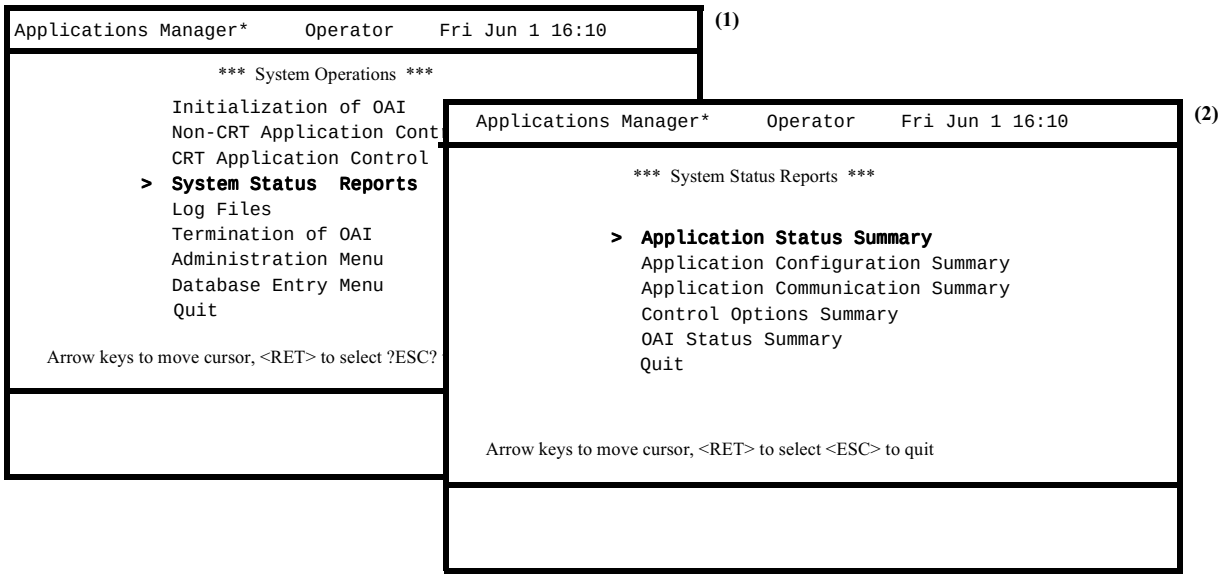

Figure 4-5 System Status Reports

The system status reports are information displays that require no data manipulation. Each report reflects the status at the time the report is displayed. Changes in status that occur while the report is displayed are shown only when the report is exited and reselected from the menu.

The following options are provided through this menu:

- **Application Status Summary –** Displays the current status of every application.
- **Application Configuration Summary –** Displays the configuration of every application.
- **Application Communication Summary –** Displays the queue key assignments for every non-OAI application.
- **Control Options Summary –** Displays the schedules for application initialization/ termination and database processing/ installation.
- **OAI Status Summary –** Displays the history of activity of every OAI association.

Procedure

Action	Result
Select the System Status Reports on the System Operations menu and press RETURN **(1)**.	The System Status Report menu displays **(2)**.
Using the arrow keys or by entering its number, select the desired menu option, and press RETURN.	
To exit the System Status Reports menu: Select the **Quit** command and press RETURN or press ESC from the command line.	The System Operations menu displays.

Application Status Summary

The Application Status Summary option on the System Status Reports menu displays the current status of all applications configured in the APM system. (Please see Figure 4-6.)

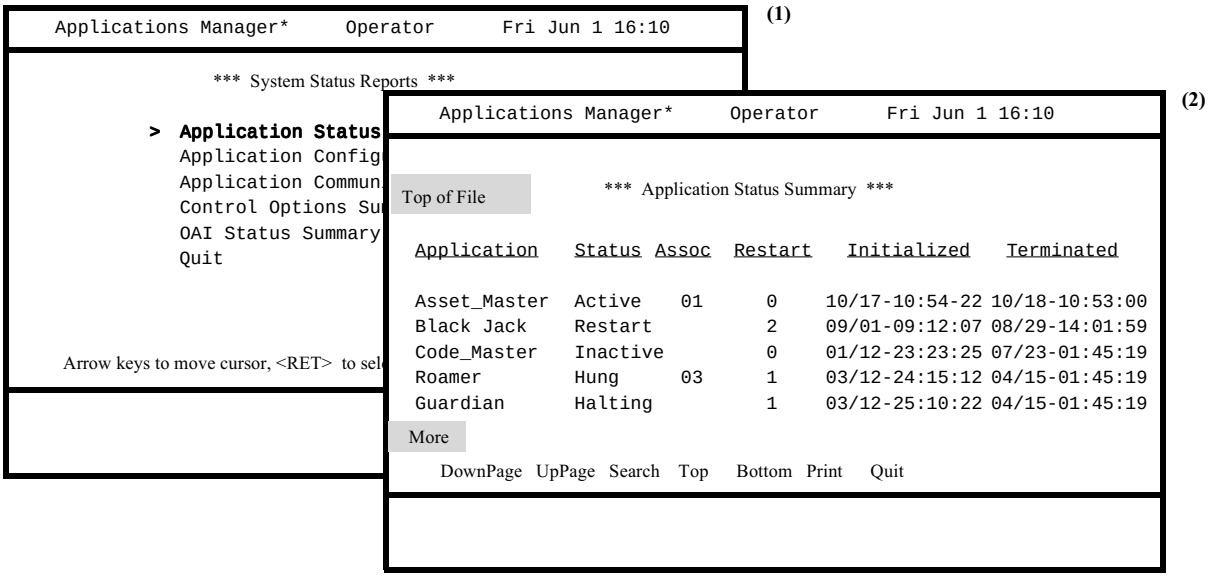

Figure 4-6 Application Status Summary

Notes

The status of applications displayed on this screen represents a snapshot of the system at the time the option is selected and does not reflect changes that are taking place while the option is being displayed. The status of each application is reported via the following fields:

- **Application –** The name of the application as displayed throughout the APM.
- **Status –** The current status of each application. Valid values include:
  - Inactive – The application is not initialized.
  - Active – The application is initialized and executing normally.
  - Restart – The application has terminated abnormally and is in the process of being restarted by the APM.
  - Halting – The application is in the process of terminating normally but is not yet terminated.
  - Marked – The application entered the Halting state but never terminated, and the APM has marked it. If the application has not terminated by the next Application Polltime, the APM will forcefully terminate the application.
  - Hung – Messages have been found on the application queue by the APM, but there have not been any read since the last Application Polltime. If the application does not read a message from its queue, the APM will forcefully terminate the application on the next Application Polltime.

- **Assoc(iation) –** The number of the association currently being used by the application or a blank to indicate that the application has no open association at the time of this display.
- **Restarts –** The number of restarts remaining for this application according to the application's configuration.
- **Initialized –** The time at which the application was last initialized.
- **Terminated –** The time at which the application was last terminated.

Procedure

Action	Result
Select the Application Status Summary option on the System Status Reports menu and press RETURN **(1)**.	The Application Status Summary screen displays **(2)**.
If the list extends to a second page, the notation **More** is displayed. The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**). **To search:** Select the **Search** command, indicate the pattern to be sought, and press RETURN. The designated pattern is highlighted wherever it appears. **To print:** Select the Print command, indicate at the prompt whether to print the screen or the entire file, and press RETURN.	
To exit the Application Status Summary: Select the **Quit** command and press RETURN, or press ESC.	The System Status Reports menu redisplays.

Application Configuration Summary

The Application Configuration Summary option on the System Status Reports menu displays the complete configuration of every application in the APM system. (Please see Figure 4-7.)

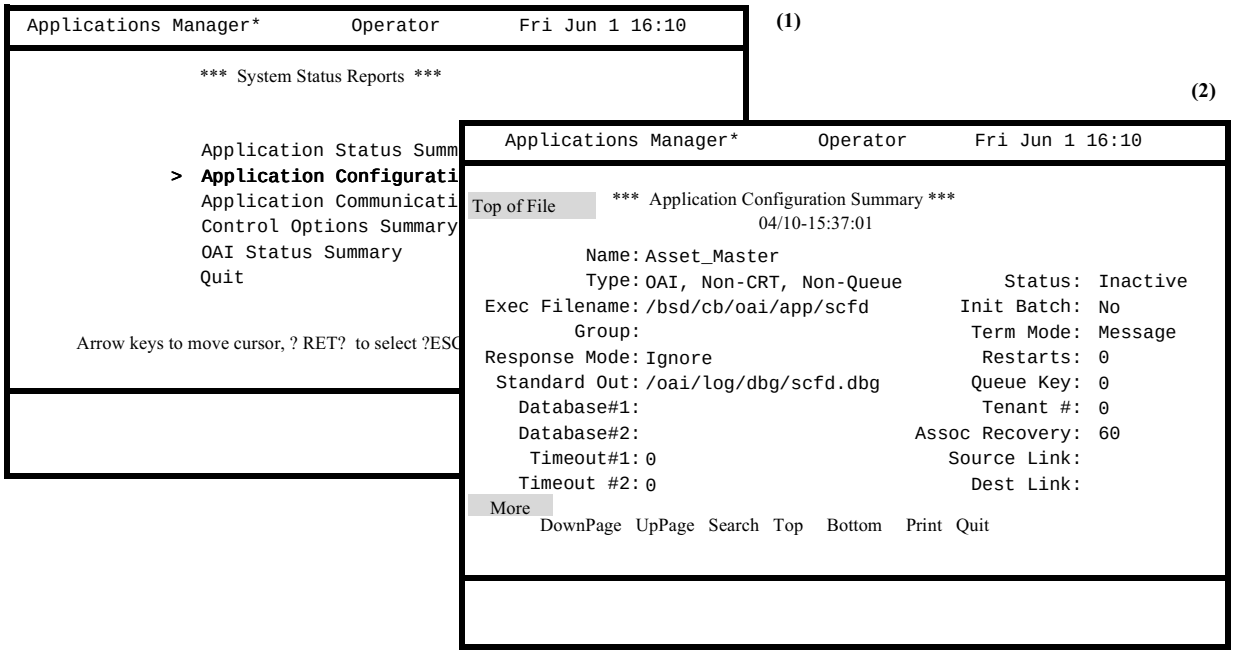

Figure 4-7 Application Configuration Summary

Notes

The parameters and data entries displayed in this summary are defined and entered through the Application Configuration option in the System Administration menu. Refer to See “Application Configuration” on page 80. of this manual for parameter definitions and information relevant to these configurations.

