IBM Application Program Driver/400 Version 3

Administrator's Guide

Release 6.0

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Release 6.0

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page vii.

First Edition, September 1995

This edition applies to Release 6 Modification Level 0 of IBM Application Program Driver/400 Version 3 (5716-PD1) and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. See the Summary of Changes for the changes made to this manual. Make sure you are using the correct edition for the level of the product.

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About This Book

This book describes the administration and system operation functions of IBM Application Program Driver/400 Version 3 (program number 5716-PD1), in the following referred to as APD/400. APD/400 is used to integrate multiple applications into a common environment and to integrate functions common to those applications. It provides a standardized interface enabling users to access their applications and to switch between applications.

Chapter 1, "Installing APD/400" on page 1 gives instructions on how to install, delete, create a backup copy of, check the installation of, and restore APD/400. Other installation procedures for the batch system, changes to applications or your system, and sign-on displays, are also described.

Chapter 2, "Installing Applications" on page 7 gives instructions on how to install applications to run under APD/400, and describes specific tasks that are carried out by the administrator and the security officer. This chapter also details how you can delete an application.

Chapter 3, "Defining the Application Environment" on page 15 describes how to administer applications within the APD/400 environment. This consists of functions used to administer users and user groups, authorization lists, menus and menu headings, conflict management (exclusions), batch processing, data sets, applications, and parameters.

Chapter 4, "System Operator Tasks" on page 99 describes the system operator tasks, including how to use the APD/400 save and restore options, and the APD/400 service functions.

Appendix A, "APD/400 Batch System" on page 115 gives a technical overview of the APD/400 batch system, and descriptions of how to start the batch system and how the batch scheduler submits a job.

Appendix B, "Multilingual Support" on page 119 contains a description of the APD/400 multilingual support features.

Appendix C, "IBM Supplied Objects" on page 127 lists the supplied APD/400 objects, including authorization lists and the functions for which each list has authorization.

Appendix D, "APD/400 Installation Messages" on page 130 lists the APD/400 installation messages.

The back of this book provides a glossary containing definitions of terms used across the APD/400 library, a bibliography, and an index.

Who Should Read This Book

This manual is intended for those responsible for installing, administering, and operating APD/400 and the applications running under it. Some knowledge and experience of working with Application System/400* (AS/400*) computers and the Operating System/400* (OS/400*) operating environment is assumed.

Chapter 1. Installing APD/400

This chapter describes how to:

- Install APD/400
- Delete APD/400
- Save APD/400
- Restore APD/400
- Check that APD/400 is installed correctly on your system
- Install the APD/400 batch monitor system
- Install changes to applications or your system
- Install a simplified sign-on panel
- Install the standard sign-on panel.

Method of Installation

The installation process of APD/400 Version 3 Release 1 is the same as for Version 2 Release 3, but different from other previous releases:

- For Version 2 Release 2, there is no longer an installation procedure specifically for APD/400. Instead, Licensed Program Management (LPM) is used to install APD/400.

- For Version 2 Release 3, you can install, save, and delete APD/400 directly from the LICPGM menu (type GO LICPGM from any AS/400 command entry for the LICPGM menu). Using LICPGM you can use menus to request services for the APD/400 program and secondary languages as you can for all other OS/400 licensed programs. In this book, a method using native OS/400 commands is described to install, save, and delete APD/400. However, you can also request these services from the LICPGM menu. See *AS/400 Licensed Programs and New Release Installation Guide* for more information on working with the OS/400 LPM.

Before You Install

Before you install APD/400, make sure that:

- The user profile you use for installation has the special authorities *SECADM and *ALLOBJ. If APD Version 1 Release 1 or APD Version 1 Release 2 are installed on your system, the user profile must be enrolled in the system directory (WRKDIR). If you sign on as QSECOFR, both these requirements are met.

- If a previous release of APD or APD/400 is installed on your system, nobody is working with it. Also, the Batch Monitor Program (BMP) must not be active.

- A simplified sign-on panel is not installed.

- If a previous version of APD/400 is already installed on your system then save the entire APD. This enables you to recover your current APD release if errors occur during the installation process.

  - If APD/400 V1R2 is installed on your system, use the APD *Save Libraries* function or type the following command and press Enter:

    ```
    SAVLIB LIB(QAPD) DEV(TAP01) PRECHK(*YES)
    ```

(The `DEV(TAP01)` parameter specifies the unit where you have mounted the backup tape/cartridge. Specify the correct name of that unit.)

– If IBM APD/400 V2R2 or V2R3 is installed on your system please refer to "Saving APD/400" on page 3.

Installation Procedure

Use the command RSTLICPGM to install APD/400. On the command line, enter:

```
RSTLICPGM LICPGM(5716PD1) DEV(device name)
```

The device name is the name of your tape device where the APD/400 installation tape is mounted. APD/400 is now installed without further user interaction.

If a previous release of APD or APD/400 is installed on your system, migration to APD/400 Version 3 Release 1 takes place automatically directly after installation. Appendix C, "IBM Supplied Objects" on page 127 lists the objects supplied with APD/400, and describes the values that are used when you migrate from one release of APD or APD/400 to another.

Notes:

1. If an error occurs during installation, corresponding error messages are written to the job log. Some of the installation messages are in English. The installation messages are listed in Appendix D, "APD/400 Installation Messages" on page 130. To display the job log, use the command WRKJOB.

2. By default, QSECOFR is used as the administrator. After installation, you can change this using `Administer Applications` or `Administer Applications (Developer)`.

If any errors occur during installation you can recover the previous version of APD/400.

- If APD/400 V1R2 was installed then type the following command:

```
RSTLIB LIB(QAPD) DEV(TAP01)
```

(The `DEV(TAP01)` parameter specifies the unit where you have mounted the backup tape/cartridge. Specify the correct name of that unit.)

- If APD/400 V2R2 or V2R3 or V3R1 was installed on your system please refer to "Restoring APD/400" on page 3

You can then analyze the cause of the installation error and start the installation again.

Deleting APD/400

You can delete APD/400 from your system with command DLTLICPGM. Before you delete APD/400 make sure that:

- You have saved all APD/400 data that you may need. Use the OS/400 save commands or the APD/400 Save and Restore options (see "Saving and Restoring Data" on page 99).

- The user profile you use has *SECADM and *ALLOBJ authorization.

- Nobody is currently working with APD/400.

- There are no applications installed under APD/400.

- The simplified sign-on panel is not installed.

Delete APD/400 with the following command:

```
DLTLICPGM LICPGM(5716PD1)
```

Deleting APD/400 means that:

- All objects in library QAPD and library QAPD itself are deleted.

- All APD/400 objects in QUSRSYS are deleted.

- All APD/400 objects in QSYS are deleted.

- User profiles QAFOWN, QAFUSR, and QAFDFTUSR are deleted.

- All user profiles that have APD/400 as the initial start program are changed so that they do not have an initial start program.

Saving APD/400

The following describes how to save the License Program and APD/400 data from QUSRSYS.

Saving of APD/400 Base Code

You can use the SAVLICPGM command to save a copy of the installation version of APD/400. Use the command as follows:

```
SAVLICPGM LICPGM(5716PD1) DEV(device name)
```

This allows you to create a backup copy of the installation tape. The copy you create will not include any changes you have made to data (menus, authorizations, and so on).

Backup of APD/400 Data in QUSRSYS

To backup APD/400 data, you must save the APD/400 data base and several APD/400 data areas in library QUSRSYS.

```
SAVOBJ OBJ(QAAF* QAF*) LIB(QUSRSYS) DEV(YOURDEVICE) +
        OBJTYPE(*FILE *DTAARA) PRECHK(*YES)
```

Restoring APD/400

The following describes how to restore APD/400 should damage occur.

Restoring APD/400 Base Code

If APD/400 base code is damaged (that is, you cannot start APD/400 and the CHKPRDOPT command reports errors), you must first reinstall APD/400. To do this, follow the procedure described under "Installation Procedure" on page 2.

The APD/400 data in library QUSRSYS will not be replaced.

Restoring APD/400 Data in QUSRSYS

If the data in library QUSRSYS is damaged (for example, you can start APD/400 but the data appears to be outdated or system messages tell you that files are damaged), you must restore the latest backup of this library. Find the tape that contains the latest backup of library QUSRSYS:

- If you have saved QUSRSYS with the OS/400 SAVLIB command, retrieve the correct tape from your archive.
- If you have saved QUSRSYS with the APD/400 Save and Restore functions, you can determine the tape containing the latest backup from the "List of saved libraries/folders" report that is created with every APD/400 save operation. However, you cannot restore QUSRSYS using the APD/400 Save and Restore functions.

Whether you used the OS/400 SAVLIB command or the APD/400 Save and Restore functions, you must restore the data using the following commands:

```
/*------------------------------------------------------*/
/* Restore the APD/400 non-file objects                 */
/*------------------------------------------------------*/
RSTOBJ  OBJ(QAF*)        OBJTYPE(*PGM *DTAARA) +
        SAVLIB(QUSRSYS) DEV(device name)


/*------------------------------------------------------*/
/* Restore the APD/400 file objects                     */
/*------------------------------------------------------*/
RSTOBJ  OBJ(QAAF*)       OBJTYPE(*FILE) +
        SAVLIB(QUSRSYS) DEV(device name)


/*------------------------------------------------------*/
/* Delete the APD/400 journal objects in QUSRSYS        */
/*------------------------------------------------------*/
ENDJRNPF  FILE(*ALL) JRN(QUSRSYS/QAFJN0)
DLTJRNRCV JRNRCV(QUSRSYS/QAFJR*)
DLTJRN    JRN(QUSRSYS/QAFJR0)


/*------------------------------------------------------*/
/* Re-create the APD/400 journal and start journaling   */
/*------------------------------------------------------*/
CALL      PGM(QAPD/QAFIDSTJR) +
          PARM(QUSRSYS QUSRSYS QAFJN0 QAFJR00000 '0')
```

Restoring Save and Restore History Data

If you work with the APD/400 Save and Restore functions, you may have a backup of the history data (used in the APD/400 Save and Restore functions) that is more recent than the last backup of library QUSRSYS. In this case, restore the history data from the history tape or diskette.

If you have multiple generations of history data on your tape or diskette, use the DSPTAP command to determine the sequence number of the last backup. Also, look for the save date of the history data. Restore the objects only if the save date of the history data is greater than the save date of library QUSRSYS. To restore the history data, type the following command:

```
RSTOBJ OBJ(QAAFSRA*) SAVLIB(QUSRSYS) SEQNBR(last sequence number) +
       DEV(device name)
```

Checking APD/400

The CHKPRDOPT (Check Product Option) command can be used as follows to
check whether APD/400 is installed correctly on your system:

```
CHKPRDOPT PRDID(5716PD1)
```

This command checks whether all required objects of the installed APD/400 exist,
and returns a message for each missing object.

If any of the objects do not exist, you can install APD/400 over the existing copy of
APD/400.

Installing the APD/400 Batch Monitor Program

APD/400's Batch Monitor Program (BMP) is not automatically started during the
installation of APD/400. However, it must be started if it is to be used for the
control of batch jobs. Starting the BMP is described in Appendix A, "APD/400
Batch System" on page 115.

To install the APD/400 BMP:

- Start APD/400 with the command STRAPD.

- On the APD/400 main menu, specify 1 (Application Program Driver).

- On APD/400's initial menu, specify 2 (Install and Delete Applications).

- Specify option 3 (Install APD/400 Batch Monitor Program) on Install and
  Delete Applications.

An autostart job entry is added to the controlling subsystem, which starts the
APD/400 BMP. This is the default method of installing the BMP. The other method
that you can use is to add the following command to a startup program:

```
STRSBS QAPD/QAFSBS
```

Installing Changes

Select option 4 (Install Changes) on Install and Delete Applications to install
changes to applications, or to the system itself, from tape, cartridge or diskette.
The changes must be in the "Load and Run" (LODRUN) format.

Installing a Simplified Sign-On Panel

Select option 5 (Install a Simplified Sign-On Panel) on Install and Delete
Applications to install a sign-on display with entries only for user and password.

Notes:

1. The change takes effect only after the system has been powered down and on again.

2. If you want to delete APD/400, the simplified sign-on panel must not be installed.

Installing the Standard Sign-On Panel

Select option 6 (`Install a Standard Sign-On Panel`) on `Install and Delete Applications` to return to the standard sign-on panel that allows entries for program, menu, current library, user, and password.

Note: The change takes effect only after the system has been powered down and on again.

Chapter 2. Installing Applications

This chapter describes:

- Installing an application to run under APD/400
- Tailoring an application to run under APD/400
- Additional installation procedures
- Deleting an application from the APD/400 environment.

Start APD/400 using the command `STRAPD`. The main menu displays:

```
  Options   Environment   Operations   Services   Office   Help
...............................................................................
APD/MAIN                              Main Menu

Select one of the following:

    1. Application Program Driver

   50. OfficeVision/400
   51. AS/400 Operational Assistant

   90. End task




Selection or expert code
   _____

            F4=Prompt    F10=Action          F24=More keys
```

Figure 1. APD/400 Main Menu

From APD/400's `Main Menu`, select option `1` or enter the expert code `APD` to display the APD/400 initial menu. A window displays the options on the initial menu:

```
   Options   Environment   Operations   Services   Office   Help
................................................................................
APD/MAIN                              Main Menu

Select one of the following:
.........................................
:        Application Program Driver       :
:                                         :
:    1. Administer Master Data            :
:    2. Install and Delete Applications   :
:    3. Save and Restore Data             :
:    4. Service Functions                 :
:                                         :
:                                         :
:    _____                 :
:                                         :
:                                         :
:.........................................:

Selection or expert code
     1_____

   F3=Exit    F4=Prompt    F10=Action    F12=Cancel    F24=More keys
```

Figure 2. APD/400 Initial Menu

On the APD/400 initial menu, select option 2 to display the Install and Delete
Applications menu.

A window shows the available options. They are:

1   Install Applications
2   Delete Applications
3   Install APD/400 Batch Monitor Program
4   Install Changes
5   Install a Simplified Sign-On Panel
6   Install a Standard Sign-On Panel.

Installing an Application

Select option 1 on the Install and Delete Applications menu to display Install
Applications.

Note: The LODRUN command can also be used as an alternative method of
installing an application.

The following is displayed:

```
 APD/INSAPL                      Install Applications

 Tape device . . . . . . . . :
 Installation  . . . . . . :
 Data set  . . . . . . . . :
 Application . . . . . . . :


 Select one of the following; press Enter.

      *. Install this application
      *. Install all applications
      *. Skip to next application
      *. Search for application
      5. Display installed applications
      6. Mount tape
      *. Select another installation
      *. Create installation
      *. Define a data set



 F3=Exit   F12=Cancel
```

Figure 3. Install Applications

The options that are not available have an asterisk (*) instead of a number. For example, before a tape is mounted only the options 5 (`Display installed applications`) and 6 (`Mount tape`) are available; numbers for the other options are replaced with asterisks.

Specify 6 and press Enter. On the `Mount Installation` display you specify your tape device. Select a tape device from those listed and press Enter to return to `Install Applications`. Header information is now shown at the top of the display, and all menu options are now available. (The `Define a Data Set` option displays only for applications that work with data sets.)

Note: The Help text for each selection explains when the selection is not available.

The options are:

`Install this application`
    APD/400 installs the application from the tape into the installation and data set as displayed.

`Install all applications`
    Installs the current application and all subsequent applications on the tape.

`Skip to next application`
    Skips to the next application on the current tape.

`Search for application`
    Allows you to enter the application name, abbreviation, or program number, and searches for the application on the current tape.

`Display installed applications`
    Displays the applications already installed.

`Mount tape`
    Mounts the installation tape when you select a tape unit.

`Select another installation`
Allows you to select from a list of existing installations and then switches to the installation you choose. The installation you select is displayed in the header information.

`Create installation`
Allows you to enter an abbreviation and installation name and then creates a new installation.

An installation is a specific processing environment that contains applications and data sets.

You must select the `Select another installation` option to install under the installation you have created.

`Define a data set`
Allows you to choose a name and an abbreviation and then defines a data set. This option is available only if a data set can be defined for your application.

Select the appropriate options and install your applications. When you exit `Install Applications`, the applications you have installed are displayed.

Tailoring Applications

An application originally written as a stand-alone program to run under a different driver will have a different method of menu handling, exclusions, and authorization control, and these areas must be modified to run under APD/400. This is a task for the APD/400 administrator and the developer of the application.

IBM Application Program Driver/400 Version 3: Developer's Guide contains helpful information on library naming conventions, common libraries, data names, and so on.

Additional Installation Procedures

In addition to the installation procedure described, you must perform the following tasks to use APD/400 and the applications installed under it.

APD/400 Administrator or Security Officer Tasks

You must create the AS/400 user profiles of the application users (the user profile of the application administrator is created during installation of the application, if it is not already on the system). "Administering User Entries" on page 17 describes how to do this.

If you use the OS/400 function CRTUSRPRF to create user profiles, specify the command as follows:

```
CRTUSRPRF  INLPGM(QSYS/QAFINLPG) LMTCPB(*YES)
```

This creates a user profile for a user:

- To go directly to APD/400 at sign-on
- With no access to the OS/400 command level (QCMD).

Application Administrator Tasks

If the application is installed with authorization lists, users must be assigned to these authorization lists according to their requirements. For an explanation of how to do this, refer to "Administering Authorization Lists" on page 23.

Deleting an Application

Select option 2 on the `Install and Delete Applications` menu to display `Delete Applications`.

When you delete an application, the following are deleted:

- All application data from APD/400 libraries
- All application libraries
- All application data sets
- The application interface program (AIP)
- All APD/400 control information for the application (menus, authorization lists, and so on)
- All textual data for the application
- All application Help folders (if not used by other applications).

Notes:

1. `Delete Applications` can be used only by the application administrator.

2. Users must not be working with applications (this includes any pending restarts).

```
  APD/DLTAPL                        Delete Applications



  Type the installation ID and the application ID of the application you want
  to delete, then press Enter.



    Installation . . . . . . . . .    TST

    Application  . . . . . . . . .    PAY




  F3=Exit    F12=Cancel
```

Figure 4. Delete Applications

`Installation`
    Enter the name of the installation under which the application is installed. This is a required input field.

`Application`
   Enter the name of the application to be deleted. This is a required input field.

After you have confirmed your entries, several checks are performed. Errors are displayed as messages on the `Delete Applications` display. These errors must be corrected before you can delete the application.

During deletion, APD/400 performs the following checks:

- Installation exists

  The installation that includes the application to be deleted must exist. If it does not exist, an error message is issued and the delete operation is interrupted.

- Authorization to delete

  Only the authorized application administrator can delete an application. If another user tries to delete the application, an error message is issued and the delete operation is interrupted.

- Application exists

  The application to be deleted must exist. If it does not exist, an error message is issued and the delete operation is interrupted.

- APD/400 must not be deleted

  APD/400 must not be specified as the application to be deleted. If it is, an error message is issued and the delete operation is interrupted.

- Application is required for other applications

  The application to be deleted must not be used by other applications. If it is, an error message is issued and the delete operation is interrupted.

- Data libraries saved

  The data libraries of the application must have been saved on the day of deletion. If this has not been done, the delete operation is interrupted and a message is displayed for each library that does not have the current date assigned as the date of the last save operation. You can confirm, or cancel the deletion and save the libraries concerned.

  If libraries need to be saved, the `Confirm Deletion of Application` display appears:

```
APD/DLTAPL                    Confirm Deletion of Application


  Installation . . . . . . :   TST     Test installation
  Application  . . . . . . :   PAY     Payroll



Type Y and press Enter to confirm the deletion of the application.
Type N and press Enter or press F12 to cancel this operation.


  Selection (Y/N) . . . . . . . .      Y


One or more of the data libraries of the application to be deleted
have not been saved today.




 F12=Cancel
Library <name> has not been saved today.
```

Figure 5. Confirm Deletion of Application: Libraries Not Saved

If you type Y because you do not want to save any libraries, the deletion process continues. Enter N or press F12 (Cancel) to end Confirm Deletion of Application. The contents of the current library are not saved.

When all libraries have been saved, the following display appears:

```
APD/DLTAPL                    Confirm Deletion of Application


  Installation . . . . . . :   TST     Test installation
  Application  . . . . . . :   PAY     Payroll



  Type Y and press Enter to confirm the deletion of the application.
  Type N and press Enter or press F12 to cancel this operation.


  Selection (Y/N) . . . . . . . .      Y






 F12=Cancel
```

Figure 6. Confirm Deletion of Application: Libraries Saved

Entering N (No) or pressing F12 (Cancel) ends Confirm Deletion of Application without deleting. The Delete Applications display reappears.

Enter Y (Yes) and press Enter and the delete process is started. Completion or error messages are displayed as applicable.

If the Help for the deleted application was provided through display files or panel groups, the library containing the Help objects is not deleted, unless it is identical to an application library. A message informs you that the library was not deleted.

Note: Deleting the application does not automatically delete the user profile of the application administrator. If you want to delete this user profile, use the DLTUSRPRF system command or the `Administer User Entries` option (see "Administering User Entries" on page 17).

Chapter 3. Defining the Application Environment

This chapter provides information on defining users and applications within the APD/400 environment. Tasks include user, user group, and authorization assignment, menu creation and manipulation, conflict management (exclusions), and batch environment definition.

Note: If you change APD/400 definitions, refer to Appendix C, "IBM Supplied Objects" on page 127. Your changes may be replaced by new APD/400 definitions in future releases.

Select 1 on the APD/400 initial menu or enter the expert code ADMMDTA to display `Administer Master Data`.

```
   Options   Environment   Operations   Services   Office   Help
 ..............................................................................
 APD/MAIN                          Main Menu

 Select one of the following:
 ......................................
 :          Application Program Dr .......:...................................
 :                                 :             Administer Master Data       :
 :   1. Administer Master Data  :                                            :
 :   2. Install and Delete App  : User and Authorization                     :
 :   3. Save and Restore Data   :    1. Administer User Entries              :
 :   4. Service Functions       :    2. Administer User Groups               :
 :                              :    3. Administer Authorization Lists  :
 :                              :    4. Print Authorization Environment :
 :                              :                              More...  :
 : 1_____            : _____                        :
 :............................:                                            :
                                :...................................:



 Selection or expert code
      1_____



 F3=Exit     F4=Prompt   F10=Action   F12=Cancel   F24=More keys
```

Figure 7. Administer Master Data

Use the Page Down key to see all the available options. The options are:

```
1     Administer User Entries
2     Administer User Groups
3     Administer Authorization Lists
4     Print Authorization Environment
5     Administer Menus
6     Administer Menu Headings
7     Administer Exclusions
8     Administer Batch Environments
9     Administer Timetables
10    Administer Data Sets
11    Administer Applications
12    Administer Parameters.
```

From `Administer Master Data` you can work in the following areas:

User and Authorization

Administer User Entries
> Used to assign user entries to the APD/400 user file, the OS/400 user profile, and, where applicable, the OfficeVision/400 user file. See "Administering User Entries" on page 17.

Administer User Groups
> Used to group users with identical authorizations (access rights to APD/400 or application functions such as tasks, data sets, or batch environments). See "Administering User Groups" on page 20.

Administer Authorization Lists
> Used to assign authorizations for users and user groups to APD/400 or application functions such as tasks, data sets, and batch environments. See "Administering Authorization Lists" on page 23.

Print Authorization Environment
> Used to define parameters for producing reports on the authorizations currently defined in your APD/400 environment. See "Print Authorization Environment" on page 29.

Menus

Administer Menus
> Used to create and change menus, and to assign task options and authorizations to a menu. See "Administering Menus" on page 34.

Administer Menu Headings
> Used to create and change menu headings (the first three lines on a menu display). This option is used in conjunction with Administer Menus. You create a heading and then assign it to a menu. See "Administering Menu Heading Formats" on page 55.

Exclusions

Administer Exclusions
> Used to define mutually exclusive programs or program groups. See "Working with Exclusions" on page 64.

Batch Processing

Administer Batch Environments
> Used to define the parameters necessary to run batch tasks for an application. See "Administering Batch Environments" on page 75.

Administer Timetables
> Used to define the timetables for recurring batch jobs. See "Administering Timetables" on page 78.

Miscellaneous

Administer Data Sets
> Used to create data sets. For example, data sets could be created in an application for projects, departments, and clients. See "Administering Data Sets" on page 83.

Administer Applications
> Used to change the text of an application, to reassign the application administrator, to change the audit details, to change how application menus are presented, and to make settings such as Use Authorization Checking,

Use Exclusion Checking, Work with Data Sets and Work with Defaults in APIs. See "Administering Applications" on page 85.

Administer Parameters
Used to change the values of the APD/400 parameter file. See "Administering Parameters" on page 93.

┌─ **Multilingual support** ───┐

APD/400 provides multilingual support for applications. All text fields that are enabled for multilingual support are noted in the displays described in this chapter. For more information on APD/400's multilingual support features, see Appendix B, "Multilingual Support" on page 119.

└──┘

Specifying Users and Authorization

Tasks within the Administer User Entries menu enable you to define users of APD/400, the AS/400 system, and, where applicable, the OfficeVision/400 system.

The tasks provided by the Administer User Groups and the Administer Authorization Lists menus enable you to specify the APD/400 operating environment for individuals or groups of users by defining their authorization levels. The names of the authorization lists can then be used in Administer Menus, Administer Data Sets, and Administer Batch Environments to determine the users and user groups that are authorized to work with the respective menus, data sets, and batch environments.

Administering User Entries

Administer User Entries enables you to register users in the APD/400 user file, the corresponding OS/400 user profile and, where applicable, the OfficeVision/400 user file, and to change default information in these files.

Note: Administer User Entries performs global housekeeping. Access is therefore restricted to user profiles with the special authority *SECADM (QSECOFR has this authority).

To work with Administer User Entries, specify 1 on the Administer Master Data menu or enter the expert code ADMUSR. All user profiles available on your system are listed.

```
APD/ADMUSR                  Administer User Entries

Type options, press Enter.
  2=Change   4=Delete   5=Display

Option    User         User Text
          CLENTON      Payroll department: Jim Clenton
  _       COLLINS      Warehouse user: Ron Collins
  _       HAWKES       Accounts clerk: Susan Hawkes
  _       HOLMES       Accounts Manager: Steve Holmes
  _       KELLY        System Support: Jim Kelly
  _       MULLER       System Support: Klaus Muller
  _       QBLDOFR      AS/400 PRODUCT BUILDER
  _       QPGMR        PROGRAMMER AND BATCH USER
  _       QSECOFR      SECURITY OFFICER
  _       QSYSOPR      SYSTEM OPERATOR
  _       QUSER        WORKSTATION USER
  _       SMITH        Shop floor: Engineer
  _       ZIMMER       Shop floor: Engineer




 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to
```

Figure 8. Administer User Entries

You can change, delete, or display user entries by specifying the relevant option
number in the corresponding option column.

Notes:

1. After working on an APD/400 user file, you are taken into the corresponding
   OS/400 user profile. See *AS/400 Programming: Security Concepts and
   Planning* for more information on OS/400 procedures.

2. If OfficeVision/400 is installed on your AS/400, you are taken into the relevant
   administrative OfficeVision/400 menu to perform the corresponding task.

To add a user entry, press F6 (Add) and `Add User Entry` is displayed.

Adding User Entries

On this display you can add a user entry to the APD/400 user file. On further
displays, you can create an OS/400 user profile, and (where applicable) an
OfficeVision/400 user file.

```
 APD/ADMUSR                    Add User Entry


 Type choices, press Enter.

   User ID . . . . . . . . .   JACK_____

   User text . . . . . . . .   Jack_Nichols_____

   Start installation  . . .   ___           F4 for list

   Start program . . . . . .   _____       F4 for list

     Application . . . . . .   _____






 F3=Exit    F4=Prompt   F12=Cancel
```

Figure 9. Add User Entry

Enter the following information:

User ID
    The ID of the new user.