Procedure

Action	Result
Select the Application Configuration Summary option on the System Status Reports menu and press RETURN (1).	The Application Configuration Summary screen displays **(2)**.
If the list extends to a second page, the notation **More** is displayed. The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**).	
To search: Select the **Search** command, indicate the pattern to be sought, and press RETURN. The designated pattern is highlighted wherever it appears. **To print:** Select the **Print** command, indicate at the prompt whether to print the screen or the entire file, and press RETURN.	
To exit the Application Configuration Summary display: Select the **Quit** command and press RETURN, or press ESC.	The System Status Reports menu redisplays.

Application Communication Summary

The Application Communication Summary on the System Status Reports option displays the queue key assigned to each Non-OAI application configured in the APM with an IPC queue. (Please see Figure 4-8.)

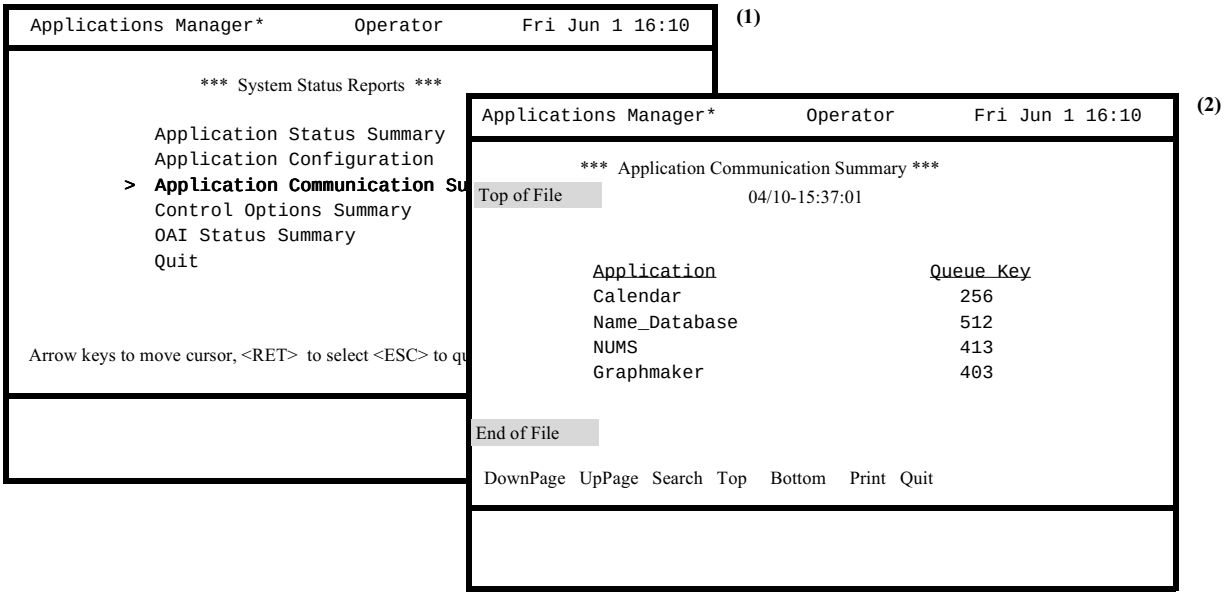

Figure 4-8 Application Communication Summary

Notes

Queues may be configured for multiple applications. For this reason, a queue key may be displayed for more than one application. This display contains only applications that configure IPC queues and does not contain any queues used by OAI applications.

Procedure

Action	Result
Select the Application Communication Summary option on the System Status Reports menu and press RETURN **(1)**.	The Application Communication Summary displays **(2)**.
If the list extends to a second page, the notation **More** is displayed. The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**). **To search:** Select the **Search** command, indicate the pattern to be sought, and press RETURN. The designated pattern is highlighted wherever it appears.	
To print: Select the **Print** command, indicate at the prompt whether to print the screen or the entire file, and press RETURN.	
To exit the Application Communication Summary display: Select the **Quit** command and press RETURN, or press ESC.	The System Status Reports menu redisplays.

Control Options Summary

Control Options Summary on the System Status Reports menu lists applications configured for timed initialization and/or termination as well as databases configured for timed Process/Install or just Install functions. (Please see Figure 4-9.)

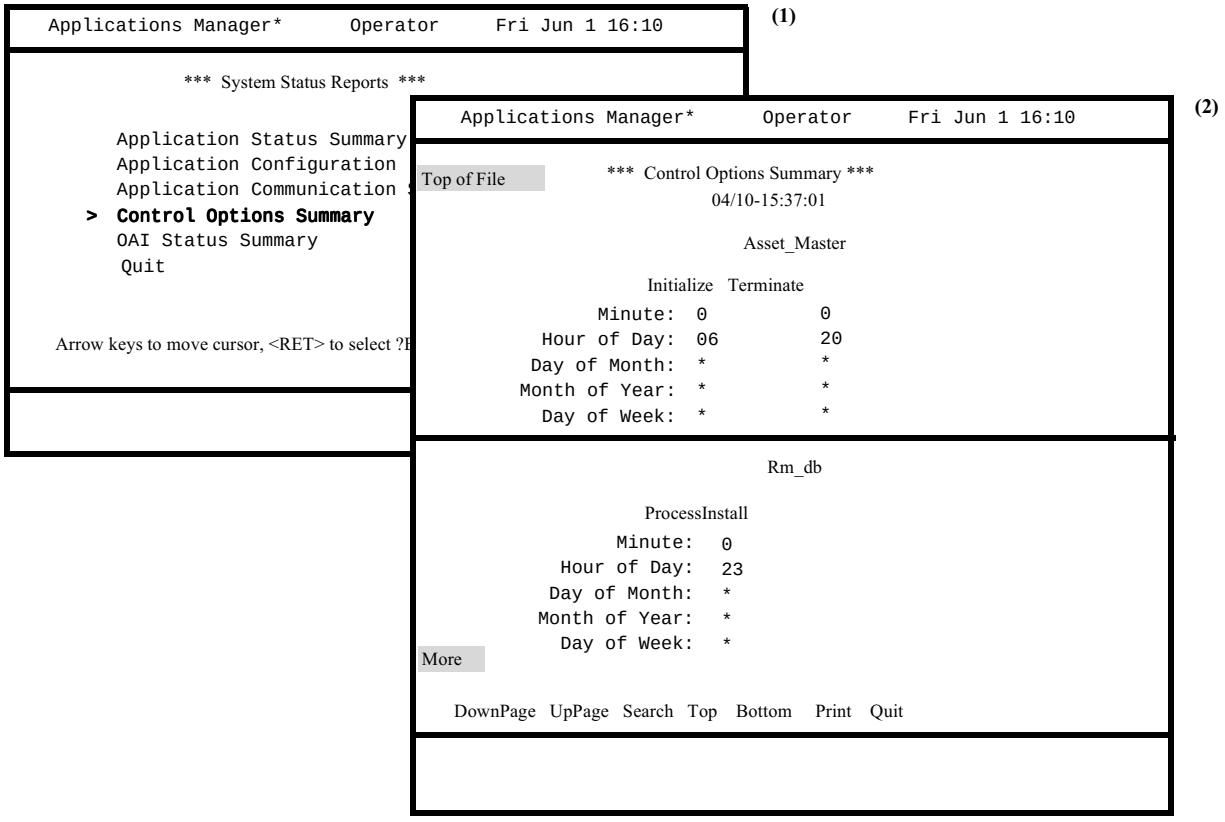

Figure 4-9 Control Options Summary

Notes

The schedules contained in this display reflect the values entered through Control Options on the System Administration menu. The lower portion of display indicates the time scheduled for either the ProcessInstall or just the Install function for the listed database. Refer to See "Control Options" on page 149. in this manual for additional information about these schedules.

Procedure

Action	Result
Select the Control Options Summary option on the System Status Reports menu and press RETURN **(1)**.	The Control Options Summary screen displays **(2)**.
If the list extends to a second page, the notation **More** is displayed. The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**). **To search:** Select the **Search** command, indicate the pattern to be sought, and press RETURN. The designated pattern is highlighted wherever it appears. **To print:** Select the **Print** command, indicate at the prompt whether to print the screen or the entire file, and press RETURN.	
To exit the Control Options Summary display: Select the **Quit** command and press RETURN, or press ESC.	The System Status Reports menu redisplays.

OAI Status Summary

The OAI Status Summary option on the System Status Reports menu displays a summary of activity for each association configured in the APM system. (Please see Figure 4-10.)

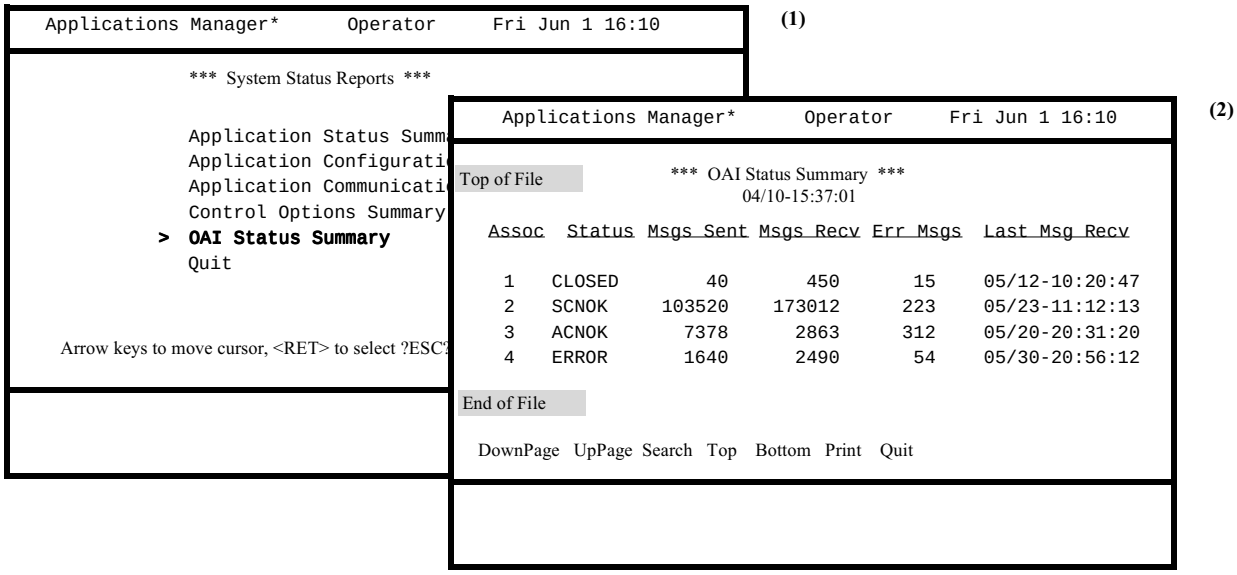

Figure 4-10 OAI Status Summary

Notes

The fields in this display are defined as follows:

- **Assoc(iation) –** The number assigned to configured associations.
- **Status –** The operational status of the association, using the following notations:

  AABREQ – Association released. (Requested)
  AABRCV – Association released. (Received)
  AARERCV – Association acknowledgment response received.
  AARQRCF – Association request received.
  ACNOK – Association established.
  ACNREQ – Association request sent.
  ADCREQ – Release association sent.
  BADDATA – Badly structured data received.
  CLOSED – Not currently being used.
  ERROR – Some internal error has occurred.
  OVERFLOW– Too many messages received without being read.
  RLRERCV – Release response received.
  RLRQRCF – Association release received.
  SABRCV – Session aborted.
  SCNCFRCV – Session confirm received.
  SCNOK – Session has been connected.
  SCNREQ – Session connect request has been sent.
  SDCREQ – Session disconnect request sent.
  SRLCFRCV – Session release received.

- **Msgs Sent –** The number of messages sent to the PBX on this association between the time that it was last opened and the time of this display.
- **Msgs Recv –** The number of messages received from the PBX on this association between the time that it was last opened and the time of this display.
- **Err Msgs –** The number of asynchronous messages received on this association between the time that it was last opened and the time of this display.
- **Last Msg Recv –** The time that the last message was read from this association by the application.

Procedure

Action	Result
Select the OAI Status Summary option on the System Status Reports menu and press RETURN **(1)**.	The OAI Communication Status screen displays **(2)**.
If the list extends to a second page, the notation **More** is displayed. The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**). **To search:** Select the **Search** command, indicate the pattern to be sought, and press RETURN. The designated pattern is highlighted wherever it appears. **To print:** Select the Print command, indicate at the prompt whether to print the entire file or just the screen, and press RETURN.	
To exit the OAI Communication Status display: Select the **Quit** command and press RETURN, or press ESC.	The System Status Reports menu redisplays.

Log Files

The Log Files option on the System Operations menu is used to display the log of system and error messages which reflects the history of system activity. (Please see Figure 4-11.)

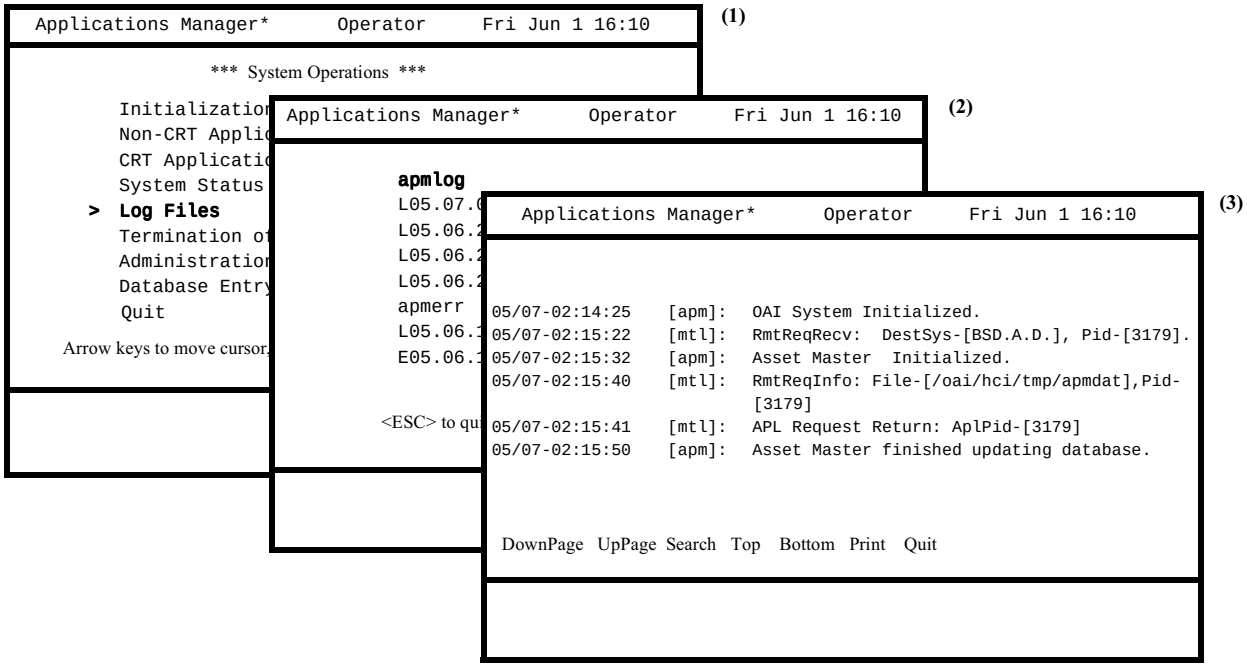

Figure 4-11 Log Files

Notes

The APM Log File displayed in screen (3) contains APM messages about processes completed, transactions in progress, and other responses to APM commands. The messages are date- and time-stamped (i.e., 05/07-02:14:25) and notated to indicate the application or system that the message concerns (i.e., [apm], [mtl]).

The current log file is listed as **apmlog** in the Log File Menu (screen 2). The current log file (**apmlog**) is backed up according to the frequency indicated in the Control Options Menu. When the file is backed up, the backup file is notated using the format LMonth.Day.Hour. For instance, **L05.07.01** in the screen (2) contains all messages accommodated by the log file between 1:00 to 1:59 on May 7.

When the system is overloaded and more messages are received than can be accommodated by the log file, incoming messages are logged into the **apmerr** file. This is basically an overflow file, and messages written to it are time-stamped in the same fashion as those written to the **apmlog**. However, backups to this file in the menu (screen 2) are preceded by the notation **E**. In screen 2, then, the APM system was overloaded during the hour between 3:00 and 3:59 during which time the messages that could be accommodated by **apmlog** are contained in L05.06.15, and overflow messages are contained in E05.06.15.

The System Log file contains messages logged by various processes within the APM platform. The current System Log file is named syserror in the Log File Menu (screen 2). The current System Log file (syserror) is backed up daily at midnight. When the file is backed up, the backup file is notated using the format SMonth.Day.Hour.

A maximum of 16 lines of intervals can be displayed on the screen at one time. If there are more intervals or messages than can be displayed on one page, the phrase **Top of File** appears at the top of the page, the word **More** appears at the bottom of the page, and the list is extended to a second page. The APM is appending messages to this file continuously, so the current **Bottom of File** is always changing.

Procedure

Action	Result
Select the Log Files option on the System Operations menu and press RETURN **(1).**	The Log Files menu is shown with the cursor positioned on the first file.
Use the arrow keys to position the cursor on the file desired. If the display extends to a second page, use **Shift D** to move to the second page and **Shift U** to return to the first. Press RETURN to make the file selection **(2).**	The selected log file is shown with the cursor positioned on the first command **(3)**, and the messages are displayed for viewing only.
The commands serve to move the screen down the page (**DownPage**), up the page (**UpPage**), to the beginning of the file (**Top**) or to the end of the file (**Bottom**)**.** **To search:** Select the **Search** command, indicate the pattern to be sought, and press RETURN. When the display is returned to the screen, the designated pattern is highlighted wherever it appears. **To print:** Select the **Print** command, indicate at the prompt whether to print the screen or the entire file, and press RETURN.	
To exit the selected file: Select the **Quit** command and press RETURN, or press ESC at any time.	The Log Files menu is restored.
To exit the Log Files menu: Press ESC.	The System Operations menu displays.

Termination of OAI

The Termination of OAI option on the System Operations menu is used to terminate all OAI processes. (Please see Figure 4-12.)

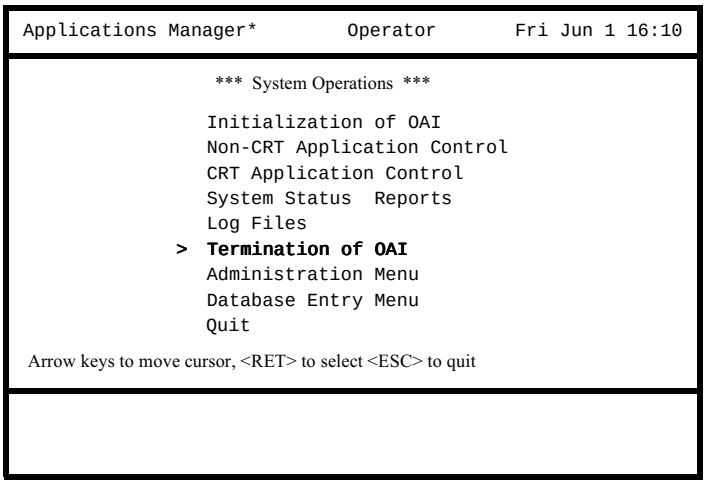

Figure 4-12 Termination of OAI

Notes

Selection of this option initiates the following functions:

- Each application that is currently initialized is terminated according to its configured termination mode. If, on the next application poll (see Modify on page 152 for information on application polltimes), an application has not terminated as requested, it is forcefully terminated (Killed) by the APM. The OAI System will not terminate until all applications have terminated or have been killed.
- All system processes are terminated.
- All shared memory and control structures are released.
- Process control is deactivated.
- Users are notified by a system message that the OAI system has been terminated.
- Logging of messages is stopped.

Procedure

Action	Result
Select the Termination of OAI option on the System Operations menu and press RETURN **(1)**.	The message **Do you want to terminate the OAI system? (Y,N)** appears. Enter **Y** to initiate the termination. When the termination completes, the system status message **OAI system has terminated** appears. Enter **N** to cancel the termination. The System Operations menu remains displayed.

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Chapter 5 Database Entry

Overview

The Database Entry option is used to enter and/or alter the information in a selected master database file. (Please see Figure 5-1.)