User text
    For information purposes only. This can be, for example, the name or
    department of the user.

Start installation
    The ID of the initial installation for the user. This is the installation the user
    works with when signing on to APD/400. This field is supported by F4
    (Prompt).

Start program
    The name of the initial task (program, system command, or process list) called
    when the user signs on to APD/400. This task must exist in the defined
    Application. This field is supported by F4 (Prompt).

Application
    Enter the application to which the specified Start program belongs.

Press Enter to save the information. OS/400 Create User Profile is displayed.
Follow OS/400 procedures for creating user profiles.

Changing User Entries

Specify option 2 (Change) in the corresponding option column on Administer User
Entries to change a user entry. Change User Entry is displayed. Its layout is
similar to Add User Entry. You can change the fields:

    User text
    Start installation
    Start program
    Application

Make the required changes and press Enter to display OS/400 `Change User Profile`. Follow OS/400 procedures for changing user profiles.

Deleting User Entries
Specify option `4` (Delete) in the corresponding option column on `Administer User Entries` to display `Display User Entry for Deletion`. If you confirm deletion, OS/400 `Delete User Profile` is displayed.

Displaying User Entries
Specify option `5` (Display) in the corresponding option column on `Administer User Entries` for `Display User Entry`.

Administering User Groups

`Administer User Groups` enables you to combine groups of users with the same processing characteristics, for example, users with the same access rights for applications and data sets.

User groups facilitate the administration of authorization controls in the APD/400 environment. You do not have to define access rights for each individual APD/400 user. Defining access rights to menus, tasks, data sets, and so on, for groups of users reduces administrative work and clarifies authorization control.

Note: User groups are valid only for the application for which you define them, and cannot be used across different applications.

To work with `Administer User Groups`, specify `2` on the `Administer Master Data` menu or enter the expert code ADMUSRGRP.

```
 APD/ADMUSRGRP                 Administer User Groups

   Installation. . :              Default installation

 Type options, press Enter.
   2=Change   3=Copy   4=Delete   5=Display

 Option  User group  Group text                        Application
         ADGRUP01    Programmers                       APD
   _     ADGRUP02    Development department            APD
   _     PAYROLL     Payroll employees                 PAY
   _






 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to   F18=Subset
```

Figure 10. Administer User Groups

You can change, copy, delete, or display user groups by specifying the relevant option in the corresponding option column.

Adding User Groups

To add a new user group, press F6 (Add) on `Administer User Groups`. `Add User Group` is displayed.

```
APD/ADMUSRGRP              Add User Group

  Installation . :              Default installation

Type choices, press Enter.

  Application . . .  PAY____      F4 for list

  User group. . . .  PAYROLLA__







  F3=Exit    F4=Prompt    F12=Cancel
```

Figure 11. Add User Group

Enter the following information:

`Application`
> The name of the application for which the user group is valid. This field is supported by F4 (Prompt).

`User group`
> The name of the new user group.

Now you define the members of the new user group. To do this, press Enter to display `Change User in User Group`.

```
APD/ADMUSRGRP          Change User in User Group

  Installation  . :            Default installation
  Application . . :  PAY        Payroll
  User group. . . :  PAYROLLA


Type choice and/or option number, press Enter.
  4=Delete

  User group text .  All_authorized_payroll_employees_____

Option  User       User text

  (No users found to display)






 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to
 User Group PAY/PAYROLLA added.
```

Figure 12. Change User in User Group

Adding Users to the User Group

Enter a descriptive text for the new user group in the field `User group text`.

Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

No users are displayed, as no users have yet been added to the user group. Press F6 (Add) to display `Add User to User Group`. Enter the ID of a user to be added to the user group and press Enter. This field is supported by F4 (Prompt).

Note: The ID you enter must exist on the system. The user text is retrieved from the OS/400 user profile.

`Change User in User Group` reappears. Press F5 (Refresh) to see the new ID in the list. Repeat this process for all IDs that you want to include in the new user group, and then press F5 (Refresh) on `Change User in User Group`. The new user group can now be specified in authorization lists to give authorization to menus, tasks, and so on, for users in the group.

Changing User Groups

Specify option 2 (Change) in the corresponding option column of `Administer User Groups` to display `Change User in User Group`. You can add or delete a user, or change the user group text. See "Adding Users to the User Group" to add a user to the user group. To delete a user from the user group, specify option 4 (Delete) in the corresponding option column to display `Delete User from User Group`. Press Enter to confirm deletion, or F12 to cancel.

Copying User Groups

Specify option 3 (Copy) in the corresponding option column of `Administer User Groups` to display `Copy User Group`, which is used to copy all members of a user group to a new user group.

Enter the name of the new user group. Press Enter to display `Change User in User Group`.

Add users to the group by pressing F6 (Add), or delete users by selecting option 4 (Delete). You can also enter a descriptive text for the new user group. Press Enter to create the new group.

Deleting User Groups

Specify option 4 (Delete) in the corresponding option column of `Administer User Groups` to display `Delete User Group`. Press Enter to confirm deletion or F12 to cancel.

Note: You cannot delete a user group that still has an entry in an authorization list.

Displaying User Groups

Specify option 5 (Display) in the corresponding option column of `Administer User Groups` to display a user group.

Administering Authorization Lists

Authorization lists enable you to define the access rights for individual users and groups of users for APD/400 functions such as tasks, menus, batch environments, data sets, processing lists, and so on.

You determine which user is able to access a certain function by:

- Defining one or more authorization lists.

- Defining which users or user groups are authorized for defined authorization lists and what level of authorization they have.

- Defining for each function which authorization list controls access to the function.

For each authorization list, 10 levels of authorization rights can be defined (0 to 9). Level 0 means no authorization; a level greater than 0 means authorization.

Notes:

1. Any authorization level specified for a user overrides the authorization level specified for the default user entry (*ALL).

2. If a user is a member of a user group and also has a separate user entry, the authorization level of the single-user entry overrides that of the user group.

3. If a user is a member of several user groups with different authorization levels, the highest authorization level overrides the others.

4. The APD/400 administrator is always allowed to call `Administer Authorization Lists`. This is to prevent a deadlock situation in which no user is allowed to call this function while performing an interactive task.

5. If the setting `Use Authorization Checking` is switched off, each user operates with authorization level=9 inside this application.

To work with `Administer Authorization Lists`, specify `3` on the `Administer Master Data` menu or enter the expert code ADMAUT.

```
 APD/ADMAUT                      Administer Authorization Lists

 Installation  . . :            Default installation

 Type options, press Enter.
   2=Change   3=Copy   4=Delete   5=Display

         Authorization
 Option  list            Authorization list text          Application
   _     APD_ADMIN       APD administrator                APD
   _     APL_ADMIN       Application administrator        APD
   _     INST            Default installation             APD
   _     QSECOFR         System security officer          APD
   _     QSYSOPR         System operator                  APD




 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to   F18=Subset
```

Figure 13. Administer Authorization Lists

You change, copy, delete, or display existing authorization lists by specifying the relevant option number in the corresponding option column.

Adding Authorization Lists
To define a new authorization list, press F6 (Add). The following is displayed:

```
 APD/ADMAUT            Add Authorization List

 Installation  . . :             Default installation


 Type choices, press Enter.

   Application . . . . . . .   PAY____       F4 for List

   Authorization list  . . .   PAYROLL___








                                                                  More...
   F3=Exit   F4=Prompt   F12=Cancel
```

Figure 14. Add Authorization List (Page 1, Application)

Enter the following information:

Application
    The name of the application for which the authorization list is valid. This field is
    supported by F4 (Prompt).

Authorization list
    The name of the new authorization list.

Press F8 (Page Down) to display the second page of Add Authorization List.

```
  APD/ADMAUT           Add Authorization List

   Installation  . . :               Default installation

   Application . . . :   PAY          Payroll
   Authoriz. list   :    PAYROLL

   Type choices, press Enter to continue.

     Authorization list text .   Users_with_payroll_authority_____
     User-exit program . . . .   _____
     Level 0 text  . . . . . .   Not_authorized_____
     Level 1 text  . . . . . .   Authorized_for_level_1_____
     Level 2 text  . . . . . .   Authorized_for_level_2_____
     Level 3 text  . . . . . .   Authorized_for_level_3_____
     Level 4 text  . . . . . .   Authorized_for_level_4_____
     Level 5 text  . . . . . .   Authorized_for_level_5_____
     Level 6 text  . . . . . .   Authorized_for_level_6_____
     Level 7 text  . . . . . .   Authorized_for_level_7_____
     Level 8 text  . . . . . .   Authorized_for_level_8_____
     Level 9 text  . . . . . .   Authorized_for_level_9_____
                                                                   Bottom
   F3=Exit    F12=Cancel
```

Figure 15. Add Authorization List (Page 2, Authorization List Text)

Enter the following information:

Authorization list text
    A descriptive text for the new authorization list.

    Note: You can enter &msg symbols in this field to retrieve text for a specific
    language. For more information on multilingual support, see Appendix B,
    "Multilingual Support" on page 119.

User-exit program
    Where applicable, the name of the user-exit program to be called by the
    authorization list. This is provided by the application developer. See *IBM
    Application Program Driver/400 Version 3: Developer's Guide* for details of the
    CHKAUT (check authority) user exit. This procedure is not called if use
    authorization checking=N.

Level x text
    A description for each of the authorization levels. The APD/400 default values
    are displayed initially. You can change any of the values using text or spaces.
    If you delete a text, the corresponding level is not available.

    Note: You can enter &msg symbols in this field to retrieve text for a specific
    language. For more information on multilingual support, see Appendix B,
    "Multilingual Support" on page 119.

Press Enter to create the list. If you specify a user-exit program, definition of the new authorization list is complete, otherwise the default authorization list entry is displayed. Specifying authority level 0 for user *ALL means that users or user groups not listed have no access rights.

```
 APD/ADMAUT           Add Authorization List

   Installation  . :             Default Installation

   Application . . :   PAY        Payroll
   Authoriz. list  :   PAYROLL

 Type options, press Enter.
   2=Change    4=Delete   12=Work with user groups

 Option   User/       Type   Auth.  Text
          user group         level
   __      *ALL         U      0     Default authorization







   F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to   F18=Subset
```

Figure 16. Add Authorization List (Page 3, Work with User Groups)

You change, delete, or work with added entries (user groups only), by specifying the relevant option number in the corresponding option column.

Adding Entries to an Authorization List: Press F6 (Add) to display `Add Entry to Authorization List`.

```
 APD/ADMAUT             Add Entry to Authorization List

 Installation . . . :             Default installation

 Application  . . . :   PAY        Payroll
 Authoriz. list   :   PAYROLL     Users with payroll authority


 Type choices, press Enter.

   Type . . . . . . . . . .   U           U=User, G=Group

   User/user group  . . . .   _____   F4 for List

   Authorization level  . .   0           F4 for List





   F3=Exit   F4=Prompt   F12=Cancel
```

Figure 17. Add Entry to Authorization List

Enter the following information:

`Type`
>   The type of entry (U=Single User, G=User Group).

`User/user group`
>   The ID of a single user, or the name of a user group, already defined for the system. User text is retrieved from the user's OS/400 user profile; user group text is retrieved from `Administer User Groups` (see "Administering User Groups" on page 20). This field is supported by F4 (Prompt).

`Authorization level`
>   The authorization level (0-9) to be assigned to the user or user group. Only authorization levels for which you have entered text are valid. This field is supported by F4 (Prompt).

Press Enter to add the user or user group to the authorization list.

Changing Entries in an Authorization List: Specify option 2 (Change) to display `Change Entry in Authorization List`. On this display you can change the authorization level of the user or user group. Press Enter when you have made the change.

Deleting Entries from an Authorization List: Specify option 4 (Delete) to display `Delete Entry from Authorization List`. Press Enter to confirm the deletion.

Working with User Groups: Specify option 12 (Work with user groups) to display `Change User in User Group` (see Page 22). On this display you can add or delete a user, or change the text for the user group.

Changing Authorization Lists

To change an authorization list, or add, change, or delete entries in the authorization list, specify option 2 (Change) in the corresponding option column of `Administer Authorization Lists`. `Change Authorization List` displays.

You can change the authorization list text, the user-exit program name, and the level texts. You cannot overwrite a level text if that level is currently specified for a list entry.

When you have made the required changes, press Enter. If you specified a user-exit program, the changes are complete, otherwise the second page of `Change Authorization List` is displayed. There you can add, change, delete, or work with entries (user groups).

Changing Entries in an Authorization List: You can change the authorization level for selected entries of an authorization list by specifying option 2 (Change) in the corresponding option column on any of the following:

*   Page 3 of `Add Authorization List` (see Figure 16 on page 26)
*   Page 2 of `Change Authorization List`
*   Page 3 of `Copy Authorization List`.

`Change Entry in Authorization List` is displayed. You must have entered text for the level you specify in the authorization list.

Deleting Entries from an Authorization List: To delete an entry from an authorization list, specify option `4` (Delete) in the corresponding option column on any of the following:

- Page 3 of `Add Authorization List` (see Figure 16 on page 26)
- Page 2 of `Change Authorization List`
- Page 3 of `Copy Authorization List`.

To confirm deletion, press Enter on the `Delete Entry from Authorization List` display.

Copying Authorization Lists

To copy an authorization list and all its entries to a new authorization list, specify option `3` (Copy) in the corresponding option column of `Administer Authorization Lists`.

On `Copy Authorization List` enter the name of the new authorization list, and then do one of the following:

- Press F8 (Page Down) to display the second page of `Copy Authorization List`

- Press Enter to copy all information from the existing authorization list to the new authorization list.

The second page of `Copy Authorization List` enables you to change the information that has been copied. After making any necessary changes, press Enter.

If a user-exit program is specified, the definition of the new authorization list is complete, otherwise the third page of `Copy Authorization List` is displayed.

On the third page of the `Copy Authorization List` display, you can:

- Add entries by pressing F6 (see "Adding Entries to an Authorization List" on page 26)
- Change entries by selecting option `2` (see "Changing Entries in an Authorization List" on page 27)
- Delete entries by selecting option `4` (see "Deleting Entries from an Authorization List")
- Work with entries (user groups only) by selecting option `12` (see "Changing User Groups" on page 22).

Deleting Authorization Lists

To delete an authorization list, specify option `4` (Delete) in the corresponding option column of the `Administer Authorization Lists` display.

To confirm deletion of the authorization list, press Enter on the `Delete Authorization List` display.

Note: You cannot delete an authorization list still assigned to a task, installation, or data set.

Displaying Authorization Lists

To display an authorization list, specify option 5 (Display) in the corresponding option column on `Administer Authorization Lists`. When the authorization list is displayed, press Enter to display the associated users and user groups.

Print Authorization Environment

`Print Authorization Environment` enables you to specify the print parameters for the user or object view of an authorization environment. When all parameters have been specified, APD/400 creates a report.

To work with `Print Authorization Environment`, specify 4 on the `Administer Master Data` menu or enter the expert code PRTAUT. The following is displayed:

```
  APD/PRTAUT              Print Authorization Environment

  Select one of the following:

      1. Print Authorization Environment (User View)
      2. Print Authorization Environment (Obj. View)







  Selection or expert code
       1_____

  F3=Exit       F4=Prompt   F12=Cancel   F24=More keys
```

Figure 18. Print Authorization Environment

Print Authorization Environment (User View)

To specify the parameters for a report of the authorization environment for users and user groups, specify 1 on the `Print Authorization Environment` menu or enter the expert code `PRTAUTUSV`. The following is displayed:

```
  APD/PRTAUTUSV        Print Authorization Environment (User View)

   Installation . . . :        Default Installation

   Type choices, press Enter.

     User/User group . . . . .  JIM_____     Name, *All, F4 for list
     Type  . . . . . . . . .  U              U=User, G=Group

     From authorization level . .  0          0 - 9
     To   authorization level . .  9          0 - 9

     Application . . . . . . .  *ALL___        Name, *All, F4 for list
     Authorization list usage . .  3           0=All, 1=Task, 2=Installation
                                                3=Data set
     Record name . . . . . . .  *ALL___        *All, name*




   F3=Exit   F4=Prompt   F12=Cancel
```

Figure 19. Print Authorization Environment (User View)

Enter the following information:

User/User group
> The name of the user or user group (or *ALL for all users) whose authorizations are included in the report. This field is supported by F4 (Prompt).

Type
> Enter U for user, or G for user group.

From authorization level / To authorization level
> Indicate the range of authorization levels to be included in the report.

Application
> The name of the application to which the report is related. This field is supported by F4 (Prompt).

Authorization list usage
> State whether the report contains the authorizations, within the given range, for tasks, installations, data sets, or all combinations.

Record name
> Where necessary, enter a generic name. For example, SLT* produces a report for all tasks with the SLT (Select) feature.

When you have specified the necessary parameters, press Enter. The report is added to the output queue. The name of the spool file is QPAFSPP111.

Print Authorization Environment (Object View)

To specify the parameters to print an object view of the authorization environment, specify 2 on the Print Authorization Environment menu or enter the expert code PRTAUTOBV. The following is displayed:

```
  APD/PRTAUTOBV          Print Authorization Environment (Object View)

   Installation . . . :           Default Installation

   Type choices, press Enter.

     Application . . . . . . .  PAY_____       F4 for list

     Authorization list usage . .  3            0=All, 1=Task, 2=Installation
                                                3=Data set
     From authorization level . .  0            0 - 9
     To   authorization level . .  9            0 - 9






     F3=Exit   F4=Prompt  F12=Cancel
```

Figure 20. Print Authorization Environment (Object View)

Enter the following information:

Application
    The name of the application for which the authorizations are reported. This
    field is supported by F4 (Prompt).

Authorization list usage
    State whether the report contains information for tasks, installations, data sets,
    or all combinations.

From authorization level / To authorization level
    State the range of the levels of authorization to be reported.

When you have specified all the necessary parameters, press Enter. The report is
added to the output queue. The name of the spool file is QPAFSPP113.

Structuring Menus

Administration of menus consists of creating tasks that can be used in menus, and
combining such tasks into menus. For menu-related functions, APD/400 includes
three new features:

* Menu bars and pull-downs
* Windows
* Customizable colors for menus.

Menu bars and pull-downs can be used as an alternative way for a user to work
through the application tasks controlled by APD/400. This method differs from
original APD/400 menus only in presentation and navigation; the control functions
for processing tasks (exclusions, authorizations, restarts, and so on) are supported
in the same way.

Menu Bars and Pull-Downs

A menu bar is defined as follows:

- A menu bar is a "container" task that consists of pull-down tasks only.

- Menu bars cannot be contained in menus, process lists, or pull-downs.

- Menu bar tasks cannot be started using an expert code.

- A menu bar can be assigned to any menu within an application (the menu and menu bar must belong to the same application).

A new function SWTMNUBAR (switch menu bar setting) allows a user to decide whether or not to work with menu bars.

A pull-down is also a container task that is defined as follows:

- A pull-down task can contain up to nine other tasks of type Command, Process list, Menu, or Program.

- Pull-downs can be used only as menu bar choices.

- Pull-downs cannot be contained in menus or process lists.

- Pull-downs cannot be started using an expert code.

Windows

Menus can now be displayed in windows. A new function SWTMNUWDW (switch window setting) allows a user to decide whether or not to work with menus in windows.

Customizable Colors and Styles for Menus

You can specify how full-screen menus and menu windows are presented. The color and style of various components of displays and windows can be specified, including menu bar, title area, window border, menu option area, and command line.

Container and Processing Tasks

The six task types provided with APD/400 can be divided into container tasks and processing tasks. Container tasks provide access to processing tasks. Processing tasks perform functions. The following are container tasks:

- Menu bar
- Pull-down
- Process list
- Menu.

The following are processing tasks:

- Command
- Program.

Batch and Interactive Tasks

Tasks can be performed in batch or interactively. Command, program, and process list tasks can be performed in batch or interactively. Menu bar, pull-down, and menu tasks can be performed only interactively.

Menus

From a menu, you can call any of the following types of task:

- Program
- Command
- Process List
- Menu.

Menu options (tasks in a menu) are displayed in one or two columns. The APD/400 administrator determines whether all the menus of an application are displayed in single-column or in double-column mode (see "Administering Applications" on page 85).

If you include a system command or a program task in a menu, the associated system command or program is run when the corresponding option number is selected.

A process list task calls a process list. A process list is a combination of program or command tasks run in sequence automatically. Another process list cannot be run within a process list. Only the last task of an interactive process list can be a menu task.

For each menu or process list, a display presents a list of all tasks currently included in the menu or process list. From this display, you can add, change, or delete tasks, or change the sequence of the tasks. If you have changed a menu, the new version of the menu is available immediately. If, however, you do not want to call the actual menu, you can use a function key to simulate the menu display.

You can see APD/400's standard menu heading layout on the menus that are shipped with APD/400. This menu heading format can be used for the new menus you create. You can, however, design your own menu heading formats.

The procedures in this part of the book are described as follows:

1. Menus:
   - "Adding a Program Task" on page 35
   - "Adding a Command Task" on page 43
   - "Adding a Process List Task" on page 44
   - "Adding a Menu Task" on page 44
   - "Adding Options to a Menu or Process List" on page 45
   - "Menu Subheadings" on page 48
   - "Menus in Windows" on page 49
   - "Adding Menu Bar and Pull-Down Tasks" on page 50
   - "Changing a Task" on page 54
   - "Copying a Task" on page 54
   - "Deleting a Task" on page 54
   - "Displaying a Task" on page 55.

2. Menu headings:
   - "Administering Menu Heading Formats" on page 55.

3. Example Menu:
   - "Creating a Menu – Simple Example" on page 60.

You can work with tasks from the `Administer Menus` display. Once you have created a task, you can use it in as many menus and (if it is a menu, command, or program task) process lists as you need to.

If you are using more than one installation, select the required installation before administering menus (see "Selecting Installations" in *IBM Application Program Driver/400 Version 3: User's Guide*).

Administering Menus

To work with `Administer Menus`, specify `5` on the `Administer Master Data` menu, or enter the expert code ADMMNU.

```
APD/ADMMNU                      Administer Menus

  Installation  . :              Default Installation

Type options, press Enter.
  2=Change   3=Copy   4=Delete   5=Display

Option   Task          Application  Type  Proc.  Text
  _      CMD           PAY           C     I      Command executions
  _      PAYMAIN       PAY           M     I      Main for Payroll




F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to   F18=Subset
```

Figure 21. Administer Menus

All existing tasks you are able to work with in your environment are displayed.

New tasks can be added by pressing F6 (Add). You can also change, copy, delete, or display tasks by specifying the relevant option number in the corresponding option column.

Adding a Program Task
You create a new task by pressing F6 (Add) on Administer Menus.

```
APD/ADMMNU                      Add Task

  Installation  . :              Default Installation


Type choices, press Enter.

  Application . . . . . . .   PAY___       F4 for list

  Task . . . . . . . . . . .  PAYCHECK__

  Task type . . . . . . . .   P            B=Menu bar
                                           C=Command
                                           D=Pull-Down
                                           L=Process list
                                           M=Menu
                                           P=Program

  Type of processing . . . .  I            B=Batch processing
                                           I Interactive processing


F3=Exit   F4=Prompt   F12=Cancel
```

Figure 22. Add Task (Page 1, Application)

There are six possible task types. The following shows how to create a program task. Enter the information:

Application

The name of an existing application for which you want to create the new task. This is a required field. This field is supported by F4 (Prompt).

Task

The name of the new task. In the example in Figure 22 on page 35, the task is PAYCHECK. This is a required field.

Note: This becomes the expert code of the task.

Task type

Valid task types are:

B Menu bar
C System command
D Pull-down
L Process list
M Menu
P Program.

To create a program task, enter a P in this field. This is a required field.

Type of processing

Valid processing types are:

B Batch
I Interactive.

This is a required field.

Note: Only program, command, and process list tasks can be processed as batch tasks.

Press Enter for the second page of Add Task.

Batch and Interactive

The following three displays are identical for both batch and interactive tasks.

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│   APD/ADMMNU                        Add Task                          │
│                                                                       │
│    Installation  . :            Default Installation                  │
│    Application . . :   PAY       Payroll                              │
│    Task  . . . . . :   PAYCHECK   Type . . :   P       Processed . . :   I │
│                                                                       │
│   Type choices, press Enter.                                          │
│                                                                       │
│    Task text . . . . . . . .    Payroll_application_pay_checks_____ │
│                                                                       │
│    Short text      . . . . .    _____                   │
│                                                                       │
│    Authorization . . . . . .    _____      F4 for list           │
│                                                                       │
│    Help text                                                          │
│                                                                       │
│       Panel group   . . . . .   _____                           │
│       Help module   . . . . .   _____                           │
│                                                                       │
│                                                                       │
│                                                              More...   │
│                                                                       │
│   F3=Exit    F4=Prompt    F12=Cancel                                  │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 23. Add Task (Page 2, Task Text)

Enter the following information:

Task text

Descriptive text for the task.

When the menu is displayed, this text appears in the information text line. This field must be filled.

Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

Short text

An abbreviation of the descriptive text used in pull-downs. If this field is not filled, the first 20 characters of the Task text are used for the pull-down window at run time.

Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

Authorization

The name of an existing authorization list that controls access to this task. This field is supported by F4 (Prompt).

Help text

The Help source for this task is specified with these fields. Because different Help types are available, depending on the definition of the application, both prompt texts are output fields, which are filled with the respective values during run time:

Table 1. Help Sources

Source	First field	Second field
No Help	---	---
OfficeVision/400 folder	Document	Label
OS/400 library	Display file	Record
UIM	Panel group	Help module
User exit	Identifier 1	Identifier 2

If no Help is specified for this application (Help type = 0), the fields are not displayed.

Note: The application developer determines which of the Help alternatives applies to this application. For details, see *IBM Application Program Driver/400 Version 3: Developer's Guide.*

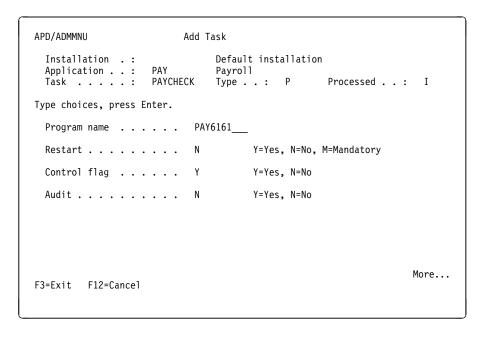Press F8 (Page Down) for the third page of `Add Task`.

```
 APD/ADMMNU                    Add Task

  Installation  . :             Default installation
  Application . . :   PAY        Payroll
  Task  . . . . . :   PAYCHECK   Type . . :   P      Processed . . :   I

 Type choices, press Enter.

   Program name  . . . . . .   PAY6161___

   Restart . . . . . . . . .   N          Y=Yes, N=No, M=Mandatory

   Control flag  . . . . . .   Y          Y=Yes, N=No

   Audit . . . . . . . . . .   N          Y=Yes, N=No




                                                                    More...
  F3=Exit    F12=Cancel
```

Figure 24. Add Task (Page 3, Program Name)

Enter the following information:

`Program name`
> The name of the program to be called by this task.
>
> **Note:** This must be an existing program name within the named application. APD/400 does not check for its existence. This is a required field.

`Restart`
> This is a required field. Valid values are:
>
> **Y**   Normal restart control. APD/400 notifies the user if a task with this definition fails.
>
> **N**   No restart control. APD/400 does not notify the user if a task with this definition fails.

M   Mandatory restart. A task with this definition must be selected for restart if it has failed.

> **Note:** A job can be restarted using `Work with Canceled Jobs`. See *IBM Application Program Driver/400 Version 3: User's Guide* for a description of this function.

`Control flag`

A flag defined for the task that is passed to the application program. See *IBM Application Program Driver/400 Version 3: Developer's Guide* for more details on this flag.

`Audit`

N =   No audit records are written for this application during the processing of this task.

Y =   Audit records are written and stored.