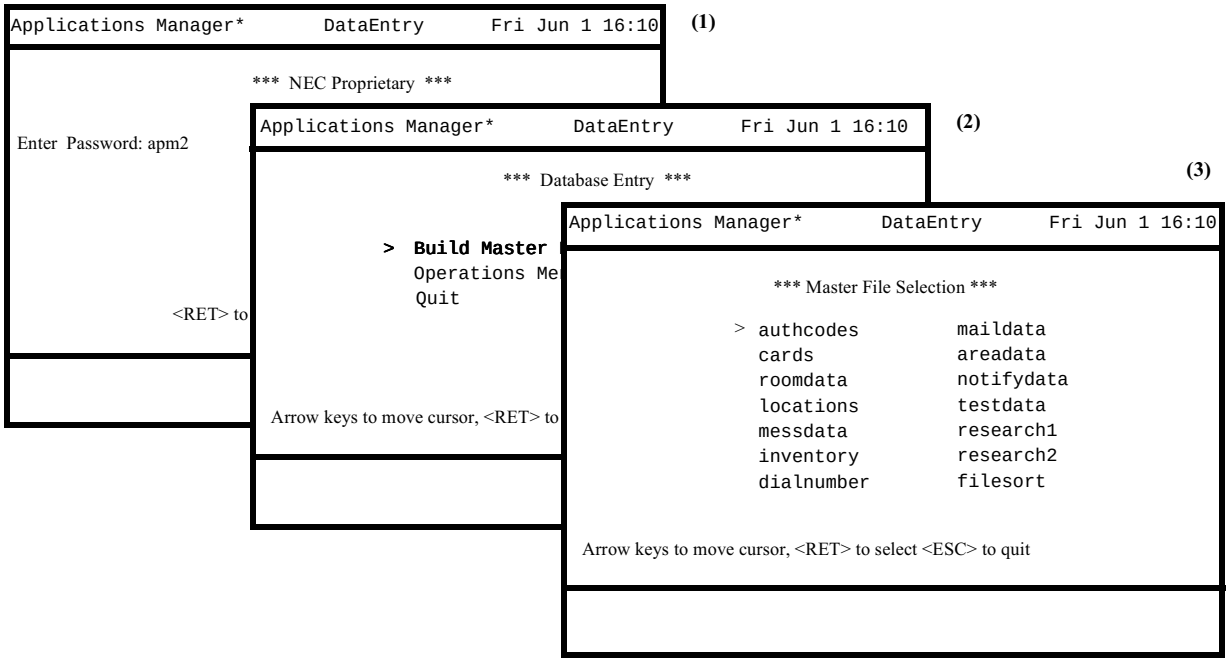

Figure 5-1 Database Entry Menu

Notes

Holders of all authorized APM passwords are permitted to enter this option to input to a selected master database file. However, movement from this option to the System Operations menu is permitted only for the user who has entered Database Entry from either the System Operations or Administration menus. To move to either one of these two menus, the DataEntry password user must exit to the Password screen and enter the administration or operations password.

The Database Entry option is used to add a record to a selected master database file, change a record that already exists in a file, or remove a record from a file. Changes made to a master database file do not automatically affect the application database files that are generated from it. After changes are indicated through this option, they must be processed and installed at the application level through the Database Administration option on the APM Administration menu.

Note: *If the symbol (_) is used as the first character of a data field in the application definition file, the record containing that field will not process into the application database file.*

Procedure

Action	Result
On the Password Entry screen, enter the DataEntry password **(1)**. (or) From the System Operations menu, select the DataEntry option and press RETURN.	The Database Entry menu displays **(2)**.
Press RETURN to select the Build Master Database option.	The Master File Selection screen displays **(3)**.
Use the arrow keys to position the cursor on the desired master filename, or enter its first letter, and press RETURN.	The Database Entry screen appears with the fields of the selected master file displayed. **Note:** *If the database is not empty, the first record is displayed.*
Select the desired command from the descriptions below using the arrow keys or by entering its first letter and press RETURN. • **Add –** used to enter a new record into a master database file. • **Modify –** used to change an existing record in a master database file. • **Delete –** used to remove a record from a master database file. • **Search –** used to display the record of a specified key field. • **View –** used to display the current contents of the database via a 'view'. Displays the View File Selection menu if views have been created previously. Move to the preceding record in the database using the **Previous** command or to the following record in the database using the **Next** command. Use each of these commands as described on the following pages.	
To exit from the Database Entry menu: Select the **Quit** command and press RETURN, or press ESC from the command line.	The Password Entry screen displays.

Add

The **Add** command on the Database Entry screen is used to enter a new record into a master database file. (Please see Figure 5-2.)

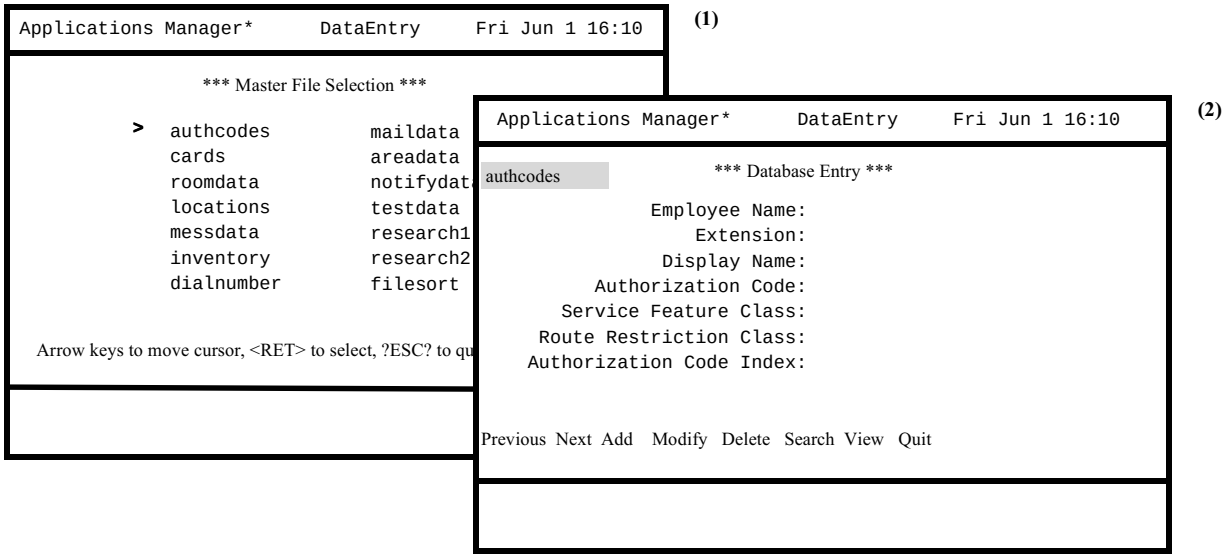

Figure 5-2 Add Master Database Record

Notes

Records added to the master database are not automatically added to the related application database(s). It is necessary to use the **Process Application Database** option on the Database Administration option on the APM Administration menu to make the corresponding changes to the application databases generated from a master database.

Procedure

Action	Result
On the Master File Selection screen, select the master file **(1)**.	The Database Entry screen displays the master database fields **(2)**.
Select the **Add** command and press RETURN.	The first field is highlighted for data entry.
Enter data to each field, pressing RETURN after each entry. **Note:** *Press ESC at any time during data entry to erase the current record entry and return control to the command line.*	**Note:** *If the record already exists in the file, a beep is sounded, and the first field is again highlighted for another entry.*
After the last field entry, press RETURN again to accept the entire record or ESC to cancel it.	The first field is again highlighted for data entry.
Continue in this manner until all new records have been entered, then press ESC to return control to the command line.	
Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save the changes? (Y, N)** appears. To store any added records, enter **Y**. Enter **N** to cancel changes. The Master File Selection screen displays.

Modify

The **Modify** command on the Master Database Entry Screen is used to change the currently displayed record of a master database. (Please see Figure 5-3.)

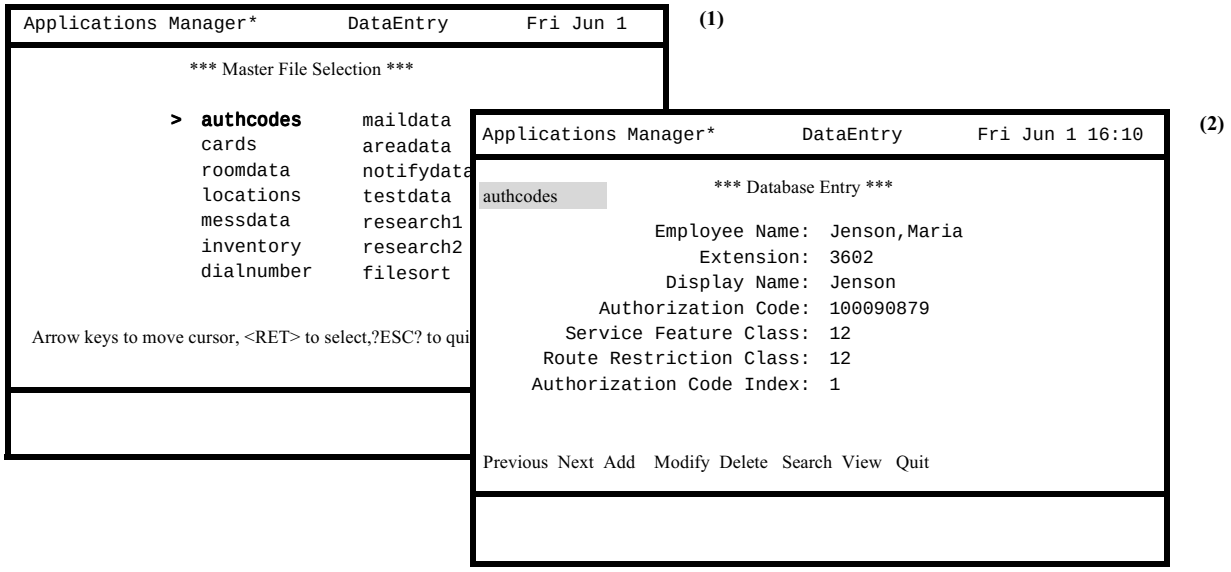

Figure 5-3 Modify Master Database Record

Notes

Records that are changed in the master database are not automatically changed in the related application database(s). It is necessary to use the **Process Application Database** option through Database Administration on the APM Administration menu to make the corresponding changes to the application database.

Procedure

Action	Result
On the Master File Selection screen, select the desired master file and press RETURN **(1)**.	The Database Entry screen displays the master database fields (and the first record in an existing database) **(2)**.
Identify the first field of the record to be modified in one of the following ways: Use the **Previous** command to move to the record immediately preceding the one on display, the **Next** command to move to the record immediately following the one on display, or the **Search** command to enter the first field of the record to be retrieved.	The contents of the current record display.
Select the **Modify** command and press RETURN.	The first field highlights for data entry.
Using the arrow keys, move to the field to be modified and make the new entry. Use ESC to restore the previous value to a field and the space bar to erase a field entry. Press RETURN a second time after the last field to accept the revised record.	
Continue in this manner until necessary records have been modified, then press ESC to return control to the command line.	
Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save changes? (Y, N)** appears. To store any changes, enter **Y**. Enter **N** to cancel changes. The Master File Selection screen displays.

Delete

The **Delete** command on the Master Database Entry Screen is used to remove the currently displayed record from a master database file. (Please see Figure 5-4.)

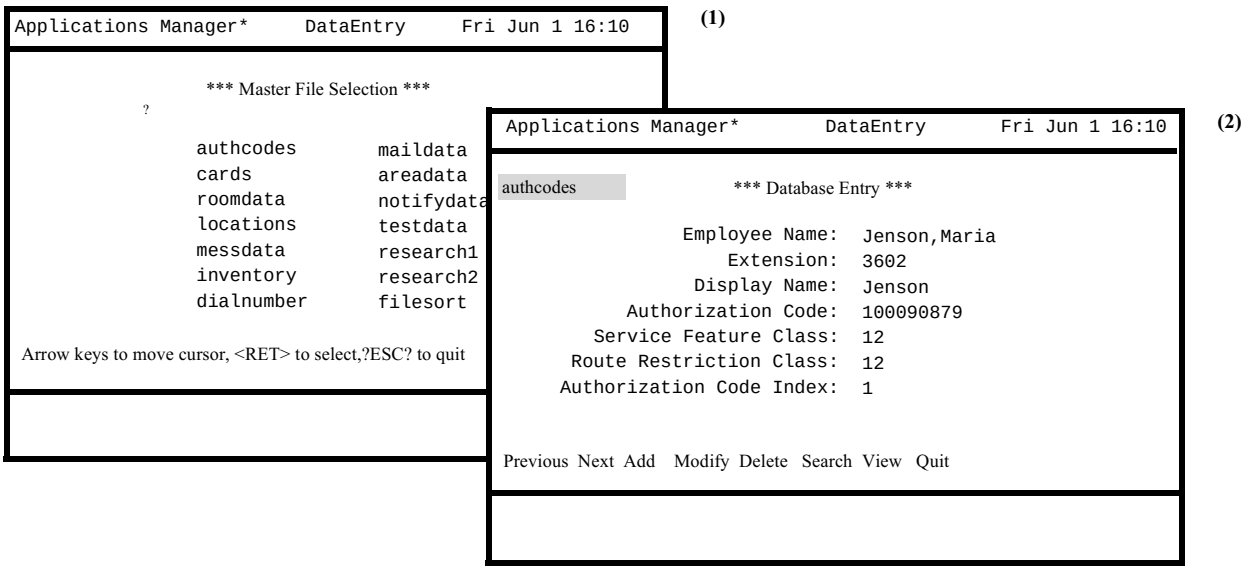

Figure 5-4 Delete Master Database Record

Notes

Records that are deleted from the master database are not automatically deleted from the related application database(s). It is necessary to use the **Process Application Database** option through Database Administration on the APM Administration menu to make the corresponding changes to the application databases generated from a master database.

Procedure

Action	Result
On the Master File Selection screen, select the desired master file and press RETURN **(1)**.	The Database Entry screen displays the master database fields (and the first record in an existing database) **(2)**.
Identify the first field of the record to be deleted in one of the following ways: Use the **Previous** command to move to the record immediately preceding the one on display, the **Next** command to move to the record immediately following the one on display, or the **Search** command to enter the first field of the record to be retrieved.	The contents of the current record display.
Press RETURN to delete the record; press ESC to cancel the transaction.	If the deletion is made, the next record in the database displays. If the deletion is cancelled, the displayed record remains on display.
Select the **Quit** command and press RETURN, or press ESC from the command line.	The message **Do you want to save changes? (Y, N)** appears. To store the deletions, enter **Y**. Enter **N** to cancel the deletions. The Master File Selection screen displays.

View

The **View** command on the Database Entry screen is used to display the contents of the selected master database. The View File Selection menu displays if one or more 'views' of the selected database have been created. (Please see Figure 5-5.)

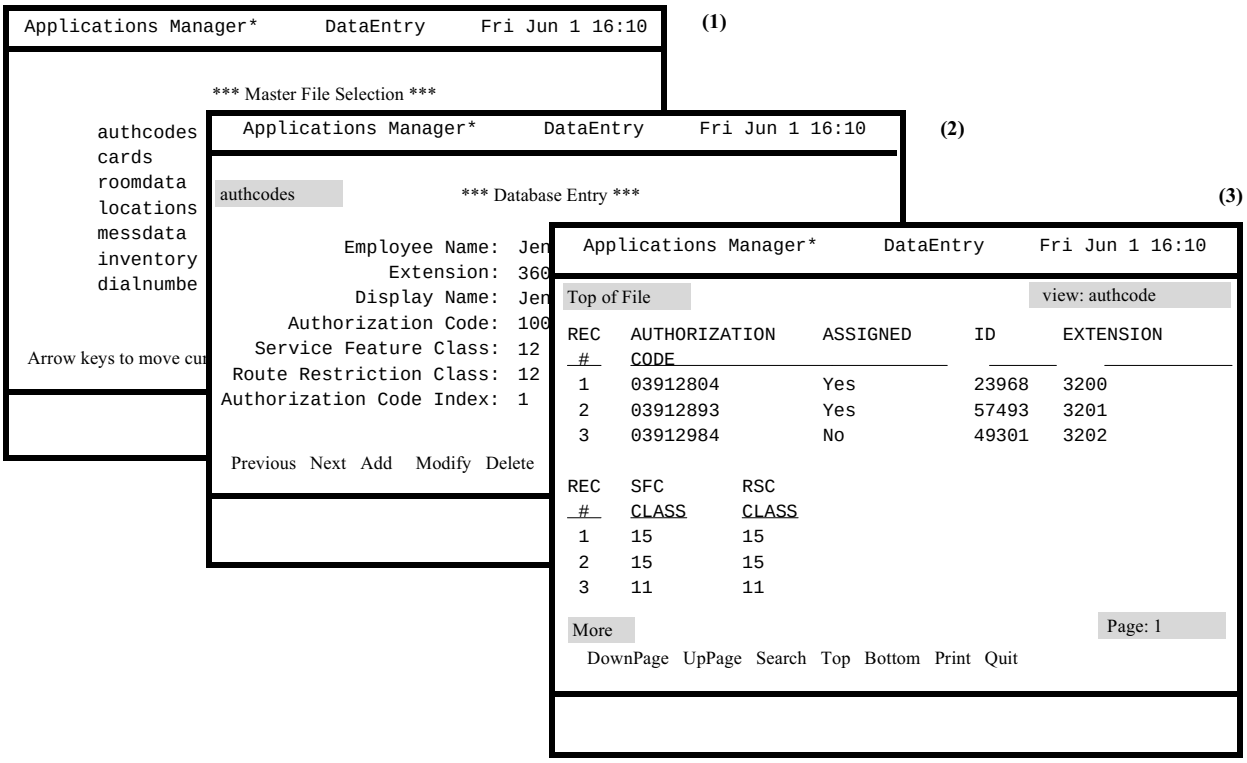

Figure 5-5 View Master Database

Notes

This display is dynamic and reflects the current state of the selected master database according to the view selected. Any changes or additions made through the commands on the Database Entry screen are included in this display.

Procedure

Action	Result
On the Master File Selection screen, select the desired master file and press RETURN **(1)**.	The Database Entry screen displays the master database fields (and the first record in an existing database) **(2)**.
Select the **View** command and press RETURN.	The View File Selection menu of views for the selected master database displays. **Note:** *If there are no defined views for the selected master database, the View File Selection menu is by-passed, and the database itself is immediately displayed.*
Using the arrow keys, move the cursor to the desired view and press RETURN.	The selected view displays on the screen **(3)**.
To move through the view: Use the **DownPage** and **UpPage** commands to move page-by-page through the list, or use the **Top** and **Bottom** commands to move directly to the beginning or end of the list.	
To search for a database record: Select the **Search** command and press RETURN. At the prompt indicate the pattern to be sought, and press RETURN.	A prompt requests the pattern to be sought. When the display is returned to the screen, every line that contains the designated pattern is highlighted wherever it appears.
To print the view or screen: Select the **Print** command and press RETURN. Respond to the prompt with an **F** to indicate the database view file, **S** to indicate just the screen or **ESC** to cancel the request, and press RETURN.	A prompt asks whether to print the screen or the database view file or to return the cursor to the command line. Any requested printing is performed and the command line is restored.
To exit the view: Select the **Quit** command and press RETURN.	The Database Entry screen displays.

Chapter 6 Process and Error Messages

'filename' contains an invalid data type.

If a definition file is created by means other than the Applications Manager or is downloaded to the system, it may contain a data type that does not conform to system parameters. The Definition File must be deleted and another one created.

'filename' contains no application definition records.

Indicates that the selected application definition file is empty. Either enter records to the application definition file or select a different application definition filename.

'record' contains an out-of-range value.

An entry to a field in the record exceeds the range of allowable entries. Check the entries and correct as necessary.

Active application, cannot alter configuration.

Configurations cannot be modified for applications that are initialized. The application must be terminated before its configuration may be altered.

All MDF records are utilized in this view.

Each master database field can be used only once in a view.

All processed application databases have been installed.

This is a confirmation that all application databases that have been processed and made ready to be installed have now been installed.

All records have been deleted.

There are no more records to delete. All deletions have been completed.

APM process communication failure. (errno)

The APM queue is full. Reinitialize the APM system. If the problem persists, call the system distributor.

APM failed to acknowledge request to start application.

An APM subsystem is not running. Reinitialize the APM. If the problem persists, call the system distributor.

Application database exists. Do you want to delete it? (Y, N)

If you enter **Y** (Yes), the system completely removes the application database. Only after the database is removed or deleted can the application definition file be removed. When a set of files is being removed from the system, the application files (definition and database) should be removed **before** the master files (definition and database) are removed.

Application definition file already exists for 'master definition file name'.

All file names in the APM system must be unique: An application definition file name may not be the same as a master definition name. This message indicates that the name entered for the application definition file also identifies a master definition file. Enter a different name for the application definition file.

Application name already exists.

The name entered for the application is already in use. Select the application by that name or enter a new name.

Application name must be specified.

An entry has not been made in the application name field. This is a key field and must contain an entry.

Application status unavailable.

This messages indicates that the APM system has reached an abnormal state, as evidenced by its inability to retrieve application status, and needs to be reinitialized.

Assembling Database Relationship Data . . . Please Wait!

Database files are being accessed and read in order to compile the requested database table. This may take a few seconds.

Cannot access control options file.

The files do not exist, an abnormal system shutdown has caused the files to be locked, or the files are already being accessed by a system process. Wait and try again. If after two or three retries, access is still not obtained, reload the system from floppy disk backup, and call the distributor.

Completed database installation.

This is a status message that indicates when the requested installation is complete.

Confirm the deletion of the selected field. (Y, N)

This message requests confirmation that the field is to be deleted. Enter **Y** (yes) to make the deletion. Enter **N** (no) to cancel it.

Database process operation complete.

All application databases associated with the named master definition file have been generated successfully. The application database can now be installed.

Database process operation failed.