The default for this field is " " (blank). If you leave the field blank, APD/400 uses the audit value of the application to which the task belongs (this can be set using the `Administer Applications` function). If you specify `N` or `Y`, the application level definition is overwritten. For more information on auditing, see "Auditing in APD/400" on page 113.

Press F8 (Page Down) for the fourth page of the `Add Task` display.

```
APD/ADMMNU                      Add Task

  Installation  . :            Default installation
  Application . . :   PAY       Payroll
  Task  . . . . . :   PAYCHECK  Type . . :   P      Processed . . :   I

Specify parameter, if required.  Press Enter.

  _____
  _____
  _____
  _____
  _____
  _____
  _____
  _____
  _____




                                                              Bottom
  F3=Exit    F11=Alternate view    F12=Cancel

```
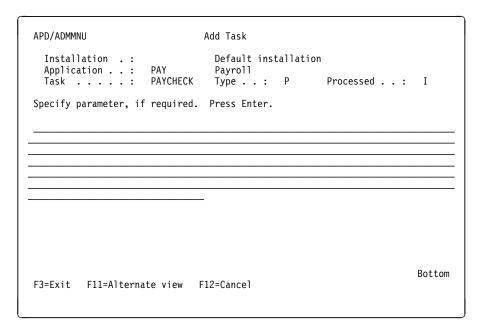
Figure 25. Add Task (Page 4, Parameters)

The (optional) parameter entered here is not defined by APD/400 but by the program that is to be run by this task. The parameter is used as the interface and contains definitions needed for the running of the program. For more information, see *IBM Application Program Driver/400 Version 3: Developer's Guide*.

F11 shows an alternate view of this display that you would use if the parameter to pass to the program contains items for which the meaning is position-dependent on the item in the parameter.

```
APD/ADMMNU                      Add Task

  Installation  . :             Default installation
  Application . . :    PAY       Payroll
  Menu module . . :    PAYCHECK  Type . . :   P       Processed . . :   I

Specify parameter, if required.  Press Enter.

           ----+----1----+----2----+----3----+----4----+----5
  1 -  50  _____
 51 - 100  _____
101 - 150  _____
151 - 200  _____
201 - 250  _____
251 - 300  _____
301 - 350  _____
351 - 400  _____
401 - 450  _____
451 - 500  _____
501 - 512  _____

                                                        Bottom
F3=Exit    F11=Alternate view    F12=Cancel
```

Figure 26. Add Task (Page 4, Alternate View)

The DBCS alternate view has a different format consisting of one field. An
insertion on this display moves forward existing text on all subsequent lines.

```
APD/ADMMNU                      Add Task

  Installation  . :             Default installation
  Application . . :    PAY       Payroll
  Menu module . . :    PAYCHECK  Type . . :   P       Processed . . :   I

Specify parameter, if required.  Press Enter.

----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

                                                        Bottom
F3=Exit    F11=Alternate view    F12=Cancel
```
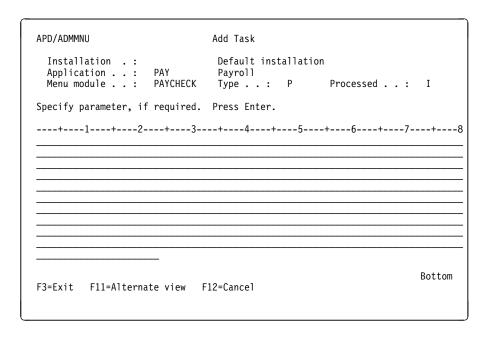
Figure 27. Add Task (Page 4, DBCS Display)

If you are defining an interactive program task (Bottom is shown at the bottom of
the display), press Enter to create the new task. Administer Menus is redisplayed.

If you are defining a batch program task (More is shown at the bottom of the
display), press F8 (Page Down) to display the fifth page of Add Task.

```
  APD/ADMMNU                      Add Task

    Installation  . :             Default installation
    Application . . :   PAY        Payroll
    Task  . . . . . :   PRTCHECK   Type . . :   P       Processed . . :   B

  Type choices, press Enter.

    Batch environment  . . . . .   BATCH1___  F4 for list

    Parameter program  . . . . .   _____

    Initial status . . . . . . .   RDY        RDY=Ready, HLD=Hold
    Suggested submit time  . . .   12:50      HH:MM
    Show confirmation display. .   Y          Y=Yes, N=No
    Message at schedule time . .   Y          Y=Yes, N=No

    Show a display at schedule time for
      Submit time  . . . . . . .   Y          Y=Yes, N=No
      Batch environment  . . . .   Y          Y=Yes, N=No
      Parameter entry  . . . . .   Y          Y=Yes, N=No
                                                                    Bottom
  F3=Exit    F4=Prompt    F12=Cancel
```

Figure 28. Add Task (Page 5, Batch)

Enter the following information:

Batch environment

> Enter the name of an APD/400 batch environment, or leave the field blank.

> If you want to specify an environment that the user is not allowed to change at schedule time, specify an environment here and N for Batch environment at the bottom of the display.

> If you want the user to be able to define an environment at schedule time, but want to suggest a batch environment here, specify an environment and Y for Batch environment at the bottom of the display.

> If you do not know which environment may be appropriate for the user at schedule time, leave this field blank and specify Y for Batch environment at the bottom of the display.

> This field is supported by F4 (Prompt).

Parameter program

> Enter the name of a parameter program, or leave the field blank.

> **Note:** If you enter the name of a parameter program, it must already exist in the system.

> If the batch job you are defining requires a detailed parameter, use an application program to create the parameter. The application program can be called by APD/400 at schedule time, request data from the user, check the data, and build the parameter. For more information, see the description of the Overwrite Batch Task Parameter (BCHPRM) user exit in *IBM Application Program Driver/400 Version 3: Developer's Guide*.

> The application developer will supply the program name to be entered here.

Initial status

Enter the initial status of the job when it is scheduled.

Specify RDY to allow the APD/400 monitor to submit the job at the planned time. This is the value you will normally use.

Specify HLD to ignore the Submit time. If HLD is specified, the APD/400 monitor ignores the submit time until the user or the OS/400 operator changes the state to RDY using the `Work with Scheduled Jobs` (WRKSCDJOB) function.

Suggested submit time

Enter a time or leave this field blank.

If you want the batch job you are defining to run only at a specific time of day, enter that time here and specify `N` for the `Submit time` at the bottom of the display.

If you want the batch job you are defining to always run immediately, leave this field blank and specify `N` for the `Submit time` at the bottom of the display.

If you want the batch job you are defining to run at a specific time of day but want the user to be able to change this, enter the time here and specify `Y` for `Submit time` at the bottom of the display.

If you want the batch job you are defining to run at any time of day, leave this field blank and specify `Y` for `Submit time` at the bottom of the display. In this case, APD/400 suggests the schedule time as submit time, which implies that the job will run immediately. If you want to specify midnight, enter `00:00`.

Show confirmation display

Enter `Y` or `N`. This value is used only if you do not specify a parameter program, and specify `N` for all prompts under `Show a display at schedule time`.

In this case, if you specify `N`, a user may select the task and submit a batch job without having to confirm.

Alternatively, if you specify `Y` and a user selects the task, a display is shown to allow the user to cancel the task.

Message at schedule time

Enter `Y` or `N`. When a user schedules a batch job, APD/400 sends a message confirming that it has accepted the batch job.

If an application program was used to enter parameters, this program may have already issued a similar message. In this case, specify `N` to avoid the APD/400 message.

Show a display at schedule time for Submit time

Enter `Y` or `N`. If, at schedule time, the user is allowed to enter the submit time, enter `Y` here. If you enter `N`, the user, at schedule time, sees the submit time but is not allowed to change it.

Entering `Y` here also allows the user to select a timetable for this batch task, when the task is submitted, to make it a recurring job.

Show a display at schedule time for Batch environment

Enter `Y` or `N`. If, at schedule time, the user is allowed to select a batch environment, enter `Y` here. If you enter `N`, the user sees the `Batch environment` name that you have entered in the top part of this display but is not allowed to change it.

Show a display at schedule time for Parameter entry
    Enter Y or N. On the previous display, you specified a parameter value that is
    now part of the task. If, at schedule time, the user is allowed to enter or
    change that parameter value, enter Y. If you enter N, the user does not see the
    display that allows modification of the parameter value.

When you press Enter, a task representing a batch job is stored in APD/400, and
Administer Menus is redisplayed.

Adding a Command Task

The first steps taken to create this task type are the same as those for program
tasks, except that the task type input on the first page of the Add Task display is C
(Command).

The second through fourth pages of the Add Task display are the same as those
for program tasks except for the following:

1. The third page shows only the Restart and the Audit fields for input.

2. On the fourth page, you enter the command and its parameters. You can use
   F4 (Prompt) to select the command and parameters using the OS/400 prompt
   function. If you do not want the command to run immediately, you can also
   specify that the user completes the command specification using prompts.

If you are defining an interactive command task, press Enter to create the task.

If you are defining a batch command task, press F8 (Page Down) to display the
next page of the Add Task display. When you press the Enter key on this display,
a task to call a batch system command is stored in APD/400 and the Administer
Menus display reappears.

The following are two examples of commands you can use:

- STRPCCMD (Start PC command)
- STRS36PRC (Start System/36 procedure).

For more information on creating tasks, see "Adding a Program Task" on page 35.

Special Tasks: Three tasks are supplied with APD/400. These tasks can only be
added to pull-downs.

*F04   Calls the Select Expert Code function in the same way as pressing F4
        (Prompt) on a menu display.

*F11   Switches between a menu option display area with and without expert
        codes, in the same way as pressing F11 (Expert code) on a menu display.

*F23   Selects the current menu as the initial menu, in the same way as pressing
        F23 (Set initial menu) on a menu display.

These tasks are special tasks. If they are deleted they cannot be re-created
because Administer Menus does not accept names beginning with an asterisk (*).

Adding a Process List Task

The first steps taken to create this task type are the same as those for program tasks, except that the task type input on the first page of the `Add Task` display is L (Process list).

The second page of the `Add Task` display is the same as for program tasks. In addition, you can press F10 to specify the tasks required for the process list (see "Adding Options to a Menu or Process List" on page 45).

If you are defining an interactive process list task, you see the word `Bottom` in the lower right corner of the display. Press Enter to create the new task.

Note: Interactive process lists can contain both interactive and batch tasks.

If you are defining a batch process list, you see `More` in the lower right corner of the display. Press the Page Down key to display the Batch page of `Add Task`. On this display, you can also press F10 to specify tasks for the process list.

Note: Batch process lists can contain only batch tasks.

When you press Enter, a task representing a batch process list is stored in APD/400 and the `Administer Menus` display reappears.

For more information on creating tasks, see "Adding a Program Task" on page 35.

Adding a Menu Task

The first steps taken to create this task type (a menu option that calls another menu) are the same as those for program tasks, except that the task type input on the first page of the `Add Task` display is M (Menu), and the type of processing must be I (Interactive).

The second page of the `Add Task` display is the same as that for program tasks.

If you press Page Down, the third page of the `Add Task` display appears:

```
APD/ADMMNU                      Add Task

  Installation  . :           Standard Installation
  Application . . :   APD      Application Program Driver
  Task  . . . . . :   ADMMDTA  Type . . :   M          Processed . . :   I

Type choices, press Enter.

  Menu heading format name  . . .    _____    F4 for list

  Menu bar. . . . . . . . . . .     MENUBAR___   F4 for list

  Menu usable as window . . . . .    Y            Y=Yes, N=No




                                                               Bottom
  F3=Exit    F4=Prompt   F10=Option list   F12=Cancel
```

Figure 29. Add Task (Page 3 for Menus)

Enter the following information:

`Menu heading format name`

>> The name of the menu heading format that is to be used for the menu task. The format you specify overrides APD/400's standard heading format and any format specified for the application. This field is supported by F4 (Prompt).

>> **Note:** Menu heading formats are not used for pull-downs and menu windows.

`Menu bar`   The menu bar to be used on the menu you are creating. This field is supported by F4 (Prompt).

`Menu usable as window`

>> Whether or not the menu you are creating can be used as a window.

When you press Enter, a task representing a menu is stored in APD/400. `Administer Menus` is redisplayed.

On `Add Task`, you can also press F10 to specify the menu options (see "Adding Options to a Menu or Process List").

For more information on creating tasks, see "Adding a Program Task" on page 35.

Adding Options to a Menu or Process List

On the second or third page of `Add Task` (or the first or second page of `Revise Task`), you can press F10 to obtain the `Administer Options` display.

Note: The options list is empty for a newly created menu or process list.

```
  APD/ADMMNU                  Administer Options

    Installation  . :                 Default installation
    Application . . :     PAY          Payroll
    Task  . . . . . :     PAYMAIN      Main for Payroll
    Type  . . . . . :     M            Processed . . :    I

  Type options, press Enter.
    2=Change    4=Delete    5=Display

  Option  Task           Application  M-Opt  Type  Proc. Text
    _     PAYCHECK       PAY             1     P     I     Payroll_application_pay_
    _     PRTCHECK       PAY             3     P     B     Payroll_application_prt_




  F3=Exit   F5=Refresh   F6=Add Option   F16=Power Input   F24=More Keys

```

Figure 30. Administer Options

From this display, you can add, delete, and display the tasks that make up a menu or process list, and also change their sequence. For menus and process lists, these tasks are called options. You can also insert subheadings into menus using F14 (Subheadings), or simulate a menu display using F10 (Simulate).

You can use separate functions to add tasks, delete tasks, and change the
sequence of tasks, or you can use power input (see "Using Power Input" on
page 47), which is a combination of these functions.

Adding Tasks: To add tasks to a menu, pull-down, or process list, press F6 (Add
Option) on Administer Options. The Add Option display appears.

```
APD/ADMMNU                    Add Option

   Installation  . :             Default installation



 Type choices, press Enter.

   Application . . . . . . .    PAY____      F4 for list

   Task  . . . . . . . . . .    PAYTEST___   F4 for list

   Option number . . . . . .    _2




 F3=Exit    F4=Prompt   F12=Cancel
```

Figure 31. Add Option

Enter the following information:

Application
>   The name of the application for which the task to be added has been created.
>   This allows you to add a task from a different application than the one for which
>   this menu, pull-down, or process list has been created. This field is supported
>   by F4 (Prompt).

Task
>   The name of the task to be added. This field is supported by F4 (Prompt).

Option number
>   The option number to be assigned to the task. For a process list, this number
>   determines the sequence in which the tasks are processed. The lowest
>   number available is displayed.

Press Enter to add the task to the menu, pull-down, or process list. Administer
Options is redisplayed.

Changing Task Sequence: Specify option 2 (Change) in the option column on
Administer Options to change the sequence of the menu or pull-down options, or
the sequence in which the tasks of a process list are processed. You can change
the sequence for only one task at a time. The Revise Option display appears.

On this display, you can change the option number (within a menu or pull-down) or
the sequence number for processing (within a process list). Press Enter to save
the change. The Administer Options display reappears.

Deleting a Task: To delete tasks from a menu, pull-down, or process list, specify option 4 (Delete) on the `Administer Options` display. The `Delete Option` display appears. Press Enter to confirm the deletion.

Note: By using this function, you only remove the task from the menu, pull-down, or process list; the task itself is not deleted.

Displaying a Task: Specify option 5 (Display) on `Administer Options` to display a task.

Using Power Input: Power input is a combination of the functions described in "Adding Tasks", "Changing Task Sequence", and "Deleting a Task". Using power input, you can access all these functions on one display.

To use power input, press F16 on the `Administer Options` display. The `Administer Menus` display appears.

```
 APD/ADMMNU                    Administer Menus

   Task . . . :   PAYMAIN      Main for Payroll

 Type options, press Enter.

 To add a task to menu, type an option number between 1 and 99.
 To change position of a task, type over the option number.
 To remove a task, space over the option number.

 Option  Task        Text                         Type  Exec. Appl.
   01    PAYCHECK     Payroll application pay checks    P    I     PAY
   02    PAYTEST      Payroll test check printing       P    I     PAY
   03    PRTCHECK     Payroll application print checks   P    B     PAY
   __    PRTBONUS     Payroll application bonus print    P    B     PAY
   __    PRTSICK      Payroll application sick pay       P    B     PAY
   __    PRTOVER      Payroll application overtime       P    B     PAY




 F3=Exit   F5=Refresh   F12=Cancel    F17=Position to   F18=Subset
```
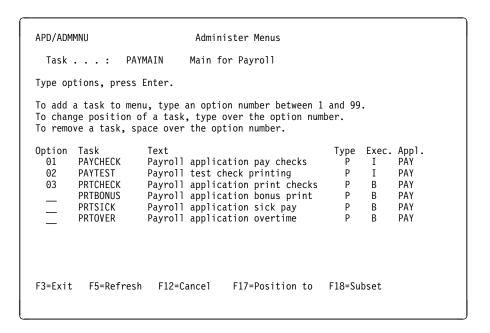
Figure 32. Administer Menus

This display shows all the tasks that you can use in menus, pull-downs, or process lists. The current option numbers of the tasks in the menu, pull-down, or process list, if any, are displayed. These tasks are displayed at the top of the list. All tasks are displayed even if they do not match a subset you define by pressing F18 (Subset).

You can enter the option numbers or processing sequence numbers that you want to assign to the individual tasks of the menu, pull-down, or process list, change the position of a task by typing over the option number, or remove a task by typing over the option number with blanks.

Details on how to work with the Power input function are described in "Creating Your Own Personal Menu" in *IBM Application Program Driver/400 Version 3: User's Guide*.

Press Enter to finish revision of the task list. `Administer Options` reappears.

Simulating Menu Display: You can display a menu with its tasks by pressing F10 (Simulate) on `Administer Options` or `Display Task`.

```
 PAY/PAYMAIN                Main for Payroll

 Select one of the following:

      1. Payroll application pay checks
      3. Payroll test check printing
      4. Payroll application print checks











  Selection or expert code


  F3=Exit   F12=Cancel   F13=How to use this display
  This display is a simulation of menu PAY/PAYMAIN.
```

Figure 33. Simulate Menu Example

You see the design of your menu, but cannot change it on this display. You can check your Help text by using the Help key as you would on the actual menu display. If you need help for the simulation function, press F13.

Press F3 or F12 to end the simulation. The `Administer Options` display reappears.

Menu Subheadings
You can group together related options of a menu by inserting subheadings. If it is not the first line of a menu page or column, every subheading is preceded by a blank line. A subheading is displayed even if there are no options to be displayed for it because a user is not authorized to use them.

Adding a Menu Subheading: If you want to add a subheading to a menu, press F14 (Subheadings) on the `Administer Options` display. The `Add Menu Subheading` display appears.

```
  APD/ADMMNU                      Add Menu Subheading

    Installation  . :               Default Installation
    Application . . :    PAY         Payroll
    Task  . . . . . :    PAYCHECK    Payrolling application pay checks

  Type choices, press Enter.

    Menu subheading text . .    Paycheck Applications_____

    Display before
        option number  . . .   01







    F3=Exit    F12=Cancel

```

Figure 34. Add Menu Subheading

Enter the subheading text and the option number that follows the subheading.

Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

When you press Enter, `Administer Options` is redisplayed. Press F5 (Refresh) to see the new subheading at the position you specified.

Changing a Menu Subheading: Specify option 2 (Change) in the option column of the `Administer Options` display to mark the subheading to be changed. The `Revise Menu Subheading` display appears. Change the menu subheading text and the position of the subheading on the menu. Press Enter to save the changes and to return to the `Administer Options` display.

Deleting a Menu Subheading: Specify option 4 (Delete) in the option column of the `Administer Options` display to mark the subheading to be deleted. The `Delete Menu Subheading` display appears. To delete the subheading, press Enter.

Menus in Windows

"Adding a Menu Task" on page 44 describes how to specify that a menu can be used as a window. See *IBM Application Program Driver/400 Version 3: User's Guide* for an explanation of how to use menus in windows.

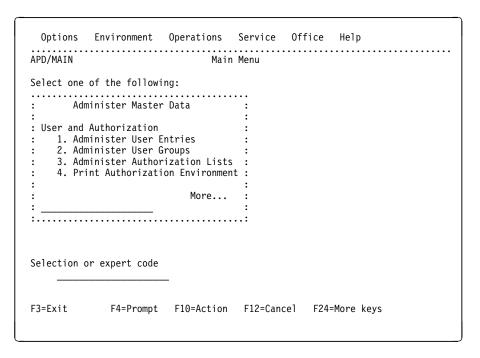Figure 35 on page 50 shows `Administer Master Data` in window format.

```
   Options   Environment   Operations   Service   Office   Help
..........................................................................
APD/MAIN                           Main Menu

Select one of the following:
 .......................................
 :          Administer Master Data           :
 :                                           :
 : User and Authorization                    :
 :    1. Administer User Entries             :
 :    2. Administer User Groups              :
 :    3. Administer Authorization Lists  :
 :    4. Print Authorization Environment :
 :                                           :
 :                           More...   :
 : _____            :
 :.......................................:



Selection or expert code
   _____



F3=Exit       F4=Prompt   F10=Action   F12=Cancel   F24=More keys
```

Figure 35. A Menu Window

Menus appear in window format if the user has called a menu defined as a menu window, and has turned on the window setting with SWTMNUWDW. Subheadings appear as in full-screen displays.

To switch control to the underlying full-screen display, press F12 (Cancel). F10 (Action) used from a menu window transfers control to the menu bar of the full-screen display.

Different colors can be selected for the following parts of a window:

- Title
- Menu option area
- More.../Bottom area
- Command line.

"Administering Applications" on page 85 describes how to specify window colors and styles.

The differences between full-screen menus and menu windows are:

- Format headings are not usable in menu windows

- Double-column menu layout in menu windows is not possible

- Initial menus, independent of whether they are defined as a window or not, are displayed in full-screen format.

Adding Menu Bar and Pull-Down Tasks

Creating a menu bar or pull-down task is similar to creating a menu. See *IBM Application Program Driver/400 Version 3: User's Guide* for a description of the displays for menu bars and pull-downs. The following lists the steps to create a pull-down and to assign it to a menu bar:

1. Create the tasks for the pull-down.

2. After the tasks for the pull-down are created (or already exist), create the pull-down itself.

3. Create the menu bar.

4. Define the pull-downs for the menu bar.

5. Finally, assign the menu bar to a menu.

These steps are now described in more detail:

Step One: Creating Tasks for the Pull-Down

Use `Add Task` to create tasks for the new pull-down. "Adding a Program Task" on page 35 describes how to create a task. For the tasks for a pull-down, all task types can be used except types B=Menu bar and D=Pull-down.

`Revise Task` and `Display Task` work in the same way as `Add Task`. They have the same body, function keys, and messages.

Step Two: Creating the Pull-Down

Creating a pull-down is done in the same way as creating a menu except that the task type is D=Pull down. "Adding a Program Task" on page 35 describes how to create a task.

Note: The maximum number of choices you can have on a pull-down is nine.

Step Three: Creating the Menu Bar

After the pull-downs for the menu bar are created, the menu bar is created to which these pull-downs are assigned. A menu bar is a task with the type B=Menu bar.
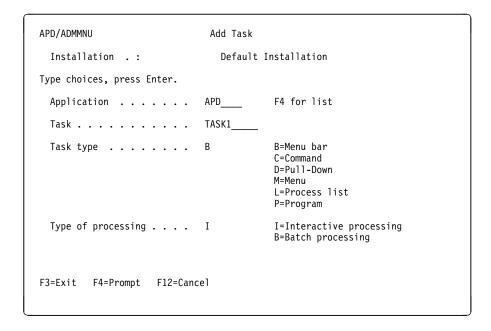
On `Administer Menus`, specify F6 (Add).

```
 APD/ADMMNU                      Add Task

   Installation  . :              Default Installation

 Type choices, press Enter.

   Application  . . . . . . .   APD____      F4 for list

   Task . . . . . . . . . . .   TASK1_____

   Task type  . . . . . . . .   B            B=Menu bar
                                             C=Command
                                             D=Pull-Down
                                             M=Menu
                                             L=Process list
                                             P=Program

   Type of processing . . . .   I            I=Interactive processing
                                             B=Batch processing



 F3=Exit   F4=Prompt   F12=Cancel
```

Figure 36. Add Task (Page 1): Creating a Menu Bar

Enter the application, task, task type (`B=Menu bar`), and type of processing (`I=Interactive processing`). When filling in the field `Type of processing`, the processing type B (`Batch processing`) cannot be specified for a task type B (Menu bar).

Step Four: Adding Menu Bar Choices to the Menu Bar

After entering the application, task, task type, and type of processing, the following display appears. Now that you have created the tasks for the pull-down, the pull-down itself, and the menu bar, you define the choices for the menu bar.

```
APD/ADMMNU                       Add Task

  Installation  . :               Default Installation
  Application . . :    APD         Application Program Driver
  Task  . . . . . :    APDDFT      Type . . :   B        Processed . . :   I

Type the descriptive text and assign the menu bar choices to the menu bar.
Enter the choice text for each choice that appears in the menu bar.
Determine the corresponding application and pull-downs.  Both fields are
supported with the F4=Prompt key.  Then press Enter.

  Descriptive text . . . . .    Default APD menu bar_____

  Choice    Choice text      Application     Pull down
    1       Options___       APD____         CHOICE1____
    2       Environment      APD____         CHOICE2____
    3       Operations_      APD____         CHOICE3____
    4       Services__       APD____         CHOICE4____
    5       Office____       APD____         CHOICE5____
    6       Help_____       APD____         CHOICE6____

F3=Exit    F4=Prompt    F12=Cancel
```

Figure 37. Adding Menu Bar Choices to the Menu Bar

Enter the following information:

`Descriptive text` Descriptive menu bar text, used only for administration purposes. The administrator describes the menu bar in this field.

> **Note:** You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

`Choice text` Text for the choices. This text appears in the menu bar. There is a choice text for each choice listed.

The assignments of menu bar choices are entered in the table. Press Enter and the rows are ordered so that there are no empty rows between choices.

When the menu bar is changed, the new order is presented.

> **Note:** You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119. Because of the limited space, you must use the short form of the &msg symbol.

`Application` The application to which the task belongs. This field is supported by F4 (Prompt).

Pull down   The pull down that is assigned as a menu bar choice. This field
                     is supported by F4 (Prompt).

                     Only tasks with the task type `D=Pull-down` are presented.

`Revise Task` works in the same way as `Add Task`. It has the same body, function
keys, and messages.

Displaying Menu Bar Options: You can display the choices you entered for the
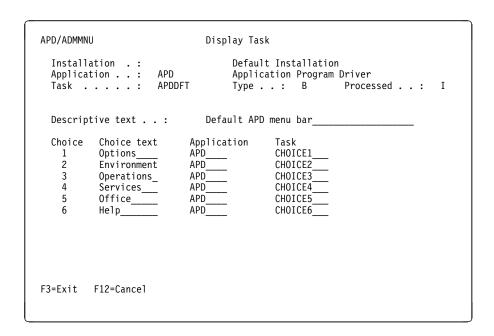menu bar with `Display Task`.

```
 APD/ADMMNU                        Display Task

   Installation  . :              Default Installation
   Application . . :    APD        Application Program Driver
   Task  . . . . . :    APDDFT        Type . . :   B       Processed . . :   I


   Descriptive text . . :        Default APD menu bar_____

   Choice    Choice text      Application      Task
     1       Options____      APD____          CHOICE1___
     2       Environment      APD____          CHOICE2___
     3       Operations_      APD____          CHOICE3___
     4       Services___      APD____          CHOICE4___
     5       Office_____      APD____          CHOICE5___
     6       Help_____      APD____          CHOICE6___




   F3=Exit    F12=Cancel

```

Figure 38. Display Task: Choices for Menu Bar

The menu bar with the assigned choices is displayed.

Step Five: Assigning the Menu Bar to a Menu

`Administer Menus` has been enhanced to include the field `Menu bar` if the maintained task type is a menu.

Menu bars are defined as follows:

1. If no menu bar is defined at menu level, the menu bar at application level is used (see "Administering Applications" on page 85).