This summary message is displayed after the error message and indicates the failure of the requested process function. The error, indicated before this message was displayed, might have been a data conversion problem, an invalid data type, or an overflow record in the database. Take whatever action is necessary to correct the indicated error before attempting to process the file again.

Do you want to delete ‘name’? (Y, N)

This message requests confirmation that the indicated deletion is to be made. Enter **Y** (yes) to make the deletion or **N** (no) to cancel it.

Do you want to delete the View <name>? (Y, N)

This message requests confirmation that the indicated deletion is to be made. Enter **Y** (yes) to make the deletion or **N** (no) to cancel it.

Do you want to save changes? (Y, N)

This message requests confirmation that the changes made are to be saved. Enter **Y** (yes) to make the changes to the data or **N** (no) to cancel them.

Do you want to terminate the OAI system? (Y, N)

This message requests confirmation before the OAI system is terminated. Enter **Y** (yes) to terminate OAI or **N** (no) to cancel the request.

Duplicate keys are not allowed.

Duplicate key fields are not permitted in the system. The key entered already exists; therefore, the record is not saved. Enter the record under a different key or modify the record under the existing key.

Empty fields are not valid.

This record contains an empty field which is invalid. Make an entry to the field or remove the record.

Empty master definition file.

The named master definition file contains no records. This file must be built before any processing can be performed.

Entry in definition file ‘name’ is not found in master.

The master definition file must contain all entries that are then referenced by the application definition file for conversion into the application database. This message indicates that a reference has been made in the application definition file to an entry that does not exist in the master file. Check the entry for accuracy, then add the necessary record to the master file. It is necessary to add the field to the master definition file or delete it from the application definition file before further processing will be successful.

Error occurred while allocating memory.

There is no more memory available on the UAP system for the requesting application. Call the system distributor.

Error occurred while closing file ‘name’. (errno)

A system error has occurred during the process of closing the named file. Either refer to a Unix Programmer’s Reference Manual or call the APM system distributor for assistance.

Error occurred while collecting application definition names.

This message indicates that while the master definition file was being processed, the application definition file names could not be found. Check the application definition file names for access. If the error persists, call the system distributor.

Error occurred while initializing OAI Library shared memory (libint).

The APM is unable to open the OAI Library shared memory. First reinitialize the APM system. If the error occurs again, download the system from the floppy disk back-up. If the error persists, call the system distributor.

Error occurred while installing 'database filename'. Database installation cancelled.

When a database file is installed, the previous version of the database is moved into the backup directory, and the new version is written into the current directory. If the previous version of the database has been moved into the backup directory and an error occurs while installing the new version into the current directory, the installation is halted, leaving the current directory empty. It is necessary to call the system distributor to get the source of the error corrected and then re-process the database and begin installation again.

Error occurred while locking file 'name'. (errno)

A system error has occurred during the process of locking, or restricting user access with, the named file. Perhaps someone else has locked the file for his/her own use. Wait and then retry the operation. If the error message displays again, call the system distributor.

Error occurred while moving file 'name'.

An error has occurred while moving this file. Check the name of the file and the permissions associated with it, then retry the function.

Error occurred while moving file 'name' from backup to current directory. (errno)

The APM uses a system of three directory levels: The temporary directory holds the file being worked on; the current directory holds the current revision after it has been worked on; and the back-up directory holds the previous revision. After work is completed on a file, the previous file contents in the current directory are moved to the back-up directory, and the temporary directory is moved into the current directory. This message means that the system is having a problem moving the named file out of the backup directory and into the current directory.

Error occurred while moving file 'name' from current to backup directory. (errno)

The system is having a problem moving the named file out of the current directory and into the back-up directory. (Refer to "Error occurred while moving file 'name' from backup to current directory. (errno)" above.)

Error occurred while moving file ‘name’ from temporary to current directory. (errno)

The system is having a problem moving the named file out of the temporary directory and into the current directory. (Refer to Error occurred while moving file ‘name’ from backup to current directory. (errno) on page 202.)

Error occurred while notifying applications of database update.

An error occurred while the APM was writing to the application queue. Check the application and reinitialize.

Error occurred while opening file ‘name’. (errno)

A system error has occurred during the process of opening the named file because the file is either not there or the user is not authorized to access it. Wait and then retry the operation. If the error message displays again, call the system distributor.

Error occurred while opening Monitor queue.

The system cannot open the queue which receives commands from the menu for action by the Monitor. First reinitialize the system. If the error occurs again, download the APM system from the floppy disk back-up. If the error persists, call the system distributor.

Error occurred while processing APM menu semaphore.

The APM menu semaphore permits only one user per password level to be logged into the APM system. This message indicates that the system cannot open this semaphore. First reinitialize the APM system. If the error occurs again, download the system from the floppy disk back-up and try again. If the error persists, call the system distributor.

Error occurred while processing APM password file.

The system is having a problem reading the password file, probably because the file is not there. Download the APM system from the floppy disk back-up and try again. If the error persists, call the system distributor.

Error occurred while processing APM shared memory.

The APM shared memory tables are used to save the status of the associations, the facilities used, allocation of data storage areas, and other system control variables. The system is having a problem opening this shared memory. First reinitialize the APM system. If the error occurs again, download the system from the floppy disk back-up. If the error persists, call the system distributor.

Error occurred while processing APM system message shared memory.

The system cannot open the APM shared memory that receives the system messages displayed in the lower portion of the screen and logged into the log file. First reinitialize the APM system. If the error occurs again, download the system from the floppy disk back-up. If the error persists, call the system distributor.

Error occurred while processing APM system semaphore.

The APM system semaphore is used to indicate if the system is running or not. It is locked when the system is initialized and unlocked when it is terminated. It is also used to restrict modification of system configuration variables while the system is initialized. This message means that the system cannot process this semaphore. First retry the operation. If the error persists, download the APM system from the floppy disk and try again. If the error continues, call the system distributor.

Error occurred while processing application configuration file.

The system cannot find the Application Configuration file, probably because the file is locked or does not exist. First wait and try the operation again. If that is not successful, reinitialize the APM system. If the problem is still not resolved, download the system from the floppy disk back-up. Call the system distributor if these efforts are unsuccessful.

Error occurred while reading application configuration file. Press any key to continue.

Either the file does not exist or there is a data error within the file. Wait a short time and retry the operation. If the error persists, download the APM system from the floppy disk back-up and try again.

Error occurred while reading control options file.

This error may be result from the semaphore being locked or from not being able to read the file itself. Wait a short time and retry the operation. If the error persists, download the APM system from the floppy disk back-up and try again.

Error occurred while reading file ‘name’. (errno)

A system error has occurred during the process of reading the named file. This is either a system or software problem. Wait and then retry the operation. If the error message is again displayed, call the system distributor.

Error occurred while retrieving terminal device name.

The APM is unable to set the window required by the CRT application. Try to execute the CRT application window from another terminal. If the error persists, call the system distributor.

Error occurred while saving file ‘name’. (errno)

The designated file name could not be saved as requested. Exit the operation and call the system distributor.

Error occurred while writing application configuration file. Press any key to continue.

Another system process is probably accessing this file. Wait and retry the operation again. If the error persists, download the APM system from the floppy disk back-up and try again.

Error occurred while writing file ‘name’. (errno)

A system error has occurred during the process of writing the named file. This is either a system or software problem. Wait and then retry the operation. If the error message displays again, call the system distributor.

Executable filename must be specified.

The executable filename field requires an entry before the record will be accepted.

Expecting administrator password.

If a password other than the Administrator password is entered on the Password Security screen, this message displays, and no processing is permitted until the Administrator password is entered.

Field(s) no longer in master definition file, do you want to delete? (Y, N)

If a field is to be removed from the files, it should be removed from the application files first and then from the master files. If it is removed from the master definition file first, this message appears when a related application file is displayed. No manipulation of data in the application file is permitted until the indicated field is deleted from the file.

Generating application database ‘name’.

A confirmation that the indicated database is being processed as requested.

Incomplete record found reading file ‘name’. (errno)

A record in the named file is incomplete according to field definitions. The record must be found and corrected or else the file must be deleted and recreated.

Initialize selected applications? (Y, N)

This message requests confirmation before it is executed. Enter **Y** (yes) to initialize the selected applications or **N** (no) to cancel the request.

Installing application database ‘name’ . . .%.

This is a status message that indicates the amount of installation that has been done successfully. This message displays until the requested installation is completed (100%).

Invalid definition of application.

The type indicated for this application is invalid. Check field entry.

Invalid message information received from APM.

An error has occurred with the information received from the APM. Retry the function.

Invalid modification of the key field.

If a master database exists, any attempt to alter the key field description, change a field type, or decrease the field size elicits this message.

Invalid password

A password that is in the file has been incorrectly entered or is not in the file. Enter a valid password.

Invalid response message received from APM.

An error has occurred with the message received from the APM. Retry the function.

Master database exists. Do you want to delete it? (Y, N)

Enter **Y** (Yes) to remove the master database from the system. The master definition file will not be removed until the related master database is removed. Deletion of the master files does not automatically remove the related application files. The application definition and database files related to the master files being removed should be deleted first (before the master files are removed).

Master database exists. Reconstruct for new master definition file? (Y, N)

When a master database exists for a master definition file that has just been altered (record added, modified, or deleted), this message questions whether or not to alter the database according to the changes made to the definition file. The database and definition files must correspond exactly, so an answer of **No** to this question aborts any changes indicated to the definition file.

Master definition file already exists for 'application definition file'.

File names must be unique. An application definition file and a master definition file may not be identified by the same name. Enter a different name.

Maximum number of configurable applications has been reached.

The APM can support up to 50 configured applications. This number has been reached.

Maximum number of records exceeded in 'named file'.

If a definition file is created by means other than the Applications Manager or is downloaded to the system, it may contain more than the 14 record limit imposed by the APM. It is necessary to remove the records in excess of 14 by means other than the APM.

No application databases are found to depend on 'master definition file'.

The master file being processed does not have a related application definition file. At least one application definition file must be created before processing can be performed.

No master database found.

No master database has been created for the named master definition file. No data has been entered.

No master definition files exist.

There is no master definition file associated with the selected application file. Delete the application definition file and recreate it using an existing master definition file.

Password entered already exists in password file.

The password entered already exists in the file. Passwords must be unique, so another one must be entered.

Passwords do not match, try again.

The password that was entered as verification does not match the new password. Re-enter the new password, then enter the same password at the verification prompt.

Pattern not found.

Search of the display revealed no entry for the indicated pattern.

Permission denied for higher level of security.

The password in effect does not allow access to the menu indicated for entry. Return to the password entry screen and enter the password associated with the menu required.

Processing cancelled. Verify remaining application databases? (Y, N)

An error has been found in one of the application definition files associated with the master file being processed (indicated in previously displayed message). Although processing will not continue past the point at which the error was found, the remaining applications will be verified for accuracy if desired.

Processing master 'name' . . . .

A confirmation that the requested processing is taking place. No action is necessary.

Processing password entry.

A confirmation that the requested processing is taking place. No action is necessary.

Reading control options file.

The control options file takes time to read, so this message displays to indicate the reason for the apparent delay. If the semaphore is locked or busy, the attempt to read this file will be repeated.

Rebuilding master database.

Whenever a master definition file has been changed, this status message indicates that the APM system is making the corresponding changes to the master database.

Record 'key' contains an out of range value.

An entry to a field in the record exceeds the range of allowable entries. Check the entries and correct as necessary.

Syntax error.

The time interval field indicated inside the brackets contains an error. All fields in the record are combined into the pattern indicated in the instructions, so an error in one field prevents the reading of all fields. Check the syntax and re-enter a valid field.

Terminate selected applications? (Y, N)

This message requests confirmation before the selected applications are terminated. Enter **Y** (yes) to terminate the selected applications or **N** (no) to cancel the request.

There are no views defined for this database.

There are no views listed because no views have been created for the selected database.

Unable to install application databases.

The databases indicated for installation have not been processed and are not ready for installation. Process the databases and retry the installation function.

Unable to modify while system is initialized.

The system can only be modified after it has been terminated.

Undefined data type in 'application definition file'. Master processing cancelled.

An illegal data or field type may exist in an application definition file that has been downloaded into the system or that was created by means other than the APM. The definition file field that contains the invalid type must be corrected before processing will be performed successfully. Correction must be made without the use of the APM.

User already logged in as Administrator/Operator.

No two Administrators or Operators may be logged into the system at the same time. Someone who is working in the system already is logged in with one of these passwords. Wait and then retry at a later time.

Value in file 'name (key)' overflows storage.

When monetary or numeric data in the master database is being converted from ASCII to another data type in the application files, the converted data may overflow the allotted storage for the field. When this occurs, the conversion type in the application definition file must be changed to a type that allows greater storage in the same space or the record in the database must be changed to require less space.

Value is greater than maximum default value.

A value has been entered that is larger than the maximum value indicated in the corresponding definition file. Either enter a smaller value or alter the field in the definition file.

Value is lower than minimum default value.

A value has been entered that is smaller than the minimum value indicated in the corresponding definition file. Either enter a larger value or alter the field in the definition file.

Verification of 'application database name' complete.

An indication that the requested verification process of an application database file is finished.

Verification of 'application database name' failed.

An indication that the requested verification process of an application database file has not been completed successfully due to the error that was displayed immediately preceding this message.

Verifying application database 'name' . . .%.

This is a status message that indicates the amount of verification that has been done successfully. This message is displayed until the requested verification is completed (100%).

Warning: Field Description/Type changed, database fields replaced with default values.

If the Field Description or Type is changed in the master definition file and there is a corresponding master database file, the database is reconstructed to contain the new Field Description or Type and the data contained in the previous Field Description or Type is changed to the default value of the new field. Enter **Y** at the **Reconstruct for new master definition file? (Y, N)** prompt to initiate the change in the database fields.

Warning: The APM cannot be re-installed if the APM flag = 0 or 1.

This is a warning message only, no action is necessary. If this value is set at **0** or **1** and the system is reinitialized, the APM menus will not display for use. The only way to change this value back to **2** (menus will be displayed and functional) is by editing the system from the operating system level or by reloading the system from the floppy disk back-up.

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Appendix A Host Communications

The HCI enables applications from a remote system to communicate with APM-supported applications that are executed and maintained on a User Applications Processor (UAP), the computer configured for the OAI system. Using the HCI, for instance, an application on a remote system (in another building or another city) can update the database of an application that interacts through OAI with a local NEAX IMS. The remote system can be a PC with MS/DOS, a machine on an ethernet network, a machine connected by X.25. Multiple local UAPs can each be connected to one or more remote systems or to each other. However, at least one of the two systems must be a UAP managed by the APM.

Master/Slave Relationship

In each HCI connection there is a master system and a slave system, with all transactions between the two being initiated and controlled by the master. The UAP carrying applications supported by the Applications Manager is always the slave system. When one UAP with the APM is configured for communication with another UAP that also carries the APM, one system must be configured as the master and one as the slave. The distinction between the master and the slave system is important to developers because, although an application can function as either, its functionality depends upon whether it is a master or a slave. Generally, a master sends and receives messages directly to and from a slave. The slave receives messages from the master but cannot send messages directly to the master. The slave must queue messages (up to a configurable amount or a default of 20) for pickup by the master.

Figure A-1 illustrates some of these relationships among systems via the HCI.

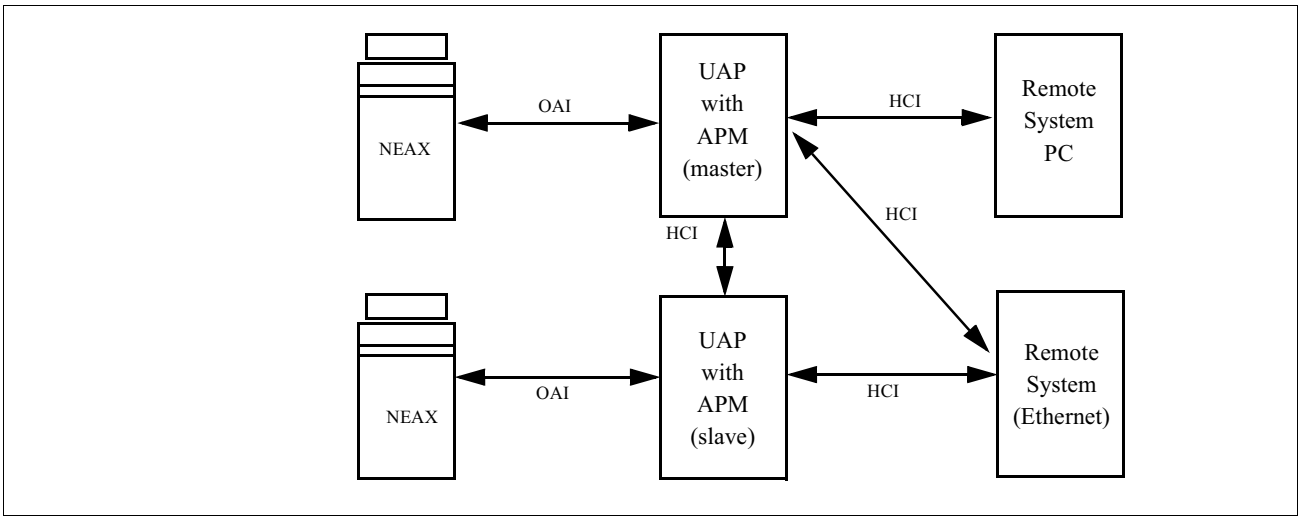

Figure A-1 HCI Relationships

HCI Structure

HCI communications, like those in the OAI, are based upon the 7-layer OSI Basic Reference Model and conform to CCITT standards. The HCI consists of the following three layers that reside on both the remote and the local system:

- **Application Layer –** This layer is comprised of the applications that execute on both the UAP and the remote system and communicate through layer services provided by the HCI. Applications written on one machine can be ported to another machine without difficulty because the HCI provides a static interface between the two.
- **Message Transfer Layer –** This layer provides applications with messaging routines and utilities and manages the internal message transfer functions that occur between the remote and the UAP systems. This interface to the Application Layer remains constant across all systems, regardless of their configuration. This layer corresponds to the Presentation Layer in the OSI Reference Model used by OAI.
- **Session Layer –** This layer changes according to the configuration of the remote system being served. That is, a remote system configured on an ethernet network requires a different session layer than one running on DOS in a PC. Because the Message Transfer Layer interfaces between the application and this layer, application developers have little to do with this layer or with the configuration of the remote system. The **APM Operations Manual** provides a description of this layer in relationship to the System Configuration option on the APM System Administration menu.

HCI Structure (Cont)

Figure A-2 illustrates the relationships among these layers and the OSI Basic Reference Model used by the OAI.

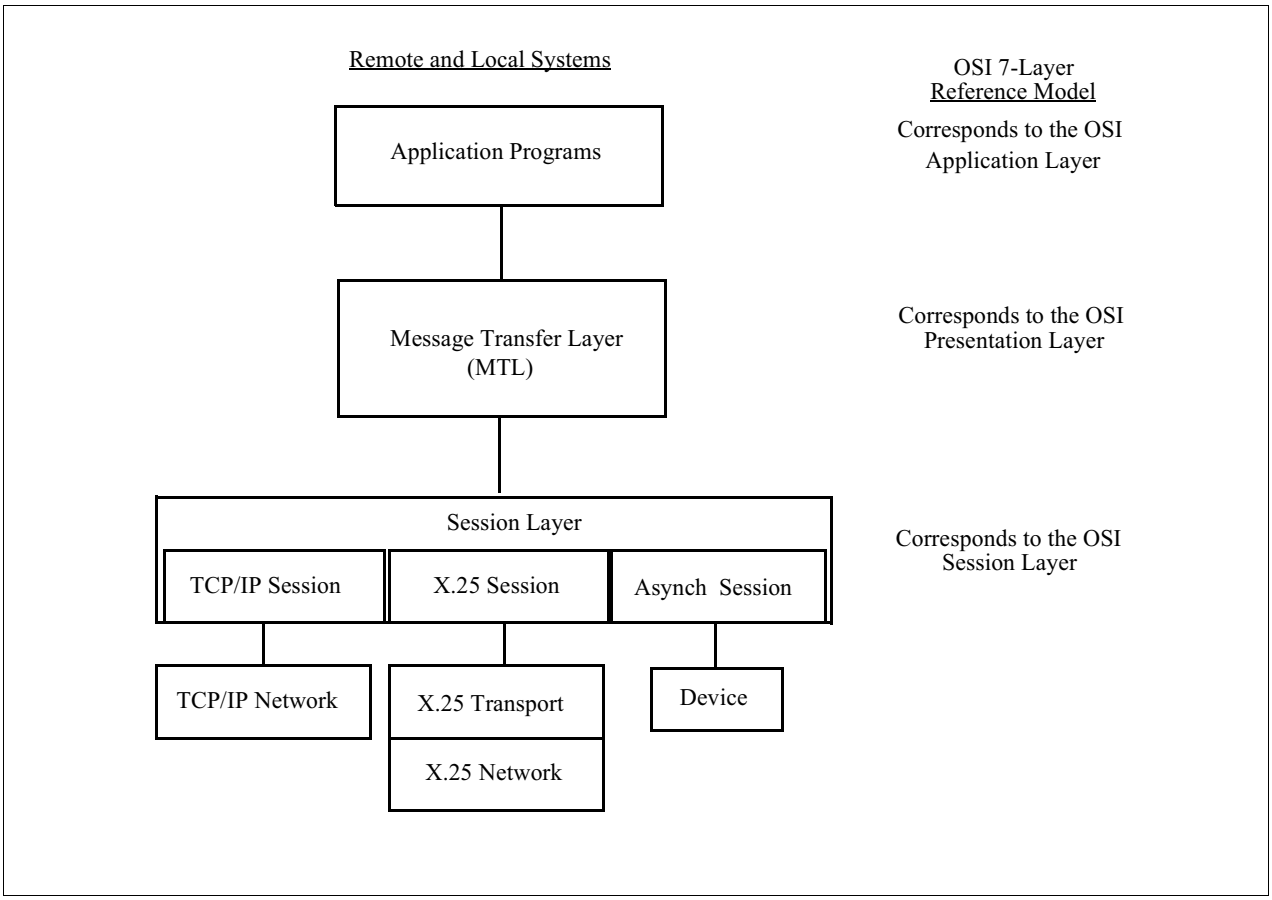

Figure A-2 HCI Layers

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Appendix B X25 Address Calculation