2. If no menu bar is defined at application level, the menu bar at APD/400 level is used.

3. If no menu bar is defined at APD/400 level, a message is displayed that no menu bar is available.

You can add a menu bar to a menu on the third page of `Add Task` (or the second page of `Revise Task`). On this display, enter the name of the menu bar in the `Menu bar` field. The menu bar you specify is displayed when the menu is activated.

Changing a Task

Specify option `2` (Change) in the corresponding option column of `Administer Menus` to display `Revise Task`. Its layout and display sequence is the same as `Add Task`. Use F8 (Page Down) to proceed through the page displays. When you have made all necessary changes, press Enter to save the changed task.

Copying a Task

Specify option `3` (Copy) in the corresponding option column on `Administer Menus` to display `Copy Task`.

Copying a task copies the data of an existing task as the basis for a new one, and may be used to create new tasks that are similar to existing ones.

Enter the name of the target application, a new task name (or both), and specify how the task is to be processed (Batch or Interactive).

Press Enter to see all the `Revise Task` displays that would appear if you specified `2` (Change) to change a task for this combination of task type and processing type. On these displays, you can change the copied values.

Note: When you copy a task, and the `From Application` differs from the `To Application`, the values for `Menu heading format name` and `Menu bar` are not copied (because they may not exist in the `To Application`). Both are set to blank. The Help fields are copied only if the Help type of the two applications is the same. When you have entered all your changes, press Enter to save the task.

Deleting a Task

Specify option `4` (Delete) in the corresponding option column of `Administer Menus` to display `Delete Task`. To confirm deletion of the task, press Enter.

Displaying a Task

Specify option 5 (Display) in the corresponding option column of `Administer Menus` for `Display Task`.

Administering Menu Heading Formats

`Administer Menu Heading Formats` enables you to design your own menu headings instead of using APD/400's standard heading layout. The formatted headings you create are not usable in windows. Here, heading is defined as the first three lines of a menu.

For special considerations for multilingual support headings, see Appendix B, "Multilingual Support" on page 119.

You can specify the heading format to be used:

* For all menus of an application, on the second page of `Change Application Entry` (see "Administering Applications" on page 85).

* For a single menu, on the third page of `Add Task` or on the second page of `Revise Task` (see "Adding a Menu Task" on page 44).

A heading format specified for a single menu overrides the heading format specified for the application.

Once you have defined a heading format, you can select it on the displays for as many menus as required.

To work with `Administer Menu Headings`, specify 6 on the `Administer Master Data` menu or enter the expert code ADMHDG. APD/400 displays the following:

```
 APD/ADMHDG                  Administer Menu Headings

  Type options, press Enter
    2=Change   3=Copy   4=Delete


  Option   Menu heading  Application  Text
    _       MAIN          APD          Main Heading for APD
    _       PAYROLL       PAY          Main Heading for Payroll













   F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to

```

Figure 39. Administer Menu Headings

This display shows the names of all available menu heading formats. You can add, change, copy, and delete menu heading formats.

Adding a Menu Heading Format

To add a menu heading format, press F6 (Add) on the `Administer Menu Headings` display. `Add Menu Heading Format` is displayed.

```
APD/ADMHDG                  Add Menu Heading Format

  Installation  . :              Default installation


Type choices, press Enter.

  Application name  . . . . . . .   PAYROLL  F4 for List

  Menu heading format name  . . .   DEP01_____








  F3=Exit    F4=Prompt    F12=Cancel

```

Figure 40. Add Menu Heading Format

Enter the following information:

Application name
: The ID of an existing application. The menu heading format is valid only for this application. This field is supported by F4 (Prompt).

Menu heading format name
: The name for the new menu heading format.

Press Enter to display `Revise Menu Heading Format`.

```
  APD/ADMHDG                    Revise Menu Heading Format

   Installation  . . :                   Default installation
   Application . . . :    PAY            Payroll
   Menu format . . . :    DEP01

  Type choices, press Enter.

   Menu heading text . . .   Department_01_____

   Menu heading
    format details . .
  _____
  &EEEEEEEEEEEEEEEEEE  &HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
                                        &FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
   (Heading text) &msgMSG0001

  _____
  ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7 ...+... 8



  F3=Exit   F5=Refresh   F10=List var.   F12=Cancel   F18=Change attr.
```

Figure 41. Revise Menu Heading Format

Enter the following information:

Menu heading text
    Descriptive text for the menu heading format.

Notes:

1. This text does not appear on the menus; it is only intended to help you identify the format.

2. You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

Menu heading format details
    This input area represents the first three lines of a menu. You can design your menu heading format by specifying constants, variables, and message (&msg) constants. For each constant or variable, you can specify display attributes by pressing F18 (Change attributes). For details of display attributes, see "Changing Display Attributes" on page 58.

    The first character position of the first line and the last character position of the third line must be blank. A constant or variable does not need to start in column 1, and you can use more than one constant or variable. Always leave one space between each constant or variable.

Specifying Constants: A constant is text displayed exactly the way you enter it on this display. A space is considered as the end of the constant. If your constant includes at least one space, enclose the constant within a pair of single quotes (') to indicate the beginning and end of the constant, for example **'Select option'**. The single quotes are not displayed on the actual menu.

Specifying Variables: List Menu Heading Variables shows the variables that can be entered in a heading format. It displays when you press F10 on Revise Menu Heading Format. When the actual menu is displayed, the variables are substituted with the current value of the corresponding item in the Description column. In

addition, this display shows the maximum length of each variable and, in some cases, information on the source of the data that substitutes the variable.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                         │
│   APD/ADMMNU               List Menu Heading Variables                   │
│                                                                         │
│  Choose from the following:                                             │
│                                                                         │
│       Code    Description                  Length      Format            │
│        &A     Application code                7                          │
│        &B     Application name               40                          │
│        &C     Data-set code                   4                          │
│        &D     Date                           10                          │
│        &E     Expert code                    18       &A/&M              │
│        &F     Formatted Installn/Company     34       &I/&C (right adjust)│
│        &H     Menu heading (centered)        46                          │
│        &I     Installation code               3                          │
│        &J     Job number                      6       RTVJOBA/NBR        │
│        &K     Installation name              40                          │
│        &L     Menu heading (left-adjusted)   46                          │
│        &M     Task name                      10                          │
│        &N     Data-set name                  40                          │
│        &S     System name                    10       RTVNETA/SYSNAME    │
│        &T     Time                            8                          │
│        &U     User ID                        10       RTVJOBA/USER       │
│        &W     Workstation/Job ID             10       RTVJOBA/JOB        │
│  F3=Exit    F12=Cancel                                                   │
│                                                                         │
│                                                                         │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 42. List Menu Heading Variables

Note: You cannot select variables on this display; it is only for information.

On the actual menu, any variable is displayed at the position of the ampersand (&) you enter on the `Revise Menu Heading Format` display. If you press Enter after typing a variable, the system extends it to its maximum length, for example, **&A** is extended to **&AAAAAA**.

You can shorten a variable's standard display length by entering as many characters of the variable name as you want to be displayed (minimum three). For example, type **&AAA** to display only the first four characters of the application ID. For many variables, however, shortening display length results in a loss of information.

Consider the maximum length when entering variables. If variables are overlapping each other, the first variable overwrites the following variables and constants. For example:

&E   &C   Select option

appears as:

&EEEEEEEEEEEEEEEE option.

Specifying Message Constants: See Appendix B, "Multilingual Support" on page 119 for a description of how to use message constants in menu headings.

Changing Display Attributes: If you do not specify a display attribute for a new variable or constant, it appears as normal (on monochrome displays) or in green (on color screens). If you want to accept this as a new constant or variable, or you do not want to change the attribute for an existing constant or variable, press Enter

to complete the definition process. In this case, `Revise Menu Heading Format`
displays with the variables and constants appearing with their maximum lengths.
The heading format has been stored and can be specified for menus on application
level or menu level.

If you want to specify other display attributes, press **F18** on the `Revise Menu`
`Heading Format` display to call the `Select Display Attributes` display for the first
constant or variable.

```
                        Select Display Attributes

     Installation  . . . :             Default Installation
     Application . . . . :   PAY       Payroll
     Menu format . . . . :   DEP01     Department 01

     Constant/Variable . :   &EEEEEEEEEEEEEEEEEE
     Length  . . . . . . :   018         Row . . . :   1    Column  . . :   002

   Type choice, press Enter.

     Attribute . . . . . .   01          Monochrome
                                         01    02    03    04    05

                                         Color
                                         01    02    03    04    05    06

                                         07    08    09    10    11    12

                                         13    14    15    16    17


     F3=Exit    F12=Cancel
```

Figure 43. Select Display Attributes

The different colors and effects are shown against each option on the display. For
example, 01 is displayed as green, normal image. Select the display attribute for
the field by entering the corresponding number.

If you press Enter, `Select Display Attributes` appears for the next variable or
constant, or, if there are no more, the `Revise Menu Heading Format` reappears with
the variables shown with their maximum lengths. The new heading format has
been stored and can be specified for menus on application level and menu level.

Changing a Menu Heading Format
To change an existing menu heading format, specify option `2` (Change) on
`Administer Menu Headings`. The `Revise Menu Heading Format` display appears.

On this display, you can change the heading text and the menu heading format
details.

Copying a Menu Heading Format
To copy an existing menu heading format, specify option `3` (Copy) on `Administer`
`Menu Headings`. `Copy Menu Heading Format` displays.

Enter the application and new menu heading format name for the copy, and press
Enter. `Revise Menu Heading Format` displays on which you can enter the menu
heading format details for the copy you are creating.

Deleting a Menu Heading Format

To delete a menu heading format, specify option 4 (Delete) on `Administer Menu Headings` for the format to be deleted. `Delete Menu Heading Format` displays, showing information for the selected heading format. To delete the heading format, press Enter.

Note: You can delete a menu heading format even if it is still used for a menu or an application. In this case, a warning message is issued.

Creating a Menu – Simple Example

Assume that on your AS/400 system you have installed APD/400 and an application called "Cost calculation" (COSCAL) with a program called "Show the Cost Calculation" (SC).

You want to add the SC program as option number 5 on APD/400's initial menu. You are the administrator of both applications.

Press F6 on `Administer Menus` for the `Add Task` display.

```
APD/ADMMNU                          Add Task

  Installation  . :              Default installation


Type choices, press Enter.

  Application . . . . . . .   COSCAL_     F4 for list

  Task  . . . . . . . . . .   SHOW_COSTS

  Task type . . . . . . . .   P           B=Menu bar
                                          C=Command
                                          D=Pull-down
                                          L=Process list
                                          M=Menu
                                          P=Program

  Type of processing  . . .   I           B=Batch processing
                                          I=Interactive Processing

F3=Exit    F4=Prompt    F12=Cancel
```

Figure 44. Add Task Example (Page 1, Application)

Enter the information as shown and press Enter. Enter information on subsequent displays as follows.

```
  APD/ADMMNU                        Add Task

    Installation  . :              Default Installation
    Application . . :   COSCAL      Test application
    Task  . . . . . :   SHOW_COSTS  Type . . :   P        Processed . . :   I

  Type choices, press Enter.

    Task text . . . . . . . .   Show the Cost Calculation_____

    Short text     . . . . .   _____

    Authorization . . . . . .   _____    F4 for list

    Help text

       Panel group   . . . . .   _____
       Help module   . . . . .   _____


                                                                    More...
  F3=Exit    F4=Prompt    F12=Cancel
```

Figure 45. Add Task Example (Page 2, Task Text)


```
  APD/ADMMNU                   Add Task

    Installation  . :              Default installation
    Application . . :   COSCAL      Test application 6
    Task  . . . . . :   SHOW_COSTS  Type . . :   P        Processed . . :   I

  Type choices, press Enter.

    Program name  . . . . . .   SC_____

    Restart . . . . . . . . .   N            Y=Yes, N=No, M=Mandatory

    Control flag  . . . . . .   N            Y=YES, N=No

    Audit . . . . . . . . . .   N            Y=Yes, N=No




                                                                    More...
  F3=Exit    F12=Cancel
```

Figure 46. Add Task Example (Page 3, Program Name)

```
APD/ADMMNU                    Add Task

  Installation  . :           Default installation
  Application . . :   COSCAL      Test application 6
  Task  . . . . . :   SHOW_COSTS  Type . . :   P        Processed . . :   I

Specify parameter, if required.  Press Enter.

_____
_____
_____
_____
_____
_____
_____
_____
_____



                                                                    Bottom
  F3=Exit    F11=Alternate view   F12=Cancel
```

Figure 47. Add Task Example (Page 4, Parameters)

Press Enter on this last display.

The `Administer Menus` display reappears. Specify `2` in the option column
corresponding to APD to display `Revise Task`, then press F10 (Option list) for
`Administer Options`.

```
APD/ADMMNU                  Administer Options

  Installation  . :             Default installation
  Application . . :   APD          Application Program Driver
  Task  . . . . . :   APD          Application Program Driver
  Type  . . . . . :   M            Processed . . :   I

Type options, press Enter.
  2=Change   4=Delete   5=Display

Option  Task        Application  M-Opt  Type  Proc. Text
        ADMMDTA     APD             1     M     I    Administer Master Data
  _     APLSRV      APD             2     M     I    Install and Delete Appl
  _     SAVRST      APD             3     M     I    Save and Restore Data
  _     EXTSRV      APD             4     M     I    Service Functions





  F3=Exit    F5=Refresh   F6=Add Option   F16=Power Input   F24=More Keys
```

Figure 48. Administer Options Example (1)

Press F6 (Add Option) to display `Add Option`. Specify the information shown and
press Enter.

```
APD/ADMMNU                    Add Option

  Installation  . :            Default installation




Type choices, press Enter.

  Application . . . . . . .   COSCAL_      F4 for list

  Task  . . . . . . . . . .   SHOW_COSTS   F4 for list

  Option number . . . . . .   _5






F3=Exit    F4=Prompt    F12=Cancel

```

Figure 49. Add Option Example

Administer Options displays with the added option after you press F5 (Refresh).

```
APD/ADMMNU                 Administer Options

  Installation  . :            Default installation
  Application . . :   APD      Application Program Driver
  Task  . . . . . :   APD      Application Program Driver
  Type  . . . . . :   M        Processed . . :   I

Type options, press Enter.
  2=Change   4=Delete   5=Display

Option  Task           Application  M-Opt  Type  Proc. Text
  _     ADMMDTA        APD            1      M     I    Administer Master Data
  _     APLSRV         APD            2      M     I    Install and Delete Appl
  _     SAVRST         APD            3      M     I    Save and Restore Data
  _     EXTSRV         APD            4      M     I    Service Functions
  _     SHOW_COSTS     COSCAL         5      P     I    Show the Cost Calculation




F3=Exit    F5=Refresh    F6=Add Option    F16=Power Input    F24=More Keys

```

Figure 50. Administer Options Example (2)

Press F10 to display the simulated initial menu with Show the Cost Calculation as
option number 5.

```
   Options   Environment   Operations   Services   Office   Help
 ................................................................................
 APD/APD                    Application Program Driver

 Select one of the following:

      1. Administer Master Data
      2. Install and Delete Applications
      3. Save and Restore Data
      4. Service Functions

      5. Show the Cost Calculation




 Selection or expert code

      _____

 F3=Exit        F4=Prompt   F10=Action   F12=Cancel   F24=More keys
 This display is a simulation of menu APD/APD.
```

Figure 51. Simulate Menu Example

This is only a simulation. However, if you enter APD on an APD/400 command line, APD/400's initial menu offers the cost calculation option.

Working with Exclusions

You define exclusions to determine which application functions cannot be processed simultaneously. Using exclusions, you can define mutually exclusive tasks. There are a number of reasons for different tasks not to be active simultaneously in an application. For example:

- A save operation should not be started while programs of an application are active or the files are being reorganized.
- In accounting, a daily balance cannot be made while transactions are still being entered.

If you want to specify that tasks A and B cannot run simultaneously, you can exclude task B so that it is not processed while task A is processing. APD/400 automatically generates the reverse exclusion; task A cannot run while task B is running.

These principles apply not only to tasks (functions) but also to OS/400 objects. For example, you can use the APD/400 exclusion function to define that if task B has locked certain OS/400 objects, task A cannot be processed because it needs to access the same objects. Because APD/400 locks the OS/400 objects contained in the object list, applications not running under control of APD/400 are able to determine whether they can process functions that need to access the same objects.

Because it is usually the case that more than two tasks or objects are excluding each other, APD/400's exclusion concept is based on exclusion lists. Exclusion lists combine tasks (in function lists) or objects (in object lists) with the same exclusion characteristics into groups. Only program and command tasks can be

included in exclusion lists. You make these task or object groups mutually exclusive by specifying the corresponding lists when defining exclusions.

The active exclusion list is the one that currently has at least one of its tasks processing or one of its objects being used; the entries of the excluded exclusion list cannot be processed or used.

The following table shows six different cases of exclusions:

Table 2. Exclusion Cases

Case	Active Application	Active Exclusion List	Excluded Application	Excluded Exclusion List	Exclusion Type
1	APP. 1	FL 1	APP. 1	FL 2	1
2	APP. 1	FL 1	APP. 1	FL 2	2
3	APP. 1	FL 1	APP. 1	UEX.PGM	3
4	APP. 1	FL 1	APP. 1	OL 1	1
5	APP. 1	FL 1	APP. 1	OL 1	2
6	APP. 1	FL 1	APP. 1	FL 1	1

Case 1 If a task that belongs to function list 2 (FL2) is being started, APD/400 checks to see if there is any active task in function list 1 (FL1). If there is, and if this task works with the same data set (exclusion type 1; exclusion types are explained in "Adding Exclusions" on page 67), the request is refused.

Case 2 If a task that belongs to function list 2 (FL2) is being started, APD/400 checks to see if there is any active task in function list 1 (FL1). If there is, and if this task works with any of the data sets of the application (exclusion type 2), the request is refused.

Case 3 If a task in function list 1 (FL1) in application 1 is being started, APD/400 calls the user-exit program UEX.PGM. This user exit determines whether or not the task can be processed.

Case 4 If a task that belongs to function list 1 (FL1) in application 1 is being started, APD/400 tries to allocate all objects as defined in object list 1 (OL1). If symbolic library names (described in *IBM Application Program Driver/400 Version 3: Developer's Guide*) are used in the object list, only objects in the data set libraries of the currently active data set that the user uses for application 1 are allocated.

Case 5 If a task that belongs to function list 1 (FL1) in application 1 is being started, APD/400 tries to allocate all objects as defined in object list 1 (OL1). If symbolic library names are used in the object list, objects in data set libraries of all data sets that the user uses for application 1 are allocated.

Case 6 If a task that belongs to function list 1 (FL1) is being started, APD/400 checks to see if there is already an active task in function list 1 (FL1). If there is, and if this task works with the same data set of the application, the request is refused. The task can run only once on the system.

For a description of the administration functions for exclusion lists, see "Administering Exclusion Lists" on page 68.

Note: If the setting Use Exclusion Checking is switched off for one application it may influence other applications depending on the exclusion definition.

Case 1: Tasks of the exclusion list EXCLST1 of application APPL1 exclude tasks of exclusion list EXCLST2 of APPL2.

The setting Use Exclusion Checking for application APPL2 is switched off.

Result: No exclusion checking will be performed.

Case 2: Tasks in exclusion list EXCLST1 of application APPL1 exclude all other tasks of any application.

The setting Use Exclusion Checking for application APPL1 is switched off.

Result: No exclusion checking will be performed.

Now the setting Use Exclusion Checking for other applications (APPLX) is switched off, and for application APPL1 it is switched on.

Result: Exclusion checking works, with the exception of tasks from an exclusion list of application APPLX.

Administering Exclusions

To work with the Administer Exclusions function, specify 7 on the Administer Master Data menu, or enter the expert code ADMEXC. APD/400 displays the following:

```
 APD/ADMEXC                      Administer Exclusions

   Installation . . :            Default Installation

 Type options, press Enter.
   2=Change   4=Delete   5=Display

 Option    ------- Active --------  --------- Excluded ----------   Exclusion
           Exclusion  Application  Exclusion   List Application      Type
            List                    List      Type
   _        PAYROLL    PAY          PAYROLL    *FCT   PAY             1
   _        PAYROLL    PAY          ADMTAP     *FCT   PAY             2
   _        PAYROLL    PAY          BALANCE    *OBJ   BOOK            2




 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to   F18=Subset
```

Figure 52. Administer Exclusions

On this display, you can select the exclusion you want to change, delete, or display. You can also press F6 (Add) to create a new exclusion.

Adding Exclusions

To create a new exclusion entry, press F6 (Add) on `Administer Exclusions`. `Add Exclusion` is displayed.

```
 APD/ADMEXC                    Add Exclusion

   Installation . . :          Default Installation

 Type choices, press Enter.

   Active:

     Application . .   PAY____      Name, F4 for list
     Exclusion list   PAYROLL___    Name, *ALL, F4 for list

   Exclusion type  .  1           1=Single data set
                                  2=All data sets
                                  3=User exit

   Excluded:

     Application . .   BOOK___      Name, *ALL, F4 for list
     Exclusion list   MONTHLY___    Name, *ALL, F4 for list



 F3=Exit   F4=Prompt   F12=Cancel
```

Figure 53. Add Exclusion

Enter the following information:

`Active Application`

> The name of the application for which the active exclusion list is to be valid. This field is supported by F4 (Prompt).

`Active Exclusion list`

> The name of the active exclusion list. When one or more of the entries in this list are being processed, the entries in the `Excluded Exclusion list` cannot be processed. Press F4 (Prompt) to see a list of existing function lists on `Work with Exclusion Lists`. Enter option 1 to select a function list. For a detailed description of the other functions available on this display, see "Administering Exclusion Lists" on page 68.

`Exclusion type`

> Valid exclusion types are:

> **1 =** Excludes one active data set of an application; shared use of a data set is not possible. The first user working with a data set excludes all other users from working with the data set. For example, this type could be used for the daily balancing of accounts.

> **2 =** Excludes all data sets of an application. The first user working with a data set excludes all other users from working with any other data set of the active application. For example, this type could be used for consolidating a balance sheet.

> **3 =** Calls a user-exit program. If you specify this type of exclusion, you must enter the name of the user-exit program in the `Excluded Exclusion list` field.

The developer of the application determines whether exclusions for the application are controlled by APD/400 (types 1 and 2), or by an application program (type 3).

Excluded Application
  The name of the application for which the Excluded Exclusion list is to be valid. This field is supported by F4 (Prompt).

Excluded Exclusion list
  The name of the exclusion list containing the entries that cannot be processed when at least one of the entries in the Active Exclusion list is being used. Press F4 (Prompt) to see a list of all exclusion lists on Work with Exclusion Lists.

  For exclusion type 3, specify the name of a user-exit program. Refer to *IBM Application Program Driver/400 Version 3: Developer's Guide* for a detailed description on how to use user-exit programs for exclusions.

Press Enter to create the new exclusion.

Changing Exclusions
To change an exclusion, select option 2 (Change) on Administer Exclusions. Change Exclusion is displayed.

Change the exclusion type and the excluded application and exclusion list. Press Enter to save the changes.

Deleting Exclusions
To delete an exclusion, select option 4 (Delete) on Administer Exclusions. The Delete Exclusion display appears. Press Enter to confirm deletion.

Displaying Exclusions
To display an exclusion, select option 5 (Display) on Administer Exclusions for Display Exclusion.

Administering Exclusion Lists
To work with exclusion lists, position the cursor on one of the Exclusion list input fields on the Add Exclusion or the Change Exclusion display, and press F4 (Prompt). The Work with Exclusion Lists display appears.

Note: If you press F4 with the cursor on the Active Exclusion list field of Add Exclusion, the Work with Exclusion Lists display shows only function lists, and not object lists.

```
APD/ADMEXC                 Work with Exclusion Lists

  Installation . . :            Default Installation

Type options, press Enter
  1=Select   2=Change   4=Delete

Option  Exclusion   List  Application  Exclusion List text
        List        Type

  _     PAYROLL     *OBJ  PAY          Payroll exclusion list 01




  F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to
```

Figure 54. Work with Exclusion Lists

On this display, you can:

- Add an exclusion list.
- Change an exclusion list.
- Delete an exclusion list.
- Select an exclusion list (as described in "Adding Exclusions" on page 67).

Adding an Exclusion List

To create a new exclusion list, press F6 (Add) on Work with Exclusion Lists. Add Exclusion List is displayed.

```
APD/ADMEXC                 Add Exclusion List

  Installation . . :            Default Installation



Type choices, press Enter.

  Application . . .   PAY___       F4 for list

  Exclusion list .   PAYROLL2__

  List type . . . .   *FCT         (*FCT, *OBJ)






  F3=Exit   F4=Prompt   F12=Cancel
```

Figure 55. Add Exclusion List

Enter the following information:

Application
The name of the application for which the exclusion list is valid. This field is
supported by F4 (Prompt).

Exclusion list
The name of the new exclusion list.

List type
Enter *FCT for a function list, or *OBJ for an object list.

Press Enter. The `Work with Function List` or `Work with Object List` display
appears, depending on the type of exclusion list you are creating.

```
APD/ADMEXC                 Work with Function List

  Installation . . :             Default Installation
  Application  . . :  APD         Application Program Driver
  Function list  . :  PAYROLL2

Type choice, press Enter.

  List text  . . . .  Payroll_exclusion_list_02_____




  F3=Exit    F12=Cancel
```

Figure 56. Work with Function List (List text)

On these displays (Figure 56 shows the function list display), you can enter
descriptive text for the new list in the `List text` field.

Note: You can enter &msg symbols in this field to retrieve text for a specific
language. For more information on multilingual support, see Appendix B,
"Multilingual Support" on page 119.

Press Enter again to display `Add Task to Function List` or `Add Object to Object
List`, depending on the type of list you are creating. This prevents you from
creating empty lists. For information on these displays, see "Adding Tasks to a
Function List" on page 71, and "Adding Objects to an Object List" on page 73.

Press Enter to create the new list.

Changing an Exclusion List

To change an exclusion list, select option `2` (Change) on `Work with Exclusion Lists`. If you select to change a function list, the `Work with Function List` display appears (see "Working with Function Lists"). If you select to change an object list, the `Work with Object List` display appears (see "Working with Object Lists" on page 72).

Working with Function Lists

If you select option `2` (Change) against a function list on `Work with Exclusion Lists`, the `Work with Function List` display appears.

```
 APD/ADMEXC                    Work with Function List

   Installation . . :             Default Installation
   Application  . . : PAY         Payroll
   Function list  . : PAYROLL2

 Type choice, press Enter.

   List text  . . . .  Payroll_exclusion_list_02_____

 Or select option number and press Enter.
   4=Delete

 Option    Task         Type  Proc. Task text
   _       PAYTEST        P     B    Payroll test paycheck print
   _       PAYPRT         P     B    Payroll application print paycheck




 F3=Exit   F6=Add   F12=Cancel   F17=Position to
```

Figure 57. Work with Function List (Tasks)

On this display, you see a list of all tasks that are currently included in the function list. You can add a task, delete a task, and change the text for the function list.

Note: To change a task, use the corresponding menu administration function (see "Changing a Task" on page 54).

Adding Tasks to a Function List: To add a task to a function list, press F6 (Add) on `Work with Function List`. `Add Task to Function List` is displayed.

```
 APD/ADMEXC                  Add Task to Function List

  Installation . . :              Default Installation
  Application  . . :  PAY         Payroll
  Function list  . :  PAYROLL2    Payroll exclusion list 02

Type choice, press Enter.

  Task  . . . . . .   _____    Name, F4 for list







  F3=Exit    F4=Prompt   F12=Cancel
```

Figure 58. Add Task to Function List

Enter the following information:

Task

> The name of an existing task to be added to the function list. This must be a
> task to call a program or a system command. You can include each task in
> only one function list. This field is supported by F4 (Prompt).

Press Enter to add the task to the function list.

Deleting Tasks from a Function List: To delete a task from a function list, select
option 4 (Delete) on the `Work with Function List` display.

Note: The task entry is deleted from the function list immediately; the task itself,
however, still exists on the system.

Working with Object Lists

If you select option `2` against an object list on `Work with Exclusion Lists`, `Work
with Object List` is displayed.

```
  APD/ADMEXC                    Work with Object List

    Installation . . :              Default Installation
    Application  . . : PAY          Payroll
    Object list  . . : PAYFILES

  Type choice, press Enter.

    List text  . . . .  All_payroll_files_____

  Or select option number and press Enter.
    2=Change   4=Delete

  Option   Object         Library       Type        Lock        Member
    _      PAYFILE        PAYLIB        *FILE       *EXCL       *FIRST




    F3=Exit   F6=Add   F12=Cancel   F17=Position to

```

Figure 59. Work with Object List

On this display, you see a list of all objects that are currently included in the object
list. You can:

- Add an object to the list.
- Change an object.
- Delete an object from the list.
- Change the text for the object list.

Adding Objects to an Object List: To add an object to an object list, press F6
(Add) on Work with Object List. Add Object to Object List is displayed.

```
  APD/ADMEXC             Add Object to Object List

    Installation . . :              Default Installation
    Application  . . : PAY          Payroll
    Object list  . . : PAYFILES     All payroll files

  Type choices, press Enter.

    Object  . . . . .  PAYBASE___   Name

    Library . . . . .  PAYLIB____   Name

    Object type . . .  *FILE__      *FILE, *AUTL, *CSPMAP, ...

    Lock state  . . .  *EXCL__      *EXCL, *SHRRD, *SHRNUP, ...


    Member  . . . . .  *FIRST____   Name, *FIRST




    F3=Exit   F12=Cancel

```

Figure 60. Add Object to Object List

Enter the following information:

Object
>   The name of the OS/400 object to be added to the list. An object can be
>   included more than once in one or more object lists, with, for example, different
>   lock states or members.
>
>   **Note:** A check is made for the existence of the specified object. If it does not
>   exist, a warning is displayed.

Library
>   The name of the OS/400 library containing the object.
>
>   You can enter the name of a symbolic library here that is resolved to the
>   names of real OS/400 objects when the exclusion list is used by APD/400. For
>   an explanation of symbolic library names, see *IBM Application Program
>   Driver/400 Version 3: Developer's Guide*.
>
>   **Note:** A check is made for the existence of the specified library. If it does not
>   exist, a warning is displayed.

Object type
>   The type of the object. The online Help lists the valid entries for this field.

Lock state
>   The lock state of the object when excluding or being excluded. The online
>   Help lists the valid entries for this field.

Member
>   If the object type is *FILE, and it is a database file, you can specify a member
>   to be included in the exclusion list. Enter *FIRST to specify that the object is
>   the first file member.

All the fields on this display correspond to parameters of the AS/400 ALCOBJ
command. Refer to your AS/400 programming documentation for a description of
this command.

Changing Objects in an Object List: To change information on an object
included in an object list, select option 2 (Change) on `Work with Object List`.
The `Change Object in Object List` display appears.

You can change the object name, library name, object type, lock state, and
member name. Press Enter to save any new information.

Deleting Objects from an Object List: To delete an object from an object list,
select option 4 (Delete) on `Work with Object List`.

Note: The object entry is deleted from the object list immediately; the object itself,
however, still exists on the system.

Deleting an Exclusion List

To delete an exclusion list, select option 4 (Delete) on `Work with Exclusion Lists`.
The `Delete Exclusion List` display appears. Press Enter to confirm deletion.

Note: If you delete an exclusion list, APD/400 automatically deletes all exclusions
for which the deleted list was specified as an active or an excluded exclusion list.

Batch Processing

A batch environment defines the parameters required for running application tasks under system batch control. Several batch environments may exist for an application; each is identified with a batch environment name. You can prevent users from using a specific batch environment by specifying an authorization list for the environment.

Tasks are submitted using one of the defined batch environments in APD/400. When creating a task, you define whether it is processed interactively or as a batch task. You can also determine the date and time when a batch task is processed; alternatively, you can leave it to the user to determine the start date and time of the submitted batch task.

You can define that batch tasks are processed recurrently, according to a time pattern you define with a timetable. Refer to *IBM Application Program Driver/400 Version 3: User's Guide* for information on submitting and scheduling batch tasks. See Appendix A, "APD/400 Batch System" on page 115 for a technical description of the APD/400 batch system.

The following explains in detail how you can administer batch environments and timetables.

Administering Batch Environments

The `Administer Batch Environments` function enables you to add, change, delete, and display batch environments. If necessary, select the installation for which you want to define batch environments (*IBM Application Program Driver/400 Version 3: User's Guide* describes how to select an installation).

To work with `Administer Batch Environments`, specify 8 on `Administer Master Data` or enter the expert code ADMENV. APD/400 displays the following:

```
 APD/ADMENV              Administer Batch Environments

 Type options, press Enter.
   2=Change   4=Delete   5=Display

 Option   Environment    Application Inst.   Environment text
    _      BATCH1         APD                 Batch environment test
    _      FAST           PAY                 Fast paycheck printing












  F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to

```

Figure 61. Administer Batch Environments

Adding Batch Environments

To create a new batch environment, press F6 (Add) on `Administer Batch Environments`. `Add Batch Environment` is displayed.

```
APD/ADMENV               Add Batch Environment

  Installation  . :              Default Installation


Type choices, press Enter.
  Application . . . . . . .    PAY____      F4 for list
  Environment . . . . . . .    SLOW_____
  Environment text  . . . .    Slow Tax bill printing_____
  Authorization . . . . . .    PAYROLL2__   F4 for list

  Job description . . . . .    PAYJOBD___   Name, *USRPRF
    Library . . . . . . . .     PAYLIB____

  Job queue . . . . . . . .    *JOBD_____  Name, *JOBD
    Library . . . . . . . .      _____

  Output queue  . . . . . .    *USRPRF___   Name, *USRPRF
    Library . . . . . . . .      _____

  User  . . . . . . . . . .    *JOBD_____  Name, *JOBD

 F3=Exit   F4=Prompt   F12=Cancel
```

Figure 62. Add Batch Environment

Enter the following information:

`Application`
   The name of an existing application for which the batch environment is valid.

`Environment`
   The name of the new batch environment.

`Environment text`
   A descriptive text for the new batch environment.

   Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

`Authorization`
   The name of the authorization list that controls access to this batch environment.

`Job description`
   The name of the job description to be used with this batch environment.

   If you enter *USRPRF, the job description specified for the user profile that owns the job is used as the job description for the batch job.

   If you specify a job description name, you must also enter a valid library where the job description is located.

`Job queue`
   The name of the job queue containing the batch job.

   If you enter *JOBD, the job being submitted is placed in the job queue named in the specified job description.

If you specify a job queue name, you must also enter a valid library where the job queue is located.

Output queue
:   The name of the default output queue to be used for spooled output.

    If you enter *USRPRF, the output queue named for the user profile that owns the job is used as the output queue for the batch job.

    If you specify an output queue name, you must also enter a valid library where the output queue is located.

User
:   The name of the user profile to be used for the jobs submitted in the batch environment.

    If you enter *JOBD, the user profile named in the specified job description is used for the job being submitted.

    Note: Job description *USRPRF and User *JOBD are mutually exclusive.

If the profile defined for this batch environment is different from that of a user submitting a batch job into this environment, the following must be noted:

- The job is submitted on behalf of the user whose profile is derived from the batch environment description (the name defined in the `User` field).

- The profile of the user submitting the job is used by APD/400 to determine, for example, the user's authorization.

"How the APD/400 Batch Scheduler Submits a Job" on page 118 describes how the values of the defined batch environment are used.

Press Enter to create the new batch environment.

Changing Batch Environments

To use this function, specify option 2 (Change) on `Administer Batch Environments`. `Change Batch Environment` is displayed.

You can change the environment text, authorization list name, job description (and library), job queue (and library), job output queue (and library), and the user ID.

Press Enter to confirm your changes.

Deleting Batch Environments

To use this function, specify option 4 (Delete) on `Administer Batch Environments`. `Delete Batch Environment` is displayed. Press Enter to confirm deletion.

Note: You cannot delete a batch environment that is currently being used to run a batch job.

Displaying Batch Environments

To display a defined batch environment, specify option 5 (Display) on `Administer Batch Environments`.

Administering Timetables

`Administer Timetables` enables you to add, change, copy, delete, or display timetables. In each timetable, you specify a time pattern for recurring batch jobs. A user who is scheduling a recurring batch job must enter the name of an existing timetable to determine when processing of the batch job is repeated.

To work with the `Administer Timetables` function, specify 9 on `Administer Master Data`, or enter the expert code ADMTTB. APD/400 displays the following:

```
 APD/ADMTTB                    Administer Timetables

 Installation  . . . . :            Default Installation

 Type options, press Enter.
   2=Change   3=Copy   4=Delete   5=Display

 Option   Timetable      Application  Text
    _      PAYCHECK       PAY          Timetable for paycheck printing













 F3=Exit    F5=Refresh    F6=Add    F12=Cancel    F17=Position to
```

Figure 63. Administer Timetables

The currently available timetables are displayed.

You can select the timetable you want to change, copy, delete, or display. In addition, you can press F6 (Add) to add a new timetable.

Adding Timetables

To create a new timetable, press F6 (Add) on `Administer Timetables`. `Add Timetable` is displayed.

```
APD/ADMTTB                    Add Timetable

Installation  . . . . :           Default Installation

Type choices, press Enter.

  Application . . . . . . . . . .   PAY____      F4 for List

  Timetable   . . . . . . . . .    PAYTAX____

  Timetable type  . . . . . . . .  1           1 = Time interval
                                               2 = Calendar table






  F3=Exit    F4=Prompt    F12=Cancel
```

Figure 64. Add Timetable

Enter the following information:

Application
    The name of the application for which the timetable is to be valid.

Timetable
    The name of the new timetable.

Timetable type
    The type of the new timetable:

    1. Time interval: on the next display you can specify the length of a time
       interval by entering the number of days or hours. Processing of the batch
       job is repeated each time this interval has passed.

    2. Calendar table: on the next display you can specify the days when the
       processing of the batch job is to be repeated.

Press Enter to display Revise Timetable, which has a different format depending
on whether you have specified time interval or calendar table in the Timetable
type field.

If you are creating an interval timetable, Revise Timetable appears as follows:

```
APD/ADMTTB                    Revise Timetable

Installation  . . . . :              Default Installation
Application . . . . . :    PAY       Payroll
Timetable    . . . . . :    PAYTAX    Type . . :   1 = Time interval

Type choices, press Enter.

  Timetable text  . . .    Print paychecks for test_____

  Days  . . . . . . . .    ___

    or

  Hours . . . . . . . .    ___



                                                          More...

F3=Exit    F12=Cancel
```

Figure 65. Revise Timetable (Page 1 of Time Interval)

Enter a descriptive text for the new timetable. (You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.) Specify the length of the time interval in days or hours. Processing of the batch job is repeated each time this interval has passed.

If you are creating a calendar timetable, Revise Timetable appears as follows:

```
APD/ADMTTB                    Revise Timetable

Installation  . . . . :              Default Installation
Application . . . . . :    PAY       Payroll
Timetable    . . . . . :    PAYTAX___  Type . . :   2 = Calendar table

Type choices, press Enter.

  Timetable text  . . .    Print_tax_bill_____

  Month . . . . . . . .    Jan *  Feb _   Mar _   Apr _   May _   Jun _
                           Jul _  Aug _   Sep _   Oct _   Nov _   Dec _

  Occurrence  . . . . .    First _  Second _  Third _  Fourth _      Last Y

  Days of the week  . .    Mon _ Tue _ Wed _ Thu _ Fri Y Sat _ Sun _

  Days of the month . .     1 _  2 _  3 _  4 _  5 _  6 _  7 _  8 _  9 _ 10 _
                           11 _ 12 _ 13 _ 14 _ 15 _ 16 _ 17 _ 18 _ 19 _ 20 _
                           21 _ 22 _ 23 _ 24 _ 25 _ 26 _ 27 _ 28 _ 29 _ 30 _
                           31 _                                   Last _
                                                                  More...
F3=Exit    F12=Cancel
```

Figure 66. Revise Timetable (Page 1 of Calendar Table)

Enter a descriptive text for the new timetable and specify the days on which to repeat processing of the batch job. The job is processed for the first time on the start date specified on the Schedule a Batch Job display (see the description of submitting batch jobs in *IBM Application Program Driver/400 Version 3: User's*

Guide). It is recommended to enter a start date as specified in the applicable timetable.

First mark the months for which you want the table to be valid. Select a month by entering `Y`. If you want the table to be valid for a specific month and all the following months of the year, enter an asterisk (*) for the first month of the group. For example, if you enter `Y` for March and an asterisk for June, the table is valid for March and all the months from June through December.

After selecting the months, use one or both of the following ways to select the days on which to repeat the recurring batch job:

- Specify the occurrence of specific days of the week on which to process the batch job during the months selected. For example, the second and last occurrence of Wednesday in May, June, and July, or all occurrences of Wednesday and Saturday from January through December.

- Specify the days on which to process the batch job during the months selected. For example, the last day of every month of the year, or the tenth, twentieth, and last day of every month from May through August.

If you use both methods for specifying the repetitive days of the recurring batch job, the job is processed as determined by each of the schedules. However, if both schedules result in processing on the same day, the job is processed only once.

If you do not want to set up specific rules for Saturdays and Sundays, press Enter to complete the definition of the new timetable. Otherwise, press the Page Down key to display the second page of the `Revise Timetable` display. This page displays for both time interval and calendar timetables.

```
  APD/ADMTTB                     Revise Timetable

   Installation  . . . . :              Default Installation
   Application . . . . . :   PAY        Payroll
   Timetable   . . . . . :   PAYTAX     Type . . :   2 = Calendar table

   Type choices, press Enter.

     Special days treatment

       Saturday  . . . . .   1     1=No special treatment
                                   2=Omit
                                   3=Day before
                                   4=Day after

        Sunday  . . . . . .  1     1=No special treatment
                                   2=Omit
                                   3=Day before
                                   4=Day after


                                                                 Bottom
      F3=Exit    F12=Cancel
```

Figure 67. Revise Timetable (Page 2)

Specify how to deal with the batch job if it were to be processed on a Saturday or Sunday according to the timetable values specified on either first page of `Revise Timetable`.

You can specify that the job is:

- Processed as scheduled (No special treatment)
- Not processed (Omit)
- Processed one day earlier (Day before)
- Processed one day later (Day after).

Some combinations of values are not valid, for example, specifying `Day before` for Sunday and `Omit` for Saturday.

Press Enter to complete the definition of the new timetable.

Changing Timetables

Specify option 2 (Change) on `Administer Timetables` to change a timetable.

On `Revise Timetable` you can change the timetable text and timetable values.

If you do not want to change the specific rules for Saturdays and Sundays, press Enter to complete the definition of the changed timetable. Otherwise, press Page Down to display the second page of `Revise Timetable`.

Change the specific rules for Saturdays and Sundays and press Enter to save the changed definition.

Copying Timetables

Specify option 3 (Copy) on `Administer Timetables` to create a new timetable from an existing one.

On the `Copy Timetable` display, enter the name of the application and the new timetable and press Enter. `Revise Timetable` is displayed allowing you to change the timetable text and values.

If you do not want to change the specific rules for Saturdays and Sundays, press Enter to complete the definition of the new timetable. Otherwise, press Page Down to display the second page of `Revise Timetable`.

Change the specific rules for Saturdays and Sundays, and then press Enter to save the new timetable.

Deleting Timetables

Specify option 4 (Delete) on `Administer Timetables` to delete a timetable. `Delete Timetable` is displayed. Press Enter to confirm the deletion.

Note: You can only delete a timetable if there are no related recurring jobs awaiting batch processing.

Displaying Timetables

Specify option 5 (Display) on `Administer Timetables` to display a timetable.

Controlling the System Environment

APD/400 enables you to work with different data sets within an application. For example, if you do accounting for several clients, you could enter each client's data in a separate data set. You can also use different data sets to distinguish different projects or departments.

You can influence assignment of authorizations at the data set level by specifying an authorization list name for the data set. Under APD/400 you can also use applications that work with or without data sets.

Check with the developer of your application to find out if it would be useful for you to define data sets for the application.

Administering Data Sets

To work with `Administer Data Sets`, specify `10` on `Administer Master Data` or enter the expert code ADMDS.

Note: If your application uses the ADMDSTE (Administer Data Set Entries) user exit (described in *IBM Application Program Driver/400 Version 3: Developer's Guide*), there may be additional `Administer Data Sets` displays (provided by your application) to those described here.

APD/400 displays the following:

```
 APD/ADMDS                      Administer Data Sets

   Installation  . :               Default installation

 Type options, press Enter.
   2=Change    4=Delete

 Option    Data set  Application Text
   _        0001      PAY         Production

 F3=Exit    F5=Refresh    F6=Add    F12=Cancel    F17=Position to
```

Figure 68. Administer Data Sets

Select the data set you want to change or delete, or press F6 (Add) to add a new data set.

Adding Data Sets

If you press F6 (Add) on `Administer Data Sets`, `Add Data Set Entry` is displayed.

```
  APD/ADMDS                    Add Data Set Entry

    Installation  . :                Default installation


  Type choices, press Enter.

    Application . . . . . . .   PAY____      F4 for list

    Data set  . . . . . . . .   0002

    Text  . . . . . . . . . .   Administration_____

    Authorization . . . . . .   _____      F4 for list






    F3=Exit    F4=Prompt    F12=Cancel

```

Figure 69. Add Data Set Entry

Enter the following information:

`Application`
> The name of the application for which the data set is to be valid. This field is supported by F4 (Prompt).

`Data set`
> The ID of the new data set.
>
> Check with the developer of your application to see whether you can define data sets, and if so, how they should be named.

`Text`
> The descriptive name of the new data set.
>
> **Note:** You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

`Authorization`
> The name of the authorization list controlling access to the new data set.

Press Enter to create the new data set.

Changing Data Sets

Specify option 2 (Change) in the corresponding option column of `Administer Data Sets` to display `Change Data Set Entry`.

Change the name of the data set and the associated authorization list, and press Enter to save the changed data set.

Deleting Data Sets

Specify option `4` (Delete) in the corresponding option column of `Administer Data Sets` to display `Delete Data Set Entry`. Press Enter to confirm the deletion.

Administering Applications

During installation of an application, a record is created in the Application file for the application. Using the `Administer Applications` function you can change the application values in the record. You can change:

* The text for the application
* The application administrator
* Audit details
* How the menu displays of the application are presented.
* Settings to switch off performance intensive functions can be selected.

Notes:

1. You must be enrolled as the APD/400 administrator in the APD_ADMIN authorization list to use `Administer Applications` and `Administer Applications (Developer)`. If necessary, the APD/400 administrator can enroll other users in the APD_ADMIN authorization list.

2. If a user is allowed to use `Administer Applications` or `Administer Applications (Developer)`, another check is performed on the application level. Only a user assigned as administrator for the application is allowed to change entries. All users are allowed to create new entries. The APD/400 administrator is always allowed to change entries.

3. If the administrator of an application is changed, APD/400 updates the authorization list for the application (APL_ADMIN). Entries are deleted from APL_ADMIN for users who are not administrators of applications.

To work with `Administer Applications`, specify `11` on `Administer Master Data`, or enter the expert code ADMAPL. APD/400 displays the following:

```
 APD/ADMAPL                 Administer Applications

 Type option, press Enter.
   2=Change

 Option   Application Inst.   Application text
   _       APD                 Application Program Driver
   _       APD+                Application Program Driver
   _       OFC                 AS/400 Office - OfficeVision/400
   _       PAY                 Payroll












   F3=Exit    F5=Refresh    F12=Cancel    F17=Position to
```

Figure 70. Administer Applications

For each application, the ID, installation, and a descriptive text are listed. Specify option `2` (Change) in the corresponding option column to display `Change Application Entry`.

```
 ┌──────────────────────────────────────────────────────────────────────────────┐
 │                                                                                │
 │  APD/ADMAPL              Change Application Entry                               │
 │                                                                                │
 │   Installation  . :               Default installation                         │
 │   Application . . :     PAY                                                     │
 │                                                                                │
 │                                                                                │
 │ Type choices, press Enter.                                                     │
 │                                                                                │
 │   Application text  . . . .    Payroll_____              │
 │                                                                                │
 │   Application                                                                  │
 │     administrator . . . . .    JIM_____     F4 for list                       │
 │                                                                                │
 │   Audit . . . . . . . . . .    N             Y=Yes, N=No                        │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                                │
 │                                                                      More...    │
 │   F3=Exit   F4=Prompt   F12=Cancel                                             │
 │                                                                                │
 └──────────────────────────────────────────────────────────────────────────────┘
```

Figure 71. Change Application Entry (Page 1)

You can change the following information:

`Application text`
A descriptive text for the application. This is a required input field of up to 40 characters.

Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

`Application administrator`
This must be an existing OS/400 user ID. This is a required input field of up to ten characters; it is supported by F4 (Prompt).

Note: The way that APD/400 reorganizes the authorization files when the administrator of an application changes is as follows:

- If an entry for the new administrator exists, this remains unchanged.

- If no entry for the new administrator exists, APD/400 creates an entry with the authorization `1`.

- If an entry exists for the previous administrator, and the previous administrator is not the administrator of another application, APD/400 deletes the entry. If the entry to be deleted is locked (for example, if it is being changed by another user using `Administer Applications`), the `Application administrator` field cannot be changed, and an error message is sent to the user.

`Audit`

N   No audit records are written for this application.
Y   Audit records are stored.

Note: This value is used as the default value for the tasks of this application. It is overridden if a different value is specified for a specific task.

Press F8 (Page Down) to display the second page of `Change Application Entry`.

```
  APD/ADMAPL              Change Application Entry

   Installation  . :              Default installation
   Application . . :   PAY         Payroll


  Type choices, press Enter.

    Menu Display

      Display blank line if
        missing option(s) . .   Y            Y=Yes, N=No

      Menu heading name . . .   PAYROLL___   F4 for list

      Menu column format  . .   1            1=Single Column
                                             2=Double Column

      Menu bar  . . . . . . .   MENUBAR_     F4 for list

      Display menus in windows  . .   Y      Y=Yes, N=No

                                                       More ...
  F3=Exit    F4=Prompt    F12=Cancel    F18=Change attributes
```

Figure 72. Change Application Entry (Page 2)

You can change the following information:

`Display blank line if missing option(s)`
> Enter `Y` to specify that a menu option that does not exist or the user is not authorized to use is represented by a blank line. Otherwise, the subsequent options and subheadings are moved up one line (see "Structuring Menus" on page 31).
>
> If two or more sequential options are missing, only one blank line is displayed. No blank line is displayed if the missing option is immediately preceded by a column heading or subheading, or if it is the first option on a menu page or in a column.
>
> **Note:** This is not valid for menus in windows.

`Menu heading name`
> The name of the menu heading format to be used for the application (see "Administering Menu Heading Formats" on page 55). This field is supported by F4 (Prompt).
>
> This value is used as the default value for the tasks of this application. It is overridden if a different value is specified for a specific task.
>
> If a menu heading format name is not specified here or for the menu task, the menu is displayed with APD/400 default heading lines.
>
> **Note:** Depending on environment parameters, no menu headings are shown in windows.

`Menu column format`
> Specify whether you want to use single-column or double-column format for the application menus (see "Structuring Menus" on page 31).

Note: Only single-column format can be used in windows.

Menu bar
> The menu bar for this application that is used if no menu bar is described on the menu level. This field is supported by F4 (Prompt).

> **Note:** Menu bars are not used in windows.

Display menus in windows
> The definition on application level of whether menus should be displayed in window or full-screen format. This is the default that APD/400 uses if nothing is specified for the tasks of the application.

In this panel you have the option to perform the function Select Display Attributes by pressing F18=Change attributes.

Press F8(Page Down) to display the last page of Change Application Entry

These settings are to reduce the performance overhead of interactive tasks. Only the interactive part of APD/400 is touched by these settings, until the call to the AIP is performed. To improve the performance for the AIP and calls initiated from the AIP. Refer to *APD/400 Developer's Guide, Chapter 2, Set and Reset an Application Environment.*

```
 APD/ADMAPL              Change Application Entry

 Installation  . . . . :            Default installation
 Application . . . . . :   APD


 Type choices, press Enter.

   Application settings

     Authorization checking  . . . .   Y      Y=Yes, N=No

     Exclusion checking  . . . . . .   Y      Y=Yes, N=No

     Work with datasets  . . . . . .   Y      Y=Yes, N=No

     Work with defaults in APIs  . .   Y      Y=Yes, N=No




                                                          Bottom
```

Figure 73. Change Application Entry (Page 3)

You can change the following settings:

Authorization checking
> Enter Y to specify that the described authorization environment should be used, this means that authorization checking should be performed. This is the recommended setting.

> Enter N to specify that no authorization checking should be performed to improve performance. Each user is then authorized to perform each task of the application.

Note: If `Authorization checking` is switched off for an application while performing an interactive task, the function `Check authorization` will not be performed for this application, although an authorization list is defined for this task.

`Exclusion checking`
Enter Y to specify that exclusion checks for exclusions should be performed. This is the recommended setting.

Enter N to specify that tasks of an exclusion list of this application should not be checked whether they can be performed or whether they are excluded. This will improve the performance of a task call.

`Work with data sets`
Enter Y to specify that tasks of a multi-data-set-enabled application can be called. This is the recommended setting.

Enter N to specify not to work with multi-data-set-enabled applications. This will improve the performance of a task call.

Note: If you have installed multi-data-set-enabled applications and you have entered N, you are not able to perform any tasks of this application until all data sets have been deleted.

`Work with defaults in APIs`
Enter Y to store information of the current APD/400 session so that it can by used by APIs. This is the recommended setting.

Enter N if this information is not required. This improves the performance of a task call. The APIs can only be called without using defaults (*).(See the relating API description in the *APD/400 Developer's Guide*).

Press Enter after making the necessary changes. `Administer Applications` is redisplayed.

Note: It is recommended that changes are made while no user working with this application. To ensure that the changes take effect the users should restart APD after the changes have been made.

Selecting Display Attributes
`Select Display Attributes` allows the administrator or developer to change the presentation of full-screen menus and windows. To display `Select Display Attributes`, press F18 (Change attributes) on the `Change Application Entry` display.

```
                        Select Display Attributes

   Installation  . :              Default installation
   Application . . :    APD

 Type choices, press Enter.

   Window border
      Color . . . . . . . . . . . .   03        F4 for list
      Character . . . . . . . . . .   2         F4 for list

   Text
      Menu bar color  . . . . . . .   02        F4 for list
      Expert code color . . . . . .   03        F4 for list
      Title color . . . . . . . . .   02        F4 for list
      Installation/dataset color  ..  01        F4 for list
      Top instruction color . . . . . 03        F4 for list
      Option area color . . . . . . . 02        F4 for list
      More.../Bottom line color . . . 02        F4 for list
      Command line color  . . . . . . 01        F4 for list
      Function key area color . . . . 03        F4 for list

  F3=Exit   F4=Prompt   F12=Cancel
```

Figure 74. Select Display Attributes

You can select attributes for the following display areas. All fields are supported by
F4 (Prompt).

Table 3. Display Area Attributes

(**1**) `Window border color`	The window border color is also used for the menu bar border and pull-down borders (if used).
(**2**) `Window border character`	The window border character is also used for the menu bar border and pull-down borders (if used).
(**3**) `Menu bar color`	Color of the text of the menu bar choices.
(**4**) `Expert code color`	Color of the expert code on full-screen menus. There is no expert code on menu windows.
(**5**) `Title color`	Color of the title text.
(**6**) `Installation/data set color`	Color of the installation and data set information. There is no installation and data set information in menu windows.
(**7**) `Top instruction color`	Color of the top instruction on full-screen displays. There is no top instruction in menu windows.
(**8**) `Option area color`	Color of the menu option area.
(**9**) `More.../Bottom line color`	Color of the **More.../Bottom** indicator.
(**10**) `Command line color`	Color of the command line.
(**11**) `Function key area color`	Color of the function key row on full-screen displays. There is no function key area in menu windows.