The formula defined for computing network addresses to the PBX requires that a Binary Coded Decimal (BCD) number be computed and then added to the base values for each service access point. The computation of this BCD number is performed as follows:

(IP * 16) + PBX

The base values for the source session service access point (ssap), transport service access point (tsap), and network service access point (nsap) are 0x5500, 0x4500, and 3500 respectively. The destination base addresses are 0x5000, 0x4000, and 3000 respectively. These addresses differ in the following ways:

- The last digit of both the session and the transport layer address is the port number.
- The last digit of the network layer address is the NLC package number.
- The middle two digits of the source address is 50.
- The middle two digits of the destination address is 00.

These calculations apply only to the UAP configuration and should not be used for PBX addresses. PBX addresses are reversed and use 00 as the middle digits of the source addresses and 50 as the middle digits of the destination addresses.

The following example demonstrates the calculation of addresses:

if

PBX Number = 14
IP Number = 2 (NLC package number)
Port Number = 4

then

*BCD = (2 * 16) + 14 = 46*

and the addresses would be as follows:

	Session	*Transport*	*Network*
Source	*0x5504*	*0x4504*	*3502*
Addresses:	*+0x0460*	*+0x0460*	*+0460*
	0x5964	*0x4964*	*3962*
Destination	*0x5004*	*0x4004*	*3002*
Addresses:	*+0x0460*	*+0x0460*	*+0460*
	0x5464	*0x4464*	*3462*

Information in the table below can be used to calculate addresses for a base system. As before, the last digit of the session and transport layer addresses are equal to the port number, and the last digit of the network address is equal to the NLC package number. This table shows actual addresses which can be used (default values in APM) for an OAI system with PBX Number 0, IP Number 0, and NLC Package Number 0 (all base addresses). (Please see .)

Table Entry	Session	Transport	Network	Port #	NLC #
Source Destination	0x5500 0x5000	0x4500 0x4000	3500 3000	0 0	0 0
Source Destination	0x5502 0x5002	0x4502 0x4002	3501 3001	2 2	1 1
Source Destination	0x5504 0x5004	0x4504 0x4004	3502 3002	4 4	2 2

Appendix C APM Errors

If a detailed explanation of an application error is unavailable, refer to the tables below, which contain information about the causes of various APM errors.

The following error messages have a hex value of 42xy. For each of these errors, x is defined as "Error due to Argument Field of the received data."

Decimal Value	Hex Value	Error Detail (Y)	Description
16912	4210	0	Reason other than below.
16913	4211	1	Contradiction of Element Value.
16914	4212	2	Designation of Element Value not supported.
16915	4213	3	Short of mandatory element.
16916	4214	4	Designation of Element not supported.
16917	4215	5	Double definition of Element.
16918	4216	6	Illegal Element Type.
16919	4217	7	Use of Element Type not supported.
16920	4218	8	Use of Element Length not supported.

The following error messages have a hex value of 42xy. For each of these errors, x is defined as "Error due to functional insufficiency or faulty operation at the data receiving side."

Decimal Value	Hex Value	Error Detail (Y)	Description
16928	4220	0	Reason other than below.
16929	4221	1	Temporary shortage of resources.
16930	4222	2	Function not supported.
16931	4223	3	Equipment trouble.
16932	4224	4	Designation of unassigned data.

The following error messages have a hex value of 42xy. For each of these errors, x is defined as "Error due to unmatch of the status of both the data transmitting side and the data receiving side."

Decimal Value	Hex Value	Error Detail (Y)	Description
16944	4230	0	Reason other than below.
16945	4231	1	Facility create status.
16946	4232	2	Facility regenerated status.
16947	4233	3	Facility rest status.
16948	4234	4	Facility reduced status.

The following error messages have a hex value of 43xy. For each of these errors, x is defined as "Error Information Unique to ADF/SCF."

Decimal Value	Hex Value	Error Detail (Y)	Description
17312	43A0	0	Reason other than below.
17313	43A1	1	Designated Terminal Information Illegal.
17314	43A2	2	Designated Terminal Status Unmatch.

The following error messages have a hex value of 43xy. For each of these errors, x is defined as "Error Information Unique to SSFR."

Decimal Value	Hex Value	Error Detail (Y)	Description
17328	43B0	0	Reason other than below.
17329	43B1	1	Designated Terminal Information Illegal.
17330	43B2	2	Designated Terminal Status Unmatch.

The following error messages have a hex value of 43xy. For each of these errors, x is defined as “Error Information Unique to SSFM.”

Decimal Value	Hex Value	Error Detail (Y)	Description
17344	43C0	0	Reason other than below.
17345	43C1	1	Designated Terminal Information Illegal.

The following error messages have a hex value of 43xy. For each of these errors, x is defined as “Error Information Unique to SMFR.”

Decimal Value	Hex Value	Error Detail (Y)	Description
17360	43D0	0	Reason other than below.
17361	43D1	1	Designated Terminal Information Illegal.

Error = 01H ~ 03H and 10H are returned from the 2400SDS and 2400IMS.

Error = 11H ~ 13H are returned only from the 2400SDS.

(In case of the 2400IMS. Error = 01H ~ 03H are returned.)

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Appendix D APM SCF Errors

The following table contains APM SCF errors and their descriptions:

Decimal Value	Hex Value	Description
37121	9101	1st party Idle
37122	9102	1st party Busy
37123	9103	1st party Lock Out
37124	9104	1st party Make Busy
37125	9105	1st party Other (unknown)
37126	9106	1st party Number wrong
37127	9107	1st party type wrong
37136	9110	2nd/3rd party Idle
37137	9111	2nd/3rd party Busy
37138	9112	2nd/3rd party Lock Out
37139	9113	2nd/3rd party Make Busy
37140	9114	2nd/3rd party Other (unknown)
37141	9115	2nd/3rd party Number wrong
37142	9116	2nd/3rd party type wrong
37152	9120	Outgoing trunk busy
37153	9121	Selecting signal unmatch
37154	9122	SMDS trouble
37167	912F	LPSAP error for SMFN
37168	9130	Exec (execution) error
37169	9131	Link error
37170	9132	Sender trunk busy
37171	9133	Modem trunk busy
37172	9134	Announcement/Dictation trunk busy
37173	9135	TCT (three conference trunk) busy
37174	9136	restriction
37175	9137	System in night mode or ATT Jack out/off
37176	9138	Transfer error (transfer to IP, read data from LP)
37177	9139	Call kind error
37178	913A	Wrong connection pattern
37179	913B	Call queue access error

Decimal Value	Hex Value	Description
37180	913C	Announcement seize error
37181	913D	Hard interface access error
37182	913E	Unassigned data
37183	913F	LP memory access error
37247	917F	Undefined function/error

Appendix E List of Acronyms and Abbreviations

ACF	Authorization Code Facility. Used to authorize individual call connections based on restriction class data.
ADB	Application Database Name.
APM	Applications Manager. A software interface which provides the user with management capabilities within the OAI system.
ASL	Asynchronous Link. In the HCI, connects the UAP to a single-tasking machine.
CBCD	Character Binary Coded Decimal.
CRF	Card Reader Facility. Receives and transmits to the UAP information entered through a card reader attached to a terminal.
CCRT	Terminal screen.
ESC	Escape key on the terminal keyboard.
ETF	Call Event Transfer Facility. Used to set or re-assign the correspondence between terminal physical numbers and user logical numbers.
HCI	Host Communications Interface. Enables an application on a remote system to communicate with an application on the local UAP.
KTF	Key Transfer Facility. Receives and transmits to the UAP information entered through a coded function key on a terminal.
MAT	Maintenance Administration Terminal. Personal computer and menu-driven software used to access and manage the NEAX software and database.
MRFI	Terminal Mode Release Facility - Indication Type. Initiates the release of a terminal from interactive mode with UAP.
MRFR	Terminal Mode Release Facility - Request Type. Initiated by the UAP to release of a terminal from interactive mode with the UAP.
MSF	Terminal Mode Set Facility. Initiates the setting of the terminal into interactive mode with the UAP.
MTL	Message Transfer Layer. The presentation layer of the Host Communication Interface.
NBCD	Nibble binary Coded Decimal.
NTF	Number Transfer Facility. Receives and transmits to the UAP information entered through the keypad of a terminal.
OAI	Open Application Interface. A concept involving an interface between the UAP and the PBX. Also refers to the software and hardware which define or use the interface.
OSI	Open System Interconnection basic reference model.

PBX	Private Branch exchange. Digital voice and data communications system for the office.
RCF	Restriction Control Facility. Makes changes in the restriction class data associated by MAT assignment to each terminal.
RET	Return key on the terminal keyboard.
SCF	Switch Control Facility. Connects and releases internal calls among terminals and outgoing calls with stations external to the NEAX system.
SIM	Simulator. Used to indicate the direct link between the UAP and the PBX Simulator.
TCFD	Terminal Control Facility - Direct. Used to control the features of a D^{term} in interactive mode with the UAP and to prompt for input.
TCFI	Terminal Control Facility - Indirect. Used to control the features of a D^{term} that is not set in interactive mode with the UAP.
TCP/IP	In the HCI, the link that connects the UAP into an ethernet network system.
TMF	Terminal Multi-Information Transfer Facility. Broadcasts information to selected terminals and prompts for limited user input.
UAP	User Application Processor. The computer running the application programs and the APM.
X25	The link used by the OAI for communication with the NEAX.