Figure 75 on page 91 shows the display areas for which you can select attributes.
The annotations in the figure correspond to the numbers of the display areas in the
previous list.

```
    Options    Environment    Operations    Services    Office 3      Help
 ................1  and 2 ....................................................
 APD/ADMMDTA 4           Administer Master Data          Installation/Data set
                                                5                       6
 Select one of the following: 7

      1. Administer User Entries
      2. Administer User Groups
      3. Administer Authorization Lists
      4. Print Authorization Environment
      5. Administer Menus
      6. Administer Menu Headings
      7. Administer Exclusions 8
      8. Administer Batch Environments
      9. Administer Timetables
     10. Administer Data Set
     11. Administer Applications
                                                                        9
 Selection or expert code                                          More...
       _____ 10 _____

 F3=Exit      F4=Prompt   F10=Action   F12=Cancel   F24=More keys
                          11
```

Figure 75. Display Areas

Selecting the Window Border Character: Press F4 (Prompt) on `Select Display Attributes` with the cursor on the `Window Border Character` field and the following window appears:

```
                      Select Display Attributes

    Installation  . :              Default installation
    Application . . :    APD


    ..................................................................
    :                  Select Window Border Character               :
    :                                                                :
    : Type choice, press Enter.                                      :
    :                                                                :
    :   Window border character . .   1                              :
    :                                                                :
    :    .........      .--------.      **********    ┏━━━━━━━━┓      :
    :    :       :      I        I      *        *    ┃        ┃      :
    :    :   1   :      I   2    I      *   3    *    ┃   4    ┃      :
    :    :       :      '--------'      *        *    ┃        ┃      :
    :    :.......:                      **********    ┗━━━━━━━━┛      :
    :                                                                :
    : F12=Cancel                                                     :
    :                                                                :
    :                                                                :
    :                                                                :
    :................................................................:

  F3=Exit   F4=Prompt   F12=Cancel
```

Figure 76. Select Window Border Character

Note: Style 4 uses blank characters (Hex 40) to form the border. Because blanks cannot be shown, style 4 is shown in reverse image in Figure 76.

The window `Select Window Border Character` allows the administrator or developer on the application level to change the characters that make up the lower border of a menu bar, and the border of pull-downs and menu windows. Select a style and enter `1`, `2`, `3`, or `4` in the `Window border character` field.

Choosing Colors: Press F4 (Prompt) with the cursor on one of the color entry
fields on `Select Display Attributes` to activate the `Select (field) Color`
window.

```
                     Select Display Attributes

   Installation  . :               Default installation
   Application . . :    APD


   .................................................
   :             Select (field) Color              :
   :                                                :
   : Type choice, press Enter.                      : st
   :                                                : st
   :   Attribute . . . . . . . . .   01             :
   :                                                :
   :    01    02    03    04    05    06    07    08 : st
   :    09    10    11    12    13    14    15       : st
   :                                                : st
   :                                                : st
   : F12=Cancel                                     : st
   :                                                : st
   :                                                : st
   :.................................................: st
       Function key area color . . .   B         F4 for list


   F3=Exit   F4=Prompt   F12=Cancel

```

Figure 77. Select Color

This window allows you to select a color for the different display areas.

`Select (field) Color`
> The display title is filled dynamically depending on the field
> you have selected. For example, `Select Window Border`
> `Color` is the display title if the cursor was on the field `Window`
> `Border Color` on `Select Display Attributes`, or `Select Top`
> `Instruction Color` is used if the cursor was on the field `Top`
> `Instruction Color`.

`Attribute`   A number representing one of the attributes displayed.

`List of available attributes`
> When you select `Window Border Color`, you can choose from
> the following 15 display attributes and colors. For the text
> color fields, the blink and reverse image attributes are not
> supported:
>> 01 = Green, normal
>> 02 = White, normal
>> 03 = Blue, normal
>> 04 = Turquoise, normal
>> 05 = Yellow, normal
>> 06 = Pink, normal
>> 07 = Red, normal
>> 08 = Red, blinking
>> 09 = Green, reverse image
>> 10 = White, reverse image
>> 11 = Blue, reverse image
>> 12 = Turquoise, reverse image

13 = Yellow, reverse image
14 = Pink, reverse image
15 = Red, reverse image.

Administering Parameters

APD/400 stores general information in parameters. These parameters represent system values and are designated to control the running of APD/400. You can, however, change these values to adapt APD/400 to your own requirements.

If you are authorized to administer APD/400 parameters, specify 12 on the Administer Master Data menu or enter the expert code ADMAPDPRM to display Administer Parameters.

```
  APD/ADMAPDPRM              Administer Parameters

  Type options, press Enter.
    2=Change

  Option    Parameter word                 Parameter value
            APD_BATCH_FUTURE_DAYS           0000000007
    _       APD_BATCH_PAST_MINUTES          0000000060
    _       APD_DATE_REPRESENTATION         ISO
    _       APD_DLT_JRNRCV                  *YES
    _       APD_GROUPJOBS_MAXIMUM           0000000016
    _       APD_IPL_DAY_OF_WEEK             -------
    _       APD_IPL_TIME                    07:00:00
    _       APD_MON_AUTOSTART               *YES
    _       APD_MON_JOBD                    *USRPRF
    _       APD_MON_JOBDLIB
    _       APD_MON_JOBQ                    *JOBD
    _       APD_MON_JOBQLIB
    _       APD_MON_OUTQ                    *JOBD
    _       APD_MON_OUTQLIB
    _       APD_PWRDWN_DELAY                0000003600
                                                             More...
  F3=Exit   F5=Refresh   F12=Cancel   F17=Position to
```

Figure 78. Administer Parameters (Page 1)

```
  APD/ADMAPDPRM              Administer Parameters

  Type options, press Enter.
    2=Change

  Option    Parameter word                 Parameter value
            APD_PWRDWN_TIME
    _       APD_REORG_ADAUDT0               0000000030
    _       APD_REORG_ADSCDL0               *NOJOB
    _       APD_REORG_LEVEL                 0000000000
    _       APD_RESCHEDULE_DELAY            0000000010
    _       APD_RESCHEDULES                 0000000005




  F3=Exit   F5=Refresh   F12=Cancel   F17=Position to
```

Figure 79. Administer Parameters (Page 2)

The parameters required for the administration of APD/400 and the currently-assigned values are displayed. Specify 2 (Change) in the option column and press Enter to select a parameter to be changed. `Change the Value of an APD/400 Parameter` is displayed.

```
APD/ADMAPDPRM        Change the Value of an APD/400 Parameter


  Parameter word  . . . :   APD_GROUPJOBS_MAXIMUM


Change the value of the APD/400 parameter, then press Enter.

  Parameter value . . . .   0000000016_____







F3=Exit    F12=Cancel
```

Figure 80. Change the Value of an APD/400 Parameter

Enter the new value and press Enter to save the change. If you have selected other parameters to change, `Change the Value of an APD/400 Parameter` is redisplayed. Otherwise `Administer Parameters` is redisplayed.

Batch Parameters

APD_BATCH_FUTURE_DAYS
This entry defines a period of time in the future. When a job is submitted with a planned processing time beyond this period of time, APD/400 issues a message for the user to confirm the specified processing time.

The value supplied with the APD/400 parameter file is 5.

The value must be between 0 and 99; otherwise the default value of 99 is used.

See the description of parameter APD_BATCH_PAST_MINUTES.

APD_BATCH_PAST_MINUTES
This entry defines a period of time in the past. When a job is submitted with a planned processing time prior to this period of time, APD/400 issues a message for the user to confirm the specified processing time.

The value must be between 0 and 9999. If you do not enter a value, 9999 is used.

The value supplied with the APD/400 parameter file is 60.

APD_RESCHEDULE_DELAY
This APD/400 system value is the delay in minutes between two reschedules. If the Batch Gate Program detects a clash situation, the task is rescheduled for:

The value for APD_RESCHEDULE_DELAY can be any number between 1 and
99. The default is 10 minutes.

APD_RESCHEDULES

The number of reschedules used by APD/400 batch processing. If the
APD/400 batch processing function detects a clash situation, the task is
rescheduled with a new date and time.

APD_RESCHEDULES defines how often rescheduling is carried out until the
task is considered to have failed. The value for APD_RESCHEDULES can be
any number between 0 and 99. The default is 5.

APD_MON_AUTOSTART

When APD/400 is started, its start program checks whether or not the BMP has
been started. (For more information on the BMP, see Appendix A, "APD/400
Batch System" on page 115.) Usually, the BMP should have been started with
IPL. If the BMP has not yet been started, APD/400's start program checks this
parameter.

The value must be *YES or *NO. If you specify *YES, the BMP is started. The
default value is *YES.

APD_MON_JOBD
APD_MON_JOBDLIB
APD_MON_JOBQ
APD_MON_JOBQLIB
APD_MON_OUTQ
APD_MON_OUTQLIB

When you invoke a task that runs as a batch job, you can specify the batch
environment to be used by the job. Batch environments are defined by the
application administrator.

The environment contains:

* Job description (APD_MON_JOBD) and job description library
  (APD_MON_JOBDLIB)
* Output queue (APD_MON_OUTQ) and output queue library
  (APD_MON_OUTQLIB)
* Job queue (APD_MON_JOBQ) and job queue library
  (APD_MON_JOBQLIB).

If no environment is specified on the task level, these values are used for job
description, job queue, and output queue.

Data from the environment definition is used by the monitor program to specify
the OS/400 environment for batch jobs. If no value for a job description can be
found, the value specified for APD_MON_JOBD is used.

Specify a value valid in your OS/400 environment. If OS/400 rejects a job
because the value for the job description is invalid, the job is unable to be
processed. Use `Work with Canceled Jobs` to start the job again. This is only
possible if the task was defined as restartable. Refer to *IBM Application
Program Driver/400 Version 3: User's Guide* for an explanation of how to restart
a failed task.

Reorganization Parameters

APD_REORG_ADAUDT0

This entry contains the number of days that records are kept in the Audit file. The value must be between 1 and 999. The default value is 30.

APD_REORG_ADSCDL0

This entry contains the number of days that records with status END or CNL are kept in the schedule table.

The value must be between 1 and 999 or *NOJOB; the default value is *NOJOB. *NOJOB checks to see if the corresponding job exists on the system. If *NOJOB is specified, no reorganization of the schedule is performed. This may affect the performance of your operating system.

APD_REORG_LEVEL

This entry contains a number between 0 and 9 that defines the default reorganization level for APD/400's database reorganization. This reorganization is carried out by the BMP after it is called. Refer to "Requesting Periodical Reorganization" on page 113 for a detailed description of this value.

APD_DLT_JRNRCV

When APD/400 database files are reorganized, the reorganization program checks this parameter. The value can be *YES or *NO. The default value is *YES.

Note: APD/400 uses database journaling for some files to guarantee data consistency. The journal receiver used is QAFJRN0nnnn (nnnn is a number between 0000 and 9999), which is stored in library QUSRSYS. However, the number of journal receivers increases every time APD/400 is started, and you may want to save disk space.

All journal receivers named QAFJR0nnnn in the QUSRSYS library are saved to the save file QUSRSYS/QSAFRZSVJR. You can save this file to tape using the SAVSAVFDTA command after reorganization.

If the value is *YES, APD/400 deletes all journal receivers in the APD/400 library except for the one currently attached to the journal.

IPL/Power Down Parameters

APD_IPL_DAY_OF_WEEK

This parameter contains a template that specifies on which days of the week the system is powered on by APD/400. The template is a 7-character string with each character position representing one day of the week, with the first position representing Monday. The character can either be a number (1 = Monday through 7 = Sunday) or a hyphen. A number indicates that an IPL is to be scheduled for the day of the week represented by the number. A hyphen indicates that no IPL is to be scheduled for this day of the week. For example, if the template is 12-45-- an IPL is scheduled for the next Monday, Tuesday, Thursday, and Friday; no IPL is scheduled for Wednesday, Saturday, and Sunday.

APD_IPL_TIME

This parameter contains the time for performing an IPL on the days defined in APD_IPL_DAY_OF_WEEK. A valid time entry, in the format hh:mm:ss, is required. You must type leading zeros (08:30:00 is the correct format; 8:30:00

is not accepted). This value is used to schedule the next IPL, using the
OS/400 system value QIPLDATTIM. This system value is changed to the value
APD/400 computes from the parameters APD_IPL_DAY_OF_WEEK and
APD_IPL_TIME, when APD/400's batch monitor starts running (usually at IPL
time). The QIPLDATTIM value is recalculated when APD/400 powers down the
AS/400 system, or when the APD_IPL_TIME or APD_IPL_DAY_OF_WEEK
value is changed. The IPL is always scheduled for the **next** specified day, and
not for the current day.

APD_PWRDWN_DELAY

This parameter contains the time delay to be used when the system is powered
down according to the APD_PWRDWN_TIME parameter. Valid time delay
values are 0 through 99999 (seconds). If you do not specify any value, the
default value (3600 seconds) is used. If you specify 0 (zero), the system is
powered down at the time specified for the APD_PWRDWN_TIME value.

APD_PWRDWN_TIME

This parameter contains the time for powering down the system. A valid time
entry must have the format hh:mm:ss. You must type leading zeros as
described for APD_IPL_TIME. If you enter *N0 or no value, no power down is
invoked by APD/400.

Using APD/400's BMP, the power down feature allows you to schedule running
of the AS/400 system command PWRDWNSYS for a specified time in the
future.

For example, you specify 22:00:00 as the APD_PWRDWN_TIME and 1800
(seconds) as the APD_PWRDWN_DELAY. At 22:00:00, APD/400 issues a
message to all users who are working on the system at that time, informing
them that the system will be powered down at 22:30:00. At 22:30:00, the BMP
powers down the system immediately without issuing any warning.

Notes:

1. APD/400's power down feature is invoked only if the BMP is active.

2. If you specify an APD_PWRDWN_TIME value, the system is powered
   down every day at the same time.

3. If you see the message informing you that the system will be powered
   down, you can prevent the system power down. Use any of the following
   (providing you have been assigned the required APD/400 authorizations):

   • Call the Administer Master Data menu and select Administer
     Parameters to specify *N0 as the APD_PWRDWN_TIME value. Other
     users, however, are not informed about this change.

   • Select Work with the APD/400 Batch System on the Service Functions
     menu to switch batch monitor scheduling off (batch monitor status is
     "Not activating").

Miscellaneous Parameters

APD_DATE_REPRESENTATION

This entry defines the type of date representation to be used for displays. The
value must be one of the following:

```
ISO    YYYY-MM-DD
USA    MM/DD/YYYY
EUR    DD.MM.YYYY
```

The default value is ISO.

APD_GROUPJOBS_MAXIMUM

This entry contains the maximum number of group jobs that can be processed simultaneously. The value must be between 1 and 16. The default value is 16.

Chapter 4. System Operator Tasks

This chapter describes the APD/400 system operator tasks:

- Saving and restoring data
- Service functions
- Auditing in APD/400
- File reorganization.

Multilingual support

APD/400 provides multilingual support for applications. All text fields that are enabled for multilingual support are noted in the displays described in this chapter. For more information on APD/400's multilingual support features, see Appendix B, "Multilingual Support" on page 119.

Saving and Restoring Data

As the system operator, you are responsible for saving and restoring data. Using APD/400, you save and restore libraries and folders individually or in groups.

Control records are used to develop a schedule for data saving. This schedule determines how often libraries and folders are saved (the cycle), and how long they are kept (generations).

APD/400 libraries and folders, and libraries and folders of applications installed under APD/400, are automatically included in the list of control records. However, you must create the control records of libraries and folders of other applications. For each save operation, the control records are automatically recorded as history data on tape or diskette.

Note: The term "tape" in this chapter refers to tapes and tape cartridges.

Options are available to support you in saving and restoring data. You can, for example, determine the tapes to be used for saving data by printing a list of the tapes you have reserved but that have not yet been used.

Specify the tapes and the save parameters, and develop your schedule before you save data for the first time.

Saving data

Saving of data is not processed automatically, even if you have defined a complete save schedule for your libraries and folders. You must initiate the save processing manually. When you start the saving of libraries and folders you can still decide whether only the scheduled libraries and folders should be saved, or if you want to include libraries and folders that would not normally be saved according to the defined schedule.

To work with `Save and Restore Data`, select option `3` on the Application Program Driver initial menu or enter the expert code `SAVRST`.

Note: You must be enrolled in the QSYSOPR authorization list to use this option.

A window displays the first options on the `Save and Restore Data` menu. Use the Page Down key to see all the available options. The options are:

Save Functions

1   Save Libraries and Folders.
2   Select and Save Libraries and Folders.

Administration Functions

3   Administer Save Parameters.
4   Administer Tapes.
5   Administer Control Records.

Print Functions

6   Print Save Information.

Restore Functions

7   Restore Libraries and Folders.
8   Select and Restore Libraries and Folders.

Administering Save Parameters

You can define the basic settings with `Administer Save Parameters`. The entries on this display affect all tapes and control records.

To work with `Administer Save Parameters`, specify 3 on the `Save and Restore Data` menu or enter the expert code ADMSAVPRM.

```
  APD/ADMSAVPRM            Administer Save Parameters

    History data tape name  :   SAVHI


  Type choices, press Enter.

    Save device . . . . . . .   TAP01        name
    Density . . . . . . . . .   *DEVTYPE     *DEVTYPE, 1600, 3200, 6250, ...

    Object pre-check  . . . .   *NO          *NO, *YES
    Save access paths . . . .   *NO          *NO, *YES
    Save file data.. . . .      *YES         *YES, *NO
    Free storage  . . . . . .   *KEEP        *KEEP, *FREE
    Data compression  . . . .   *DEV         *DEV, *NO, *YES

    History save device . . .   DKT01        Name




  F3=Exit   F12=Cancel

```

Figure 81. Administer Save Parameters

The fields on this display are as follows:

Save device   The name of the tape unit to be used.

Density   The density of the tape unit to be used.

Object pre-check	Specifies whether the save operation for a library should end if all objects in the library specified by this command do not satisfy the following conditions of the save operation:

- The objects exist
- The objects are not damaged
- The objects are not locked by another job
- The requester of the save operation has authority to save the objects.

If you specify *NO, the save operation for a library is allowed to continue, saving only objects that can be saved. If you specify *YES, the save operation for a library is ended before any data is written if, after all objects in the specified library are checked, one or more objects cannot be saved.

Save access paths	Specifies whether the access paths dependent on the physical files being saved are also saved. If you specify *NO, only objects in the libraries specified in the command are saved. If you specify *YES, the physical files in the specified libraries and all eligible access paths over them are saved.

Save file data	Specifies, for save objects, whether the description of a file, or both the description and the contents of the file, are saved to tape, diskette, or another save file. Values are:

*YES The description and contents of a save file are saved.

*NO Only the description of a save file is saved.

Free storage	Specifies whether the system storage occupied by the data portion of files, programs, and journal receivers in the library being saved is freed as part of the save operation. Only the data portion of the objects is freed, not the descriptions of the objects. If you specify *KEEP, the storage occupied by the data portion of the objects is not freed. If you specify FREE, the storage occupied by the data portion of the files (except for save files), programs, and journal receivers being saved, is freed as part of the save operation.

Data compression	Specifies whether data compression is done.

If you specify *DEV, it means that if the tape device has the hardware compression feature installed, processing proceeds as if *YES is specified. If the compression feature is not present, or if save data is written to a diskette or a save file, processing proceeds as if *NO is specified.

If you specify *NO, no data compression is done.

If you specify *YES, it means that if the save operation is to tape and the target device has the hardware compression feature installed, hardware compression is done. If the compression feature is not present, or if save data is written to a diskette or a save file, hardware compression is not done.

History save device

The name of the tape or diskette unit for saving history data.

For a more detailed description of these fields, see *AS/400 Programming: Control Language Reference Manual* (the INZTAP command for the *Density* field, and the SAVLIB command for the other fields).

Administering Control Records

You use control records to determine which libraries and folders are saved by the APD/400 save function, the save cycle, the number of save generations for each library or folder, and so on.

`Administer Control Records` enables you to add, change, hold, delete, display, or release control records.

To work with `Administer Control Records`, specify `5` on the `Save and Restore Data` menu or enter the expert code ADMCTLREC. APD/400 displays the following:

```
 APD/ADMCTLREC            Administer Control Records

 Type options, press Enter.
   2=Change   3=Hold    4=Delete    5=Display    6=Release

 Option  Library /     Type       Medium     Cycle     Starting    Status
         Folder                                        date
   _     ADPGMR01      Library    Tape       daily     1991-01-13  RDY
   _     ADPGMR02      Library    Tape       daily     1991-01-13  RDY
   _     ADPGMR03      Library    Tape       daily     1991-01-13  RDY
   _     ADPGMR04      Library    Tape       daily     1991-01-13  RDY
   _     ADPGMR05      Library    Tape       daily     1991-01-13  RDY
   _     ADPGMR06      Library    Tape       monthly   1991-02-20  RDY
   _     ADPGMR07      Library    Tape       daily     1991-01-13  RDY
   _     VTEST         Folder     Tape       weekly    1991-02-12  RDY




 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to
```

Figure 82. Administer Control Records

You can select to change, hold, delete, display, or release records, or add a new record.

Adding Control Records

To create a new control record, press F6 (Add) on `Administer Control Records`. `Add Control Record` is displayed.

Note: You can define only one control record per library or folder.

```
  APD/ADMCTLREC                    Add Control Record

  Type choices, press Enter.

     Library / Folder  . . . .   PAYFOLD_____   name
     Type  . . . . . . . . . .   2              1=Library
                                                2=Folder

     Generations . . . . . . .   5              1 through 9
     Priority  . . . . . . . .   54             00 through 99
     Medium  . . . . . . . . .   1              1=Tape

     Cycle . . . . . . . . . .   2              0=manual
                                                1=daily
                                                2=weekly
                                                3=monthly
     Starting date . . . . . .   1991-02-23     YYYY-MM-DD




  F3=Exit    F12=Cancel
```

Figure 83. Add Control Record

Enter the following information:

Library/Folder
> The name of the library or folder to be saved or restored.

Type
> 1=library or 2=folder.

Generations
> The number of backup generations to be stored.

Priority
> The sequence for saving. A library or folder with priority 00 is saved first. A library or folder with priority 99 is saved last.

Medium
> The storage medium. The only valid value is 1 (Tape/tape cartridge).

Cycle
> The cycle defines the frequency of data saving: daily, weekly (every seven days), or monthly. If you select manual, the library or folder is not included in an automatic save cycle but has to be specifically selected by using Select and Save Libraries and Folders.

Starting date
> The date of the first save activity.

Press Enter to create the new control record.

Changing Control Records

Specify option 2 (Change) in the corresponding option column on the Administer Control Records menu to display Change Control Record.

You can change the number of generations, the priority, the storage medium, the cycle, and the starting date.

Press Enter to save the changed control record.

Holding and Releasing Control Records

To hold a control record that you do not want to be used for the save operation, specify option 3 (Hold) in the corresponding option column of `Administer Control Records`. The status of the control record changes to *HLD on the display.

Libraries and folders associated with control records on hold (status *HLD) are not saved until the control records are released.

To release a record on hold to reactivate it for the save operation, specify option 6 (Release) in the corresponding option column of `Administer Control Records`. The status of the control record changes to *RLS on the display.

Note: You can only release control records that have the status *HLD.

Deleting Control Records

Specify option 4 (Delete) in the corresponding option column of `Administer Control Records` to display `Delete Control Record`. Press Enter to confirm deletion.

Displaying Control Records

Specify option 5 (Display) in the corresponding option column of `Administer Control Records` to display a control record.

Administering Tapes

All tapes to be used for saving data must be entered in the tape list. `Administer Tapes` enables you to add, change, hold, delete, display, release, and initialize tapes for use by the Save and Restore options.

To work with `Administer Tapes`, specify 4 on the `Save and Restore Data` menu or enter the expert code ADMTAP. APD/400 displays the following:

```
 APD/ADMTAP                       Administer Tapes

 Type options, press Enter.
   2=Change   3=Hold   4=Delete   5=Display   6=Release

 Option  Name   Tape description                        Status
    _     TAP01  Tape001 1600 BPI                        RDY
    _     TAP04  Tape004 6500 BPI                        RDY












 F3=Exit   F5=Refresh   F6=Add   F12=Cancel   F17=Position to

```

Figure 84. Administer Tapes

All tapes defined for the Save and Restore options are listed on the display. You can change, hold, delete, display, release, and add tapes to the list.

Adding Tapes

To add a tape, press F6 (Add) on `Administer Tapes`. On the `Add Tape` display you enter:

`Tape name`
    The name of the new tape.

`Tape description`
    Descriptive text for the new tape.

    Note: You can enter &msg symbols in this field to retrieve text for a specific language. For more information on multilingual support, see Appendix B, "Multilingual Support" on page 119.

To initialize the tape with the values specified using `Administer Save Parameters`, press F11 (Initialize Tape). Otherwise, press Enter to add the new tape.

Changing Tapes

To change the description of a tape, specify option `2` (Change) in the corresponding option column on `Administer Tapes` to display `Change Tape`. Change the tape description and press Enter.

Holding and Releasing Tapes

To temporarily hold a tape from save operations, specify option `3` (Hold) in the corresponding option column of `Administer Tapes`. The status of the tape changes to *HLD on the display.

To release a held tape (to reactivate it for use in save operations), specify option `6` (Release) in the corresponding option column of `Administer Tapes`. The status of the tape changes to *RLS on the display.

Note: You can release only tapes that have the status *HLD.

Deleting Tapes

To delete a tape from the tape list, specify option `4` (Delete) in the corresponding option column on `Administer Tapes`. `Display Tape for Deletion` is displayed. Press Enter to confirm the deletion.

Displaying Tapes

To display a tape from the list of tapes, specify option `5` (Display) in the corresponding option column on `Administer Tapes`. `Display Tape` shows the name and description of the selected tape, and the libraries and folders that are stored on the tape.

Print Save Information

`Print Save Information` offers you various print options. To work with `Print Save Information`, specify `6` on the `Save and Restore Data` menu or enter the expert code PRTLST. APD/400 displays a window offering the following options:

```
1    Available Tapes
2    Saved Libraries/Folders
3    All Tapes and Libraries/Folders
4    Libraries/Folders waiting to be saved
5    Work with Printer Output.
```

Select a print function by specifying its corresponding option number.

`Available Tapes`
> Prints a list of the tapes that are reserved for saving data. When you use `Work with Printer Output`, the file name used for this option is QPAFSPPR23.

`Saved Libraries/Folders`
> Prints a list of all libraries and folders that have been saved. When you use `Work with Printer Output`, the file name used for this option is QPAFSPPR95.

`All Tapes and Libraries/Folders`
> Prints a list of all tapes, and libraries and folders. When you use `Work with Printer Output`, the file name used for this option is QPAFSPPR22.

`Libraries/Folders waiting to be saved`
> Prints a list of all libraries and folders waiting to be saved. When you use `Work with Printer Output`, the file name used for this option is QPAFSPPR17.

`Work with Printer Output`
> Transfers you to the OS/400 administrative function WRKSPLF to enable you to display, print, or manipulate the created lists.

All selected lists are added to the output queue QSYSPRT (in hold mode).

Selecting and Saving Libraries and Folders

This option starts the save process if you want to include libraries or folders in the save that are not scheduled for this cycle, or if you want to add libraries and folders that you have decided to add to the save cycle manually.

By specifying cycle 0 (manual) in its control record, you must select a library or folder for manual saving (see "Administering Control Records" on page 102). You can also manually select libraries and folders for exceptional saving, in addition to their usual cycles (daily, weekly, or monthly).

To work with `Select and Save Libraries and Folders`, specify 2 on the `Save and Restore Data` menu, or enter the expert code SLTSAV.

`Select and Save Libraries and Folders` is displayed, listing all control records, independent of the cycle specified.

```
APD/SLTSAV          Select and Save Libraries and Folders

Type options, press Enter. Press F22 to save.
  1=Select   3=Remove selection   5=Display

Option  Library /     Type         Cycle        -Last save information-  State
        Folder                                  Gen. Medium   Date
        PAYFILES      Library      weekly        4   Tap01  12.09.1992   SLT
  _     PAYBASE       Library      daily         2   Tap02  05.10.1992   SLT
  _     ACCOUNTS      Folder       monthly       5   Tap04  20.10.1992   SLT
  _     PAYROLL       Folder       manual        2   Tap01  01.10.1992   SLT
  _






  F3=Exit    F5=Refresh    F12=Cancel    F17=Position to    F22=Save
```

Figure 85. Select and Save Libraries and Folders

Select the libraries and folders to be saved by specifying option 1 (Select). Press
Enter to confirm. The display reappears with the status *SLT (selected) for all the
entries you selected.

Specify option 3 (Remove selection) to prevent a previously selected entry from
being saved. If you press Enter, the display reappears with *RLS (released)
against any entries you selected to release.

Specify 5 (Display) for Display Saved Generations, which displays a complete list
of all previous save operations for a library or folder.

Press F22 (Save) to start the save process (see "Saving Libraries and Folders").

Saving Libraries and Folders

Save Libraries and Folders starts the save process for libraries and folders
according to a daily, weekly, or monthly cycle. It appears when:

- You select libraries or folders manually on Select and Save Libraries and
  Folders and press F22 (Save) to start the save process

- You specify 1 on the Save and Restore Data menu or enter the expert code
  SAVLIB.

The display shows, for one cycle, the names of all libraries and folders waiting to
be saved, in order of priority. Also, the names of tapes to be mounted and the
name of the tape device to be used are displayed.

```
  APD/SAVLIB              Save Libraries and Folders

  Cycle . . . . . . . . . . . : daily

  Libraries or Folders to be saved
    Library /    Type         Priority
    Folder
    PAYFILES      Library      00



                                                              BOTTOM
  Device  . . . . . . . . . . : TAP01

  Tapes to be mounted
    Tape    Tape description               Tape    Tape description
    TAP01   Tape001 1600 BPI



  Press Enter to continue

  F3=Exit    F12=Cancel    F22=Next cycle
```

Figure 86. Save Libraries and Folders

Press F22 (Next cycle) if you want to bypass the displayed cycle. The libraries and folders of this cycle are not saved. Where applicable, the libraries and folders of the next cycle are displayed.

Press Enter to save the displayed cycle.

Selecting and Restoring Libraries and Folders

To select and restore individual libraries and folders, specify 8 on the `Save and Restore Data` menu or enter the expert code SLTRST.

`Select and Restore Libraries and Folders` is displayed, listing the control records of all saved libraries and folders. Select the libraries and folders you want to restore by specifying 1 (Select), and press Enter. The display reappears with status *SLT (selected) against all the entries you selected.

Specify option 3 (Remove selection) to prevent an entry you selected from being restored. Press Enter and the display reappears with status *RLS (released) against the selected entries.

Press F22 (Restore) to start the restore process.

Restoring Libraries and Folders

The `Restore Libraries and Folders` display appears when:

- You select libraries or folders on `Select and Restore Libraries and Folders` and press F22 (Restore) to start the restore process

- You specify 7 on the `Save and Restore Data` menu to restore all saved libraries and folders.

```
  APD/RSTLIB                  Restore Libraries and Folders

    Library / Folder .  .  . :   PAYROLL1
    Type .  .  .  .  .  .  . :   Library
    Generation .  .  .  .  . :   1

    Device  .  .  .  .  .  . :   TAP03
    Tape(s) to be mounted
      Tape     Tape Description
      CRD001   Cartridge 001










  Press Enter to continue

  F3=Exit    F12=Cancel    F22=Next library or folder
```

Figure 87. Restore Libraries and Folders

The display appears for each library and folder to be restored. Also, the names of the tapes to be mounted and the name of the tape device to be used are displayed.

Press F22 (Next library or folder) if you want to bypass the displayed library or folder. The library or folder is not restored. If applicable, the next library or folder name is displayed. Press Enter to restore the displayed library or folder.

Using the APD/400 Service Functions

You use the APD/400 service functions for daily work with your applications.

Select Service Functions by specifying 4 on the Application Program Driver initial menu, or enter the expert code EXTSRV.

A window displays the first options on the Service Functions menu. Use the Page Down key to see all the available options.

The options are:

User's individual Settings

1   Administer Personal Menu
2   Administer Start Program
3   Select Installation
4   Select Data Sets
5   Change Default User Profile

Job Control

6   Work with Scheduled Batch Jobs
7   Work with Canceled Jobs
8   Work with Jobs
9   Work with APD/400 Batch System

Print Outqueue

10   Select Printer
11   Work with Printer Output

Miscellaneous

12   Work with Messages
13   Command Line

The following end-user functions are described in *IBM Application Program Driver/400 Version 3: User's Guide*:

1   Administer Personal Menu
2   Administer Start Program
3   Select Installation
4   Select Data Sets
6   Work with Scheduled Batch Jobs
7   Work with Canceled Jobs
10   Select Printer.

The following options are OS/400 functions that enable you as administrator or system operator of APD/400 (and also of the AS/400 system) to call OS/400 administrative functions that you can use in your daily administrative work. Refer to the OS/400 administration manuals for an explanation of how to use these commands:

8   Work with Jobs
11   Work with Printer Output
12   Work with Messages
13   Command Line.

Changing the User Profile

Specify 5 on the Service Functions menu to change the default user profile. This option runs the CHGUSRPRF command with USRPRF(QAFDFTUSR), which enables you to change the default definition of the user profile used by Administer User Entries when you add a new user profile.

Working with the APD/400 Batch System

APD/400's batch system administers all batch jobs that are scheduled using APD/400. At the specified start date and time, the batch system forwards the job to the OS/400 work management to be run.

You can start, stop, or change the status of APD/400's batch system using `Work with APD/400 Batch System`. For example, if you need to save the library QUSRSYS (APD/400 data), the batch system must first be changed to state 4 (Hold, no locks). This is because the APD/400 batch system locks some resources that would prevent the save function being run. To use `Work with APD/400 Batch System`, specify 9 on the `Service Functions` menu, or enter the expert code WRKMONSTS. The following is displayed:

```
APD/WRKMONSTS              Work with APD/400 Batch System

Number of jobs activated by the APD/400 Batch System:

   Jobs that are currently active  . . . . . . . :   0001

   Jobs that are waiting on the job queue  . . . :   0003

Current state of the APD/400 Batch System . . . :    1   Active



Specify the requested state of the APD/400 Batch System, press Enter.

  Requested state of the APD/400 Batch System  . .  __    1 = Active
                                                           2 = Not activating
                                                           3 = Hold
                                                           4 = Hold, no locks
                                                          90 = Down



  F3=Exit    F5=Refresh    F12=Cancel
```

Figure 88. Work with APD/400 Batch System

In the upper part of the display, you see information on the APD/400 batch situation:

`Jobs that are currently active`
  The number of batch jobs running under APD/400 control that are currently active.

`Jobs that are waiting on the job queue`
  These jobs have already been activated by the APD/400 batch system, but they are waiting to be activated by OS/400 work management.

`Current state of the APD/400 Batch System`
  The current state of the batch system can have the following values:

  `1 = Active`
    The normal state of the APD/400 batch system. The APD/400 BMP activates eligible jobs, and jobs already passed to OS/400 work management are processed.

2 = Not activating

The BMP is not activating eligible jobs, but jobs that have already been passed to OS/400 work management before the BMP was switched to this state are processed.

3 = Hold

The BMP is not activating eligible jobs, and jobs passed to OS/400 work management before the BMP was switched to this state are not processed. These jobs are resubmitted when the BMP returns to state `1 = Active`.

4 = Hold, no locks

For the processing of batch jobs under APD/400 control, this state is identical to state `3 = Hold`.

In addition, the BMP closes all files and frees all resources that could lead to conflict situations with certain APD/400 functions, for example, saving the APD/400 data library QUSRSYS, or reorganization.

If the APD/400 batch system is in this state, and if the number of active jobs and the number of jobs on the job queue are both 0, you can save the APD/400 data library QUSRSYS.

90 = Down

The batch system is not active; the BMP is not running. All jobs submitted under APD/400 control are canceled.

Note: In this state, it does not necessarily mean that no APD/400-controlled batch job is running. If the BMP is, for example, canceled with the ENDJOB command from an OS/400 command entry screen, there may be some jobs that have been activated by the BMP that are still active or waiting on the job queue. Therefore, you should always check the output fields `Jobs that are currently active` and `Jobs that are waiting on the job queue`. Both must be `0` and the BMP state must be `4 = Hold, no locks`, or `90 = Down`, before you begin work that requires exclusive access to APD/400.

In the lower part of the display, you can change the status of the APD/400 batch system.

`Requested state of the APD/400 Batch System`
Specify the required status for APD/400's batch system.

Because changing the state may have an impact on the processing of jobs of other users (for example, changing to state `90 = Down` cancels all active jobs running under APD/400 control), it is secured as follows:

- A user who attempts to change the state from `1 = Active` to `4 = Hold, no locks` must have at least level 5 authority in the APD/QSYSOPR authorization list.

- A user who attempts to change the state to `90 = Down` must have level 9 authority in the APD/QSYSOPR authorization list.

For more information on APD/400's batch system, see Appendix A, "APD/400 Batch System" on page 115.

Auditing in APD/400

For each application, you can specify that any APD/400 event is logged. For example, the starting or ending of a task, or an unsuccessful access attempt, are events, and APD/400 writes these to the file QAAFAUDT0 in the library QUSRSYS with relevant information such as user ID, job number, and date and time. This file is written sequentially with one record per event, and is not used by APD/400 for retrieving information. For more information on the APD/400 Audit file, see *IBM Application Program Driver/400 Version 3: Developer's Guide*.

Auditing an Application

Use `Administer Applications` (see "Administering Applications" on page 85) to set the appropriate flag if you want to audit all access attempts to the application.

Auditing Parts of an Application

If you want to audit only access attempts against specific tasks, use `Administer Menus` (see "Structuring Menus" on page 31) to specify those tasks.

Administering Audit File Entries

Use the system parameter APD_REORG_ADAUDT0 to specify the number of days that data is kept in the Audit file. The default value is 30 days. The Audit file data may, however, decrease system performance.

A detailed description of how to change APD_REORG_ADAUDT0 is provided in "Administering Parameters" on page 93.

Requesting Periodical Reorganization

The BMP calls a program that reorganizes all APD/400 files. This reorganization is processed only if APD/400 is available exclusively. To make APD/400 available exclusively, you must bring down the batch system:

- Select `Work with APD/400 Batch System` by specifying option 9 on the `Service Functions` menu or entering the expert code `WRKMONSTS`.

- Make sure that there are no jobs active (the `Jobs that are currently active` field is `0`).

- Bring down the batch system by specifying `90 = Down`.

The type of reorganization depends on the current value of the parameter APD_REORG_LEVEL. The following reorganization levels are allowed for this parameter. Each higher level includes all lower levels.

0 No reorganization is performed.

1 Physical reorganization (RGZPFM for all APD/400 files) is performed. See the description of the RGZPFM command in the OS/400 documentation.

2 Logical reorganization: Re-creation of the APD/400 database integrity concerning references. For example, all references to nonexisting applications or installations are deleted.

4 APD/400 keeps information about the contents of displayed menus for each user in an internal file to speed up the displaying of menus. The content of this file is cleared. APD/400 rebuilds all user menus from the database entries

automatically the next time a user selects a menu. The purpose of this reorganization is to delete unused entries in APD/400's internal control files to free auxiliary storage.

8 All temporary internal control files of APD/400 are cleared; all information for restarts is deleted. Select this reorganization when you have a lock situation (which may be caused by an abend) that cannot be solved using the WRKCNLJOB function.

Note: All restart information is cleared.

9 All permanent internal control files of APD/400 are cleared (scratch installation): all information about initial menus, start programs, active data sets, and scheduled jobs is deleted. The Audit file is cleared.

During reorganization, the current journal receiver is changed.

The reorganization program is called when the BMP is started. To make sure that no APD/400 activity is on the system when the reorganization is started, it is recommended to start the BMP at IPL time. "Installing the APD/400 Batch Monitor Program" on page 5 describes how to do this.

If the BMP is not automatically started at IPL time that means it is not installed in the controlling subsystem. Perform the following procedure to start the reorganization program:

- ensure that the subsystem QAFSPS is not active

- ensure that no APD/400 activity is on the system

- start the BMP with the command STRSPS SPSD(QAPD/QAFSPS)

- the reorganisation is finished when the BMP has the status *MSGW.

    Note: The reorganisation level must have been set with an APD/400 function ADMAPPPRM. (see Chapter 3, "Defining the Application Environment" on page 15, Administer Parameters).

Appendix A. APD/400 Batch System

This appendix includes:

- Starting the APD/400 batch system
- A technical overview of the batch system
- How the APD/400 batch scheduler submits a job.

Notes:

1. "Working with the APD/400 Batch System" on page 111 describes how to change the status of the batch system.

2. "Administering Batch Environments" on page 75 describes how to administer batch environments.

Starting the Batch System

The APD/400 batch system can be started using any of the following methods:

- Enter `STRSBS QAPD/QAFSBS` on the command line.

- Use the function described in "Working with the APD/400 Batch System" on page 111.

- Use the APD_MON_AUTOSTART parameter, as described in "Administering Parameters" on page 93.

Technical Overview

Figure 89 on page 116 gives you an overview of the components of the APD/400 batch system.

Figure 89. Components of the Batch System

To understand the APD/400 batch system, you need to understand the terms schedule, submit, activate, and run.

Schedule

1 Scheduling is done by the Batch Schedule Program (BSP). The BSP is called from either interactive APD/400 or the APD/400 server (the SCHBATCH API, which is described in *IBM Application Program Driver/400 Version 3: Developer's Guide*).

2 The BSP inserts an entry into the APD/400 batch schedule file. This is to inform the Batch Monitor Program (BMP) that a job must be activated at a certain time.

Submit

3 The BSP submits the job to the OS/400 job queue specified in the corresponding batch environment. The job is submitted with an initial state of *HLD (Hold).

Activate

4 A scheduled job becomes eligible when the BMP detects that the job's entry in the APD/400 schedule file has a date and time less than or equal to the current date and time.

5 The BMP then releases the corresponding job in the OS/400 job queue.

Run

6 OS/400 work management passes control of the job to the Batch Gate Program (BGP) when:

- The job queue is released.

- The job queue is attached to a started subsystem.

- OS/400 work management allows the job to become active (active job's number, priority, and so on).

7 The BGP now checks whether the job is allowed to run by reading and updating the schedule file to check if:

- The current state of the batch system allows the job to run
- There is any exclusion for the job
- The user is authorized to run the job.

8 If the job is allowed to run, the BGP calls the AIP. The AIP builds the environment (for example, library list and job attributes) needed by the application program.

9 The AIP calls the application program defined in the parameter that the AIP has received from the BGP.

10 When the application program ends, it returns control and parameters to the AIP.

11 The AIP interprets the parameters received by the application program and returns control back to the BGP.

7 The BGP updates the schedule file again (marks the job as completed).

12 The BGP passes control back to the OS/400 work management that ends the job.

13 If the job in which the BGP and the AIP are running ends abnormally (control is not passed back to the BGP), OS/400 work management sends a job abend message to the BMP.

4 In such a case, the BMP marks the job as abended in the schedule file.

How the APD/400 Batch Scheduler Submits a Job

At the end of the scheduling process, the APD/400 batch scheduler forms a SBMJOB (submit job) command from the information stored in the task, the defined batch environment, and the APD/400 parameter definition. The following is a list of the SBMJOB command parameters with a description of how APD/400 uses the stored information to form the command:

Parameter	Description
CMD	Specified by APD/400; contains the CALL command to the BGP.
JOB	The task name of the batch task; retrieved from the task definition.
JOBD	If a batch environment has been specified for the batch task, APD/400 uses the job description specified in the batch environment, otherwise the values from the APD/400 parameters APD_MON_JOBD and APD_MON_JOBDLIB are used.
JOBQ	If a batch environment has been specified for the batch task, APD/400 uses the job queue specified in the batch environment, otherwise the values from the APD/400 parameters APD_MON_JOBQ and APD_MON_JOBQLIB are used.
OUTQ	If a batch environment has been specified for the batch task, APD/400 uses the output queue specified in the batch environment, otherwise the values from the APD/400 parameters APD_MON_OUTQ and APD_MON_OUTQLIB are used.
USER	If a batch environment has been specified for the batch task, APD/400 uses the user profile specified in the batch environment, otherwise APD/400 does not explicitly specify the parameter and the command default is used.
RQSDTA	The request data cannot be specified because it is mutually exclusive with the CMD parameter specified by APD/400.
HOLD	The job is set to HOLD (*YES) by APD/400; the job is released when it becomes eligible.
MSGQ	Specified by APD/400; contains the name of the APD/400 monitor message queue QSYS/QAFBCRMQ01.

For all other parameters, there is no explicit specification for APD/400. See *AS/400 Programming: Work Management Guide* for a description of how the SBMJOB command works.

Appendix B. Multilingual Support

This appendix contains a description of the multilingual support feature for APD/400. The terms National Language Support (NLS) and multilingual support are used in this appendix. An explanation of these terms is given here:

NLS An application is NLS enabled when it is structured so that versions of the application can easily be created in other languages.

All texts that are part of the user interface (displays, messages, documentation, and so on) must be translatable. However, this does not necessarily mean that the application can be installed in different languages on the same system. All releases of APD and APD/400 have been NLS enabled.

Multilingual Support
In addition to being NLS enabled, an application may also be enabled for multilingual support. Multilingual support is characterized by the following features:

- Different users may work with one application at the same time. The textual information that is part of that application can be presented to the users in different languages.

- A user may switch from one language to another at any time.

How APD/400 Implements Multilingual Support

APD/400 provides support for applications using message files. Functions provided by APD/400 for an application often appear to a user as functions of that application. For example, task texts defined in APD/400 for an application appear as selection texts in menus of that application. A user could easily assume that these texts were part of the application being used.

Applications running under APD previously may have been enabled for multilingual support, but when a user selected a language it had no effect on other applications or on the texts used for navigation in the menus displayed by APD. Therefore, selecting languages had no effect on the menu system of the application.

APD/400 now provides features that allow the APD/400 part of an application enabled for multilingual support to be multilingual support enabled. These features are:

Select Language Facility
An APD/400 task is provided that allows a user to specify preferred languages. Such a task can be activated by a user through a menu or expert code. It can also be activated by selecting a pull-down choice in an APD/400 menu bar.

Installation of Language Versions of an Application
A set of rules has been defined to assist in installing the textual data part of application objects of multilingual support enabled applications.

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Common Language Selection

The language that a user selects for an application (using the APD/400 language selection feature) is provided in the interface between APD/400 and an application. The application can make use of this selection; there is no need to program a "Select Language" function in each application.

Supported Languages

The IBM* language feature codes for primary languages (for example, 2929 for German) are used to identify language versions of textual data (see *AS/400 National Language Support Planning Guide* for a complete list of IBM language feature codes). APD/400 contains a table that lists all the feature codes and texts that specify the language for each feature code.

Therefore, the languages APD/400 supports are limited to those supported by OS/400. If a developer wants to install a language that has no IBM language feature code, the developer could "use" one of the IBM supplied language feature codes providing it does not cause conflicts. For example, consider a Spanish software developer creating a Catalan national language version of an application running under APD/400. No IBM language code for Catalan exists. The software developer could use language code 2986 (Korean DBCS) providing no customer has already installed a Korean DBCS version of another application.

An APD/400 user does not use these feature codes, but selects from a list of language descriptions. *IBM Application Program Driver/400 Version 3: User's Guide* describes how users specify a list of preferred languages and how they select languages for an application. Only a developer or an administrator works with language feature codes.

Developer's View

A developer makes an application multilingual support enabled by storing code and text information separately.

The developer does not need to provide a function to allow an end user to select a language. This function is provided by APD/400. However, the developer must use the language information provided by APD/400 in the application interface to display text in the user's selected language.

The developer must specify the language-dependent texts separately and put these texts into specific message files during the installation of the application. To do this, the developer can use the Post-Installation user exit, described in *IBM Application Program Driver/400 Version 3: Developer's Guide*. The developer must create a specific library if there are no texts in the specified language.

Refer to "Enabling Multilingual Support" on page 121 for more information.

Administrator's View

An application administrator can change or add texts to an application. To do this for an application not enabled for multilingual support, the administrator can change the texts directly in the administration function.

To change the text entries for an application enabled for multilingual support, the administrator must change the texts in the corresponding message file, which contains all application texts for one language. The corresponding message identification is stored in the text field of the object to be changed.

To add a new text to an application enabled for multilingual support, the administrator must create new messages containing the language-dependent text (one message for each language), and insert the message identification into the text field of the object for which a new text is needed.

Enabling Multilingual Support

For an application enabled for multilingual support, the textual data must be separated from the code and moved to other objects. Such objects contain only textual data for one language. The following objects are used in APD/400 to store textual data for applications:

- Libraries contain textual data objects (display files, panel groups, and message files).

- Folders contain Help documents.

- Documents contain online Help for APD/400 menus.

- Display files contain online Help for APD/400 menus.

- Panel groups contain online Help for APD/400 menus.

- Message files contain texts that replace APD/400 texts at program run time (for example, menu texts).

To avoid naming conflicts, the following rules must be followed:

- A library containing textual data must be named `QAPD1111`, where `1111` is replaced by the language feature code to which the textual data belongs (for example, `QAPD2929` for German).

- A folder containing online Help documents must be named `QAF1111`, where `1111` is replaced by the language feature code to which the textual data belongs (for example, `QAF2929` for German).

If such a library or folder does not exist at application installation time, it must be created by the application installation procedure (use the Post-Installation user exit when installing with the APD/400 `Install Applications` function). The application refers to the textual data library or folder (as specified in the Help library or folder information of the `Administer Applications (Developer)` function) using the special value `*MRI` instead of the real library or folder name:

- Textual data message files, panel groups, and display files must be named `iiiaaaaaaa`, where `iii` is replaced by the installation ID and `aaaaaaa` is replaced by the application ID of the application to be installed. If the installation ID or the application ID contains blanks (b = Hex 40), they must be replaced by dollar signs ($ = Hex 5B).

The application installation program must create the objects at installation time following the rules stated previously.

All Helps for tasks (normally specified on the Help fields of the `Administer Menus` function) must be contained in one panel group (which must contain all Help modules) or display file (which must contain all help records). The panel group or display file information is not used at program run time; it is resolved from the installation and application ID based on the rules described previously. Only the Help module or Help record information is used.

Note: Multilingual support enabled applications must not be installed into APD/400 installations with an installation ID that starts with a numeric character `0 .. 9`. This is because OS/400 does not allow object names to begin with these characters.

- Textual data documents must be named `aaaaaaa.iii`, where `iii` is replaced by the installation ID and `aaaaaaa` is replaced by the application ID of the application to be installed. If the installation ID or the application ID contains blanks (ƀ = Hex 40), they must be replaced by dollar signs ($ = Hex 5B).

The application installation program must create the document at installation time following the rules stated previously.

Examples

The following examples show how textual data objects are named:

1. An application with the internal application ID `9999AAA` is to be installed into the APD/400 installation with installation code `ƀƀƀ`. Two languages, 2924 (English) and 2931 (Spanish) are supported by application `9999AAA`. Application `9999AAA` uses panel groups for online Help. At installation time the Post-Installation user exit is used to create the following objects:

   a. APD/400 textual data libraries `QAPD2924` and `QAPD2931`, if they do not already exist.
   b. The textual data message file of the application must be copied into the corresponding textual data libraries. The new name of the message file must be `$$$9999AAA`.[1]
   c. The online Help panel groups of the application must be copied into the corresponding textual data libraries. The new name of the panel groups must be `$$$9999AAA`.[1]

2. An application with the internal application ID `7777ABƀ` is to be installed into the APD/400 installation with installation code `ABC`. Three languages, 2939 (German MNCS), 2940 (French MNCS), and 2942 (Italian MNCS) are supported by application `7777ABƀ`. Application `7777ABƀ` uses OfficeVision/400 documents for online Help. At installation time the Post-Installation user exit is used to create the following objects:

   a. APD/400 textual data libraries `QAPD2939`, `QAPD2940`, and `QAPD2942`, if they do not already exist.
   b. APD/400 textual data folders `QAF2939`, `QAF2940`, and `QAF2942`, if they do not already exist.

---

[1] The dollar sign is used to replace the blanks (including trailing blanks) from the installation ID.

c. The textual data message file of the application must be copied into the corresponding textual data libraries. The new name of the message file must be `ABC7777AB$`.[1]

d. The online Help documents of the application must be copied into the corresponding textual data folders. The new name of the documents must be `7777AB$.ABC`.[1]

Storing Textual Data in APD/400 Tables

As already stated, some parts of the application (for example, menus and authorizations) are stored in APD/400 tables. The following information stored in APD/400 is language-sensitive and is supported by the multilingual support feature:

Table 4. Texts Supported by the APD/400 Multilingual Support Feature

Description	Maintained Using	Length	Comment
Application description	Administer Applications Administer Applications (Developer)	40	
Authorization list description	Administer Authorization Lists	40	
Authorization level description	Administer Authorization Lists	40	
Menu option text	Administer Menus	46	
Menu option short text	Administer Menus	20	
Menu bar choice text	Administer Menus	11	The short form of the &msg symbol must be used.
Menu subheading	Administer Menus	46	
Menu heading format description	Administer Menu Headings	40	
Menu heading format string	Administer Menu Headings	238	It is likely that the menu heading format string contains a mixture of text (defined using the &msg symbol) and variables (defined using the &A, &B, and so on, symbols supported by Administer Menu Headings). Therefore, when defining a menu heading format string for a multilingual support enabled application, be sure to avoid overlaps of resolved symbols at program run time (use the short form of the &msg symbol).
Data set description	Administer Data Sets	40	
User group description	Administer User Groups	40	
Exclusion list description	Administer Exclusions	40	
Timetable description	Administer Timetables	40	
Batch environment description	Administer Batch Environments	40	

Information Not Multilingual Support Enabled

The following table lists the information used by APD/400 that is not multilingual support enabled.

Table 5. Texts Not Supported by the APD/400 Multilingual Support Feature

Description	Maintained Using	Length	Comment
Installation description	Cannot be maintained	40	There is no maintenance function for installations. Installation descriptions can be specified using only the function `Install Applications`.
Printer device description	OS/400 command `CHGOBJD OBJ(<name of the printer device>) OBJTYPE(*DEVD)`	40	OS/400 does not support multilingual support for object descriptions. Only one text is allowed for the same object.
User description	OS/400 command `CHGOBJD OBJ(<name of the user profile>) OBJTYPE(*USRPRF)`	40	OS/400 does not support multilingual support for object descriptions. Only one text is allowed for the same object.
Medium description	`Administer Tapes`	28	

Using the &msg Symbol to Specify Multilingual Support Texts

Texts for multilingual support enabled applications are separated from the control objects stored in the APD/400 database. These texts are stored in OS/400 message files. This is how OS/400 normally supports separation of control information and textual data. For example:

- MSGCON and MSGID keywords in DDS
- &MSG keyword in UIM
- Message ID instead of hardcoded texts in command sources.

Similarly, APD/400 supports the definition of a symbol that points to a message description stored in a message file as an alternative to hardcoded text. This symbol is resolved to the text stored in the message file whenever the text is retrieved and shown on an APD/400 display.

The symbol used is the &msg symbol (this symbol is also used in UIM for the same purpose). The syntax is:

```
Long form:  &msg(<message-id> [<length>])
            For example: &msg(MSG0001 20) or &msg(MSG001)
Short form: &msg<message-id>
            For example: &msgMSG0001
```

With the following parameters:

<message-id>   The message ID of the message description stored in the textual data message file.

Note: Uppercase characters must be used for the message ID. For example, ADF1000 is accepted, and adf1000 is not.

<length>   A number between 1 and 132. The total number of bytes that are inserted instead of the symbol. If the length is not specified, it defaults to the number of significant (not blank) bytes in the message description.

Note: The &msg symbol must be all lowercase (&msg) or all uppercase (&MSG), and must not be mixed case (for example, &Msg).

A message file containing the message ID must exist in one of the language libraries of the user's current list of preferred languages. The name of the library and the message file must follow the rules described in "Enabling Multilingual Support" on page 121.

If the symbol cannot be resolved, either because it is not syntactically correct, or if the library, the message file, or the message description cannot be found, the symbol remains unresolved and one of the following error messages is sent to the user:

MsgID   Message

ADF0353   `&msg symbol cannot be resolved.`

Sent if a syntax error is detected.

ADF0354   `Message &1/&2(&3) not found.`

Sent if either the message file library, the message file, or the message description cannot be found. Low-level system messages may be sent in addition to this message:

&1 = Message file library
&2 = Message file
&3 = Message ID.

Examples

The following examples show how mixed symbols and variables can be used in menu format headings. Assume that MSG0001 contains the string `Application:`

1. In this example, the short form is used and the length is 14 (implicitly determined from the length of the message string). The application abbreviation is `PAYROLL`.

```
&msgMSG0001      &AAAAAA
   is resolved to:
Application  :  PAYROLL
```

2. In this example, length is 5, so the message string is truncated at position 5.

```
&msg(MSG0001 5) &AAAAAA
   is resolved to:
Appli           PAYROLL
```

3. In this example, length is 20, so the message string overlays the application ID.

```
&msg(MSG0001 20)&AAAAAA
   is resolved to:
Application  :      OLL
```

Multilingual Support for Online Help

APD/400 supports four methods for displaying the Help information of an application: UIM panel groups, display files, OfficeVision/400 documents, and a user-exit program.

For multilingual support enabled applications, it must be possible to send Help in different languages. Therefore, the Help information must be stored in special libraries or folders, as specified in "Enabling Multilingual Support" on page 121.

The application refers to the textual data library or folder (as specified in the Help folder or library information of the `Administer Applications (Developer)` function) using the special value `*MRI` instead of the real library or folder name. The panel group or display file information is not used at program run time; it is resolved from the installation and application ID based on the rules previously described. Only the Help module or Help record information is used.

If an application is enabled for multilingual support and it uses the DSPHLP (Display Help) user exit to display Help information, the language feature code of the currently used language for the application is passed to the user exit program.

AIP

The language feature code is passed as a 4-byte character (*CHAR(4)) field to the AIP, which APD/400 uses to call application programs.

The language information can be passed to the AIP only if APD/400 has already resolved any textual data information for that application. This is done if either the application description or the description of the task to be processed has the &msg symbol. APD/400 must then resolve the symbol before task processing, and `Select Languages` is called to determine the preferred language for that user and application. If this is not the case, APD/400 may pass blanks instead of a language feature code to the AIP.

Appendix C. IBM Supplied Objects

This appendix lists the objects supplied by IBM with APD/400, and describes values used in migration between different releases of APD.

Tasks and Menus

The following types of tasks and menus are delivered with APD/400:

- APD/400
- OfficeVision/400
- Operational Assistant.

Authorization Lists

The following authorization lists are supplied with APD/400. The functions for which each list has authorization are also given.

Table 6. APD/400 Authorization Lists

Authorization List	Function
APD_ADMIN (APD/400 administrator)	INSSTDPNL INSSMPPNL ADMAPP ADMAPDPRM
APL_ADMIN (Application administrator)	ADMxxx INSAPL DLTAPL LODRUN
QSYSOPR (System operator)	SAVRST CMD WRKSPLF WRKSBMJOB WRKUSRJOB
QSECOFR (Security officer)	INSBMP CHGUSRPRF ADMUSR
OFCUSR (OfficeVision/400 users)	
Note: If you do not use OfficeVision/400 on your system, set the authorization in OFCUSR to (*ALL 0).	
INST_	Used to secure the default installation.

IBM Supplied Definitions

All APD/400, OfficeVision/400, and Operational Assistant* tasks belong to APD/400, and should not be changed.

Modification of Supplied Definitions

For each update of APD/400, all definitions are redistributed, with the exception of authorization lists and user groups.

The APD/400 database is shipped with initial settings. During migration, it may be that there are records that have been changed in the old release and are different to those supplied with the new release. The following list shows for which files the old values are migrated, and for which files the new definitions are applied. A value of O indicates that if two values with the same key exist for the file, the value from the old release is used. A value of N indicates that the definition shipped with the new release of APD/400 is used when there are two values for the same key. For the files QAAFANWG0 and QAAFBRTX0, the differentiation is made on a field level. All fields are listed for these files for which the old value is used.

Table 7 (Page 1 of 2). Migration Values

File (Name)	O/N	Field (Name)	O/N
Application data (QAAFANWG0)		Application administrator (ANADM)	O
		Audit flag (AUDTF)	O
		Menu column format (MNUFT)	O
		Menu heading name (MHFID)	O
		Blank line for missing option (MNUBL)	O
		Menu bar (ACTBR)	O
		Window border character (BRCHR)	O
		Window border color (BRCLR)	O
		Menu bar color (ABCLR)	O
		Expert code color (FPCLR)	O
		Title color (TTCLR)	O
		Installation/data set (IDCLR)	O
		Top instruction (TICLR)	O
		Option area (OACLR)	O
		More/Bottom (MBCLR)	O
		Command line (CLCLR)	O
		Function keys (FKCLR)	O
		Menus and windows (MNUWD)	O
Task data (QAAFTASK0)	N		
Exclusion data (QAAFPGTX0)	N		
Exclusion data (QAAFPRGR0)	N		
Menu data (QAAFMENU0)	N		
Installation data (QAAFINST0)	N		
Authorization list data (QAAFBRTX)		User-exit authority (UXAUT)	O
		Level 0 text (LTXT0)	O
		Level 1 text (LTXT1)	O
		Level 2 text (LTXT2)	O
		Level 3 text (LTXT3)	O
		Level 4 text (LTXT4)	O
		Level 5 text (LTXT5)	O
		Level 6 text (LTXT6)	O
		Level 7 text (LTXT7)	O
		Level 8 text (LTXT8)	O
		Level 9 text (LTXT9)	O

Table 7 (Page 2 of 2). Migration Values

File (Name)	O/N	Field (Name)	O/N
Authorization list entry data (QAAFBRCH0)	O		
APD/400 parameter data (QAAFPARM0)	O		
Save/Restore data (QAAFSRA10)	O		
Save/Restore data (QAAFSRA20)	O		
Save/Restore data (QAAFSRA30)	O		
Menu heading data (QAAFMHFS0)	O		

User-Created Objects

Because APD/400 data definitions will change in future releases, do not use the application APD for user-defined objects. APD/400 automatically creates an application called APD+ in every installation. Store any user-defined objects in the application APD+.

Appendix D. APD/400 Installation Messages

This appendix lists the APD/400 installation messages.

Message parameters (for example, &1) are replaced by variables. The meaning of the variables can be extracted from the context in which they are used.

Messages **ADF5515** through **ADF5527** are status messages.

ADF5500   INSTALLATION ROUTINE IS CURRENTLY LOCKED.

Explanation: YOU CANNOT INSTALL APD/400 &1 BECAUSE THE INSTALLATION CONFLICTS WITH ANOTHER JOB. THE INSTALLATION ROUTINE TRIED TO LOCK DATA AREA &2/&3 EXCLUSIVELY, BUT THIS WAS NOT POSSIBLE.

Operator Response: USE COMMAND WRKOBJLCK &2/&3 *DTAARA TO FIND OUT WHICH JOB IS LOCKING THIS OBJECT. WAIT UNTIL THAT JOB HAS ENDED BEFORE YOU START TO INSTALL APD/400 &1 AGAIN. IF NO JOB IS USING DATA AREA &2/&3, DELETE THIS OBJECT WITH THE DLTDTAARA COMMAND BECAUSE IT MUST NOT EXIST WHEN THE INSTALLATION OF APD/400 BEGINS.

ADF5501   APD/400 &1 WILL BE REINSTALLED ON YOUR SYSTEM.

Explanation: APD/400 &1 WILL BE INSTALLED AGAIN. YOUR APD/400 DATA WILL NOT BE LOST, BECAUSE ONLY OBJECTS THAT DO NOT CONTAIN USER DATA WILL BE REPLACED.

ADF5502   APD &1 FOUND ON SYSTEM.

Explanation: APD &1 HAS BEEN FOUND ON YOUR SYSTEM. MIGRATION TO APD/400 &2 OCCURS AUTOMATICALLY AFTER APD/400 &2 IS INSTALLED.

ADF5503   APD (577-DBT) FOUND ON SYSTEM. MIGRATION TO APD/400 &1 IS NOT SUPPORTED.

Explanation: APD (577-DBT) IS INSTALLED ON YOUR SYSTEM. THE INSTALLATION OF APD/400 &1 WAS CANCELED BECAUSE MIGRATION FROM APD (577-DBT) TO APD/400 &1 IS NOT SUPPORTED.

Operator Response: DO ONE OF THE FOLLOWING:
- IF YOU WANT TO MIGRATE YOUR DATA FROM APD (577-DBT), YOU MUST FIRST MIGRATE TO APD V1R1. REFER TO THE APD ADMINISTRATOR'S GUIDE RELEASE 1.0 FOR INFORMATION ON HOW TO INSTALL APD V1R1.
- IF YOU DO NOT WANT TO MIGRATE YOUR DATA, DELETE APD (577-DBT) FROM YOUR SYSTEM. REFER TO THE APD (577-DBT) ADMINISTRATOR'S GUIDE FOR MORE INFORMATION ON HOW TO DELETE APD (577-DBT).

WHEN YOU HAVE COMPLETED ONE OF THE PREVIOUS STEPS, START THE INSTALLATION OF APD/400 &1 AGAIN.

ADF5504   CANNOT MIGRATE TO APD/400 &2 BECAUSE SOMEONE IS USING APD &1.

Explanation: TO MIGRATE FROM APD &1 TO APD/400 &2, NO ONE CAN USE APD &1 AND NO JOB CAN LOCK APD &1.

Operator Response: USE THE WRKOBJLCK OBJ(&3/&4) OBJTYPE(*DTAARA) COMMAND TO FIND OUT WHICH JOBS ARE USING APD &1. DO NOT ATTEMPT TO INSTALL APD/400 &2 AGAIN UNTIL THESE JOBS HAVE ENDED.

IF THE APD BATCH MONITOR PROGRAM IS ACTIVE (JOB QAFBCRMON LOCKS DATA AREA &4), USE THE APD FUNCTION "WORK WITH APD/400 BATCH SYSTEM" (WRKMONSTS) TO END THE BATCH MONITOR PROGRAM. SPECIFY 90=DOWN AS THE REQUESTED STATE OF THE APD/400 BATCH SYSTEM.

ADF5505   SPECIAL AUTHORITY &1 REQUIRED TO INSTALL APD/400 &2.

Explanation: USER PROFILE &3 DOES NOT HAVE SPECIAL AUTHORITY &1, WHICH IS REQUIRED TO INSTALL APD/400 &2.

Operator Response: ASK THE SECURITY OFFICER TO CHANGE THE USER PROFILE, OR USE ANOTHER USER PROFILE WITH THE AUTHORIZATION REQUIRED TO INSTALL APD/400 &2.

ADF5506   USER PROFILE &1 IS NOT ENROLLED IN THE SYSTEM DISTRIBUTION DIRECTORY.

Explanation: USER PROFILE &1 MUST BE ENROLLED IN THE SYSTEM DISTRIBUTION DIRECTORY IN ORDER TO INSTALL APD/400 &2.

Operator Response: USE "WORK WITH DIRECTORY COMMAND" (WRKDIR) TO ENROLL THE USER IN THE SYSTEM DISTRIBUTION DIRECTORY.

ADF5507   APD &1 OBJECTS IN LIBRARY &3 ARE SAVED IN SAVE FILE.

Explanation: FOR MIGRATION AND RECOVERY PURPOSES, ALL OBJECTS OF APD &1 IN LIBRARY &3 HAVE BEEN SAVED IN SAVE FILE &4/&5.

IF THE INSTALLATION OF APD/400 &2 FAILS, YOU MAY BE REQUIRED TO RESTORE THE OBJECTS FROM THE SAVE FILE.

AFTER SUCCESSFUL INSTALLATION OF APD/400 &2, THIS SAVE FILE IS DELETED.

ADF5508   OLD APD &1 IS SUCCESSFULLY DELETED.

Explanation: OLD APD &1 HAS BEEN DELETED SUCCESSFULLY. THIS STEP IS REQUIRED TO FACILITATE THE INSTALLATION OF APD/400 &2.

ADF5509   CANNOT INSTALL APD/400 &2 BECAUSE APD &1 USES THE SIMPLIFIED SIGN-ON PANEL.

Explanation: THE APD &1 INSTALLED ON YOUR SYSTEM USES THE SIMPLIFIED SIGN-ON PANEL. IN ORDER TO INSTALL APD/400 &2, APD &1 MUST USE THE STANDARD SIGN-ON PANEL.

Operator Response: THE APD ADMINISTRATOR MUST INSTALL THE STANDARD SIGN-ON PANEL USING EXPERT CODE INSSTDPNL. THEN THE SYSTEM MUST BE POWERED DOWN (IPL) FOR THE CHANGE TO TAKE EFFECT.

ADF5514   CANNOT REINSTALL APD/400 &1 BECAUSE SOMEONE IS USING IT.

Explanation: TO REINSTALL APD/400 &1, NO ONE CAN USE APD/400 &1 AND NO JOB CAN LOCK APD/400 &1..

Operator Response: USE THE WRKOBJLCK OBJ(&2/&3) OBJTYPE(*DTAARA) COMMAND TO FIND OUT WHICH JOBS ARE USING APD/400 &1. DO NOT ATTEMPT TO INSTALL APD/400 &2 AGAIN UNTIL THESE JOBS HAVE ENDED.
IF THE APD/400 BATCH MONITOR PROGRAM IS ACTIVE (JOB QAFBCRMON LOCKS DATA AREA &3), USE THE APD/400 FUNCTION "WORK WITH APD/400 BATCH SYSTEM" (WRKMONSTS) TO END THE BATCH MONITOR PROGRAM. SPECIFY 90=DOWN AS THE REQUESTED STATE OF THE APD/400 BATCH SYSTEM.

ADF5515 ADF5515 INSTALLING APD/400 &1: CHECKING PREREQUISITES...
ADF5516 ADF5516 INSTALLING APD/400 &1: SAVING OLD APD &2...
ADF5517 ADF5517 INSTALLING APD/400 &1: DELETING OLD APD &2...
ADF5518 ADF5518 INSTALLING APD/400 &1: RESTORING OBJECTS...
ADF5525 ADF5525 INSTALLING APD/400 &1: COPYING OBJECTS TO LIBRARY &2...
ADF5526 ADF5526 INSTALLING APD/400 &1: MIGRATION FROM APD &2...
ADF5527 ADF5527 INSTALLING APD/400 &1: STARTING JOURNALING OF APD/400
         DATABASE...
ADF5530 ERROR OCCURRED IN POSTOPERATION PROGRAM IN STEP &1.

Explanation: AN ERROR OCCURRED DURING THE POSTOPERATION PROGRAM
THAT WAS RUN AFTER THE RESTORE OPERATION. THE ERROR OCCURRED IN
STEP &1.

Operator Response: SEE THE JOB LOG FOR DETAILED INFORMATION ABOUT THIS
ERROR. CORRECT THE ERROR, AND START THE INSTALLATION AGAIN.

ADF5531 COULD NOT DELETE OBJECT &1 TYPE &2.

Explanation: OBJECT &1 TYPE &2 COULD NOT BE DELETED. IT IS PART OF APD
RELEASE 1 AND NO LONGER NEEDED.

Operator Response: TRY TO DELETE THIS OBJECT LATER.

ADF5532 A SEVERE ERROR OCCURRED WHILE PROCESSING PROGRAM &1.

Explanation: THE INSTALLATION ROUTINE TRIED TO CALL PROGRAM &1, BUT
FAILED.

Operator Response: PRESS F10 ON THIS DISPLAY TO SEE A LIST OF ALL
MESSAGES SENT BY THE INSTALLATION ROUTINE. ANALYZE THE MESSAGES TO
FIND THE PROBLEM (YOU CAN ASK THE SYSTEM ADMINISTRATOR FOR
ASSISTANCE), CORRECT THE ERROR, AND TRY TO INSTALL APD/400 AGAIN.

ADF5533 POSTOPERATION PROGRAM &1 CANNOT BE PERFORMED.

Explanation: POSTOPERATION PROGRAM &1 WAS NOT ABLE TO IDENTIFY THE
KIND OF OBJECT TO BE HANDLED WITHIN THE PROGRAM (CODE OR LANGUAGE).
INSTALLATION OF APD/400 &2 COULD NOT BE COMPLETED.

Operator Response: TRY TO INSTALL APD/400 &2 AGAIN. IF THE INSTALLATION
FAILS, ASK YOUR SYSTEM ADMINISTRATOR FOR ASSISTANCE.

Glossary of Terms and Abbreviations

This glossary defines terms used in the APD/400 library.

A

AIP.   Application interface program.

API.   Application program interface.

application.   A program used to perform a particular data processing task, such as inventory control or payroll.

application interface program (AIP).   A functional interface used by APD/400 to invoke the corresponding application.

application program interface (API).   A functional interface that allows an application program written in a high- or low-level language to use specific data or functions of APD/400.

authorization.   The process of giving a user either complete or restricted access to an object, resource, or function.

authorization list.   Authorization lists are used to protect menus, menu options, installations, and data sets from unauthorized access. An authorization list consists of a 10-digit authorization list name and a list of authorization list entries, each of which is comprised of a user name and an authority level.

B

back up.   To save some or all of the objects on a system to tape or diskette, for safe keeping.

backup.   (1) Pertaining to an alternative copy used as a substitute if the original is lost or destroyed, such as a backup log. (2) The act of saving some or all of the objects on a system to a tape, diskette, or save file. (3) The tapes, diskettes, or save files with the saved objects.

Batch Monitor Program (BMP).   The program used by APD/400 to control batch jobs.

batch processing.   A method of running a program or a series of programs in which one or more records (a batch) are processed with little or no action from the user or operator. Contrast with *interactive processing*.

BMP.   Batch Monitor Program.

C

CL.   Control language.

command.   A statement used to request a function of the system. A command consists of the command name abbreviation, which identifies the requested function, and its parameters.

Common User Access (CUA).   Pertaining to a Systems Application Architecture (SAA) specification that gives a series of guidelines describing the way information should be displayed on a screen, and the interaction techniques between users and computers.

control language.   The set of all commands with which a user requests system functions.

control record.   The description of a save operation for libraries and folders. Record details include the save cycle, the number of generations to be stored, the medium, and the starting date.

CUA.   Common User Access.

D

data description specifications (DDS).   A description of the user's database or device files that is entered into the system in a fixed form. The description is then used to create files.

data set.   A data environment contained within an application. For applications that are multi-data set enabled, data sets could be used for different departments or clients.

DBCS.   Double-byte character set.

DDS.   Data description specifications.

default.   A value that is automatically supplied or assumed by the system or program when no value is specified by the user.

DLO.   Document library object.

document library object (DLO).   Any system object that resides in the document library, such as RFT and FFT documents, folders, and PC files.

double-byte character set (DBCS).   A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte

character sets. Because each character requires 2 bytes, the typing, displaying, and printing of DBCS characters requires hardware and programs that support DBCS.

E

exclusion. An exclusion defines which programs cannot be active simultaneously in an application.

exclusion list. An exclusion list combines tasks into groups. Defining exclusion lists saves the work of specifying each program for exclusions. Programs with identical exclusion characteristics can be combined in exclusion lists. An exclusion list can be either a function list or an object list.

expert code. A command or abbreviation used to invoke a menu or program. Entering an expert code allows the user to directly access a menu, task, or program (without calling intermediate menus), as well as to switch between applications without signing off and on. Pressing F4 on a menu screen displays a list of all expert codes for which the user is authorized.

F

folder. A directory for documents. A folder is used to group related documents and to find documents by name. The system-recognized identifier for the object type is *FLR. Compare with *library*.

function key. A keyboard key that allows the user to select keyboard functions or programmer functions. The keys available are displayed on line 23 of the screen display.

H

help function. Pressing either the Help key or F1 on a display provides information on a specific part of that display or the whole display, depending on the position of the cursor. If the cursor is located on a message, second-level text for that message is displayed.

high-level language (HLL). A programming language, such as RPG, BASIC, PL/1, Pascal, COBOL, and C used to write computer programs.

HLL. High-level language.

I

IBM SAA OfficeVision/400 Version 3. The IBM licensed program that allows users to prepare, send, and receive mail; schedule items on calendars; maintain directories of names and addresses; file and retrieve documents; and create and maintain distribution lists. SAA OfficeVision/400 also provides word processing functions and the capability to work on behalf of other users.

initial menu. The first menu displayed after sign-on. Each user can set a personal initial menu. Pressing F23 on a menu labels it as the initial menu for the user.

installation. A specific processing environment containing applications and data sets. For example, different installations could be used for test and production environments.

interactive processing. A processing method in which each operator action causes a response from the program or the system. Contrast with *batch processing*.

J

job. (1) A unit of work to be done by a computer. (2) In the SAA OfficeVision/400 calendar function, an item that schedules a control language (CL) command to run at any date or time.

journal. A system object that identifies the objects being journaled, the current journal receiver, and all the journal receivers on the system for the journal. The system-recognized identifier for the object is *JRN.

journal receiver. A system object that contains journal entries added when changes are made to an object, for example, when an update is made to a file being journaled. The object type is *JRNRCV.

journaling. The process of recording, in a journal, the changes made to a physical file member.

L

language priority list. In APD/400, a list of available languages ranked in order of a user's preference, to enable the use of an application in one of the preferred languages. Number 1 on the priority list is the user's most preferred language.

library. A system object that serves as a directory to other objects. A library groups related objects, and allows the user to find objects by name. The system-recognized identifier for the object type is *LIB. Compare with *folder*.

library list.   A list that indicates which libraries are to be searched and the order in which they are to be searched.   The system-recognized identifier is *LIBL.

library name template.   Naming conventions used in combination with the installation and data set IDs to resolve a library name during installation of an application that supports multiple installations or multiple data sets.

local data area.   A 1024-byte data area that can be used to pass information between programs in a job.   A separate local data area is automatically created for each job.

M

menu.   A displayed list of items from which a user can make a selection.   The system-recognized identifier for the object type is *MENU.

menu bar.   The area containing keywords at the top of a display that gives a user access to actions available for that display.   After a user requests a choice in the menu bar, a pull-down menu is shown below the menu bar.

message.   A communication sent by the AS/400 system or APD/400, and displayed either on line 24 of the screen or in window format.

MNCS.   Multinational character set.

More.   When displays and menus comprise several pages, More... is displayed at the bottom of all screens except the last one.

Position your cursor on the display, or message line, and press F8.   You can continue to do this until the word Bottom is displayed.

multilingual support.   Support that includes more than one national language on a system.   See also *National Language Support*.

multinational character set (MNCS).   A set of graphic characters that support the languages within a specific language group.

N

National Language Support (NLS).   The ability for a user to communicate with hardware and software products in a language of choice to obtain results that are culturally acceptable.   See also *multilingual support*.

NLS.   National Language Support.

O

object.   A named storage space that consists of a set of characteristics that describe itself and, in some cases, data.   An object is anything that exists in and occupies space in storage and on which operations can be performed.   Some examples of objects are programs, files, libraries, and folders.

OfficeVision.   See *IBM SAA OfficeVision/400 Version 3.*

Operational Assistant.   Pertaining to a part of the operating system that provides a set of menus and displays for end users to do commonly performed tasks, such as working with printer output, messages, and batch jobs.

output queue.   An object that contains a list of spooled files to be written to an output device, such as a printer or a diskette.   The system-recognized identifier for the object type is *OUTQ.

P

parameter.   A value supplied to a command or program that is used either as input or to control the actions of the command or program.

process list.   A list of program or command tasks that are automatically processed in sequence.   The last entry can be a menu.   A process list is a special type of menu in which all tasks are called.   Only when the last task has been processed is control returned to the previous menu or the menu at the end of the process list.

program.   A sequence of instructions that a computer can interpret and run.

pull-down menu.   An extension of the menu bar that displays a list of available choices for a choice selected by a user in the menu bar.   After a user selects a choice in the menu bar, the pull-down menu is shown.

Q

queue.   A list of messages, jobs, files, or requests waiting to be read.

R

restart.   The action necessary when a batch job has failed to run as scheduled.

restore.   To copy data from tape, diskette, or a save file to auxiliary storage.   Contrast with *save.*

S

SAA. Systems Application Architecture.

save. To copy specific objects, libraries, or data by transferring them from main storage or auxiliary storage to a media such as tape, diskette, or a save file. Contrast with *restore*.

scheduled job. A batch job that becomes eligible to run at a specified date and time.

scroll. To move a display image vertically or horizontally to view data that cannot be seen within the boundaries of the displayed screen.

SEU. Source entry utility.

source entry utility (SEU). A function of the AS/400 Application Development Tools licensed program that is used to create and change source members.

spooled file. A file that holds output data waiting to be processed, such as information waiting to be printed.

start program. A program defined by a user to run at sign-on time.

symbolic library name. A name given to represent a library in an application that supports multiple installations or multiple data sets. A symbolic library name is used in conjunction with a library name template.

Systems Application Architecture (SAA). Pertaining to an architecture defining a set of rules for designing a common user interface, programming interface, application programs, and communications support for strategic operating systems such as the OS/2, OS/400, VM/370, and MVS/370 operating systems.

T

tape cartridge. A case containing a reel of magnetic tape that can be put into a tape unit without stringing the tape between reels.

tape drive. A device used to move the tape and read and write information on magnetic tapes.

task. A basic unit of work to be defined. In APD/400 there are six task types:

- Command
- Menu
- Menu bar
- Process list
- Program

- Pull-down.

textual data. The collective term for menus, displays, lists, prompts, options, online Help information, and messages.

timetable. A schedule showing a planned order or sequence, used in APD/400 to determine when to run a recurring batch job.

toggle. Pertaining to a switching device, such as a toggle key on a keyboard that allows a user to switch between two types of operations. For example, in APD/400 you can press F11 to display expert codes, and press the key again to return to the original screen display.

U

UIM. User Interface Manager.

user exit. A program routine given control by APD/400 to enhance services provided by APD/400 functions.

user identification (user ID). The name used to associate the user profile with a user when the user signs on the system.

User Interface Manager (UIM). A function of the operating system that provides a consistent user interface by providing comprehensive support for defining and running panels (displays), dialogs, and online Help information.

user password. A unique string of characters that a system user enters to identify that user to the system, if the system resources are secured.

user profile. An object with a unique name that contains the user's password, the list of special authorities assigned to the user, and the objects the user owns. The system-recognized identifier for the object type is *USRPRF.

V

value. Data (numbers or character strings) entered in an entry field, and data supplied in parameters of CL commands.

W

window. A part of the display screen with visible boundaries in which information is displayed. For example, in APD/400 when F17 (Position to) is pressed (where applicable), the `Position the List` window is displayed over the current display.

Bibliography

This bibliography lists related APD/400 publications and other documentation that provides general information.

IBM Application Program Driver/400 Version 3 publications

- *Developer's Guide*, SH12-6404-00
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- *User's Guide*, SH12-6402-01.

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Administrator's Guide
